

# BOX IT OR BAG IT MATHEMATICS



Published by The Math Learning Center



Kindergarten  
Teachers Resource Guide

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**BOX IT  
OR  
BAG IT  
MATHEMATICS**

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## **Box It or Bag It Mathematics, Teachers Resource Guide—Kindergarten**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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## **Dedication**

With continuing thanks to the children from whom we learn, we dedicate this book to hard working teachers everywhere.



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# SCOPE & SEQUENCE— Kindergarten

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## Seasonal Mathematics

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Children will have opportunities each month to experience:

- Sorting
- Patterning
- Graphing
- Estimating
- Counting
- Measuring
- Story Problems
- Geometry/Spatial Problem Solving

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## Organizing Information

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### **Sorting**

- Sorting by two or more attributes (color, size, function, material, texture, quantity and many other properties)

### **Graphing**

- 2 and 3 column real graphs
- 2 and 3 column picture graphs

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## The Calendar

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- Counting by ones, fives, and tens
- Number patterns
- Names of days and months
- Time and duration
- Weather observations
- Graphing
- Daily schedule
- Children's growth and change



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# Concept Instruction

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## Pattern

Children will have many opportunities to:

- Copy and extend such patterns as ABAB, AABAAB, ABBABB, ABCABC.
- Sort and then pattern objects by color, size, shape, type, texture and many other attributes.
- Create their own patterns.
- Pattern objects by position and quantity.

## Numerals 0–10

Children will have many opportunities to:

- Count by 1's to 100.
- Demonstrate one-to-one correspondence to 20.
- Recognize and write numerals 0–9.
- Order numbers in sequence 1–10.
- Develop a sense of quality or relative amount 0–5.
- Act out and tell story problems that involve counting, adding, and subtracting.

## Shapes

Children will have many opportunities to:

- Construct and identify 2-dimensional shapes (squares, triangles, rectangles, circles, ovals, diamonds, trapezoids, hexagons).
- Construct and identify 3-dimensional shapes (cubes, rectangular solids, prisms, cylinders, cones).

## Introduction to Measuring

Children will have many opportunities to:

- Compare length, width, quantity, capacity, and duration.

## Money

Children will have many opportunities to:

- Recognize and name coins—pennies, nickels, dimes, and quarters.
- Develop knowledge of coin worth—pennies, nickels, dimes, and quarters.
- Count sums of money to 31¢.
- Use money for practical purposes.
- Read prices and calculate how to pay for items.



## **Foreword**

It is incredibly challenging to provide a developmentally appropriate and joyful learning environment for young children. Too often teachers find themselves assigned to kindergarten rooms which contain some blocks, a playhouse and a few workbooks. We believe a good learning environment involves much more.

Dedicated teachers quickly realize five-year-olds need hundreds of mathematical experiences: music, storytelling, drama, geometry, patterning, sorting and graphing, estimating and comparing. They want children to work together making responsible choices as they grow in mathematics.

If you are one of these hard-working teachers searching for language-enriched mathematical resources, this book is for you.



# INTRODUCTION

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## What is Box It or Bag It Mathematics?

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Box It or Bag It Mathematics is a set of resources for kindergarten, first grade and second grade teachers who want to develop a rich, activity-centered mathematics program. Box It or Bag It Mathematics consists of:

- **Two Teachers Resource Guides** (one for kindergarten and one for first and second grades). The guides contain monthly Seasonal Math units plus teacher-directed lessons for major mathematical concepts. A packet of blackline masters accompanies each Resource Guide.
- **Practice and Enrichment Boxes.** Nine packets of blacklines, cardstock items (in some cases) and

instructions to create and use Independent Practice Time activities for the following topics:

Shapes (K)  
Reading, Writing and Understanding  
Numerals 0-10 (K)  
Pattern (K-2)  
Introduction to Measuring (K)  
Understanding Measuring (1-2)  
Money (K-2)  
Arithmetic (1-2)  
Place Value Counting (1-2)  
Place Value Addition and Subtraction (2)

---

## What is the Philosophy of Box It or Bag It Mathematics?

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Young children learn best when they are actively involved in hands-on experiences with a variety of materials.

Understanding takes lots of time. Children need multiple opportunities and experiences in a wide variety of contexts to construct knowledge. Not all children are expected to notice the same things or come to the same levels of understanding. Individual differences are respected and celebrated.

Language is a tool for learning and thinking. Children who can tell, draw, or act out story problems

to illustrate an operation or explain to others how they solved a problem are closer to understanding a concept than children who labor alone silently over worksheets as the daily routine.

Mathematics is more than arithmetic. In fact, with the advent of computers (which can perform billions of computations in one second), geometry, patterning, sorting, graphing, estimating, measuring and problem solving might be considered the basic skills.

Mathematics is synonymous with problem solving if we take every opportunity to ask rather than tell, guide rather than direct.

Mathematics should be exciting to students and to teachers. It is most likely to be when it is rich, var-

ied and relevant. As we conduct activities in our classrooms, we need to be aware of what we're teaching and why; there are no math programs except those teachers develop and modify each year to meet the needs of the children sitting in front of them.

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## How is Box It or Bag It Organized?

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Box It or Bag It Mathematics offers four major strategies to provide rich and varied opportunities for learning:

Seasonal Mathematics (Teachers Resource Guide)

The Calendar (Teachers Resource Guide)

Concept Instruction (Teachers Resource Guide)

Independent Practice Time (Practice and Enrichment Boxes)

*Invitations to Problem Solving with Story Boxes, Kindergarten* and *Posing and Solving Problems with Story Boxes, 1st and 2nd Grade* are excellent supplements to Box It or Bag It Mathematics offering an extensive child-centered approach to problem solving.

### SEASONAL MATHEMATICS

Seasonal Mathematics activities provide exposure to key math concepts every month, all year long. Units such as Teddy Bear Math, Exploring Changes, Fall Potpourri, and Boats, Bath Toys and Water present math concepts in relation to real world problems:

*Each of us brought a teddy bear to school today. How many are brown? Which is biggest? Which is heaviest? Are there more brown bears or more white bears?*

These questions and others create a need to further investigate mathematical concepts:

*Teacher has a sealed box and we have to figure out what's inside. She'll only answer "yes" or "no" to our questions.*

Seasonal Mathematics activities provide challenges and problem-solving opportunities:

*Wow! It's a bag of conversation hearts. I wonder if there are enough for all of us to have one—or maybe more. Do you think there are more pinks or more purples? How much did they cost?*

Seasonal Mathematics activities offer review of key math concepts. Kindergartners experience sorting, graphing, patterning, counting, geometry, measuring, estimating and story problems every month. First and second graders utilize sorting, patterning, graphing, measuring, working with money, geometry, story problems and place value monthly. Children's excitement grows as they gain skills to ask and answer questions.

### THE CALENDAR

The Calendar activities provide daily introduction and reinforcement of concepts. Through daily calendar routines, students develop the concepts of place value, estimation, patterning, time, addition and subtraction, and money.

### CONCEPT INSTRUCTION

While Seasonal Mathematics activities create ongoing need for, purpose and excitement about mathematics, concept instruction provides direct whole group teaching strategies. Patterning, shapes, numerals 0-10, addition and subtraction, measuring, money, place value counting and place value addition and subtraction of two and three digit numbers are taught through carefully designed lessons featuring teacher-guided use of manipulatives.

### INDEPENDENT PRACTICE TIME

Practice and Enrichment Boxes offer multiple opportunities for small group, partner, and individual practice and enrichment. It is at this level that children begin making previously taught concepts their own. Children learn to make choices, to help one another grow and together ponder puzzles and problems that arise as activities are explored.

# How do I use Box It or Bag It Mathematics With My Children?

Chart A

	Monday	Tuesday	Wednesday	Thursday	Friday
20 minutes K 30 minutes 1-2	Concept Instruction	Concept Instruction	Seasonal Math	Seasonal Math	Concept Instruction
20 minutes K 30 minutes 1-2	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Seasonal Math	Practice and Enrichment Boxes

Chart B

September	October	November	December	
Seasonal Mathematics units (Box It or Bag It Teachers Resource Guide, Chapters 1-9)				
Concept Instruction: Pattern	Concept Instruction: Beginning Arithmetic	(Box It or Bag It Teachers Resource Guide, Chapters 12-17)		
Discovery Materials	Pattern Boxes	Arithmetic Boxes (Facts to 10)	Practice and Enrichment Boxes	

In our own classrooms, we use Seasonal Mathematics, Concept Instruction and Practice and Enrichment Boxes simultaneously. Because our math instruction includes science, art, reading, writing and language, we allow at least one hour per day for first and second grade math and at least forty minutes per day for kindergartners. A week of math instruction might look like chart A above.

Seasonal mathematics provides on-going exposure and review of important concepts and we do a unit at our grade level each month, spreading the activities out over three or four weeks.

Concept Instruction is the way we provide a direct introduction to each major concept as the year

moves along. We like to plan two or more weeks of instruction on a given topic as we begin to phase in the new Practice and Enrichment Boxes. Once children are ready to practice and extend a particular concept, they might spend three to seven additional weeks working in the corresponding boxes. Teachers who use drill and practice sheets or workbook pages may wish to occasionally sprinkle this work throughout those weeks or to save appropriate pages until most children seem to have solid understandings of a given concept.

Our sequence of instruction is similar to most in that we provide direct instruction, practice and evaluation; it's just that we spread all the components out over longer periods of time. The sequence

may take weeks or even months rather than days. If we teach the concept of patterning to our first graders in September, they will practice it using the Pattern Boxes in October and once the Boxes are going smoothly, we'll begin teaching beginning addition and subtraction during our group instruction time. See chart B above.

For a detailed look at how these three instructional strategies fit together at each grade level, please see Planning, Part Five.

## **"EASING IN"**

The preparation and rethinking needed to utilize all these resources is considerable. If you choose to begin this process slowly, here are some suggestions to help you "ease in" while expanding the mathematics you already teach.

### **1. Do the Seasonal Math units for your grade level.**

They're easy, fun and don't require an enormous amount of preparation. They allow you to broaden your math instruction beyond arithmetic, to include sorting, graphing, measuring, patterning, geometry, money and story problems in a painless but fairly systematic way. Spread the activities for each unit over a month, doing two or three a week; designate one day a week for them, or squeeze them all into one week. There's plenty of room to be flexible.

### **2. Try the Calendar.**

Read Part Three. Select and make items you would like to add to your current calendar or make all the components appropriate to your grade level. You

will find that you can teach and reinforce an amazing number of math skills every day through calendar lessons.

### **3. Try some of the Concept Instruction lessons outlined in this guide.**

Choose a concept or two you'd like to expand. Kindergarten teachers might choose Pattern or Shapes. First grade teachers might choose Arithmetic (addition and subtraction), and second grade teachers Place Value Counting. Read through the Concept Instruction chapter on the topic(s) you've selected and do some or all of the lessons before you ask children to do practice pages addressing those skills. (Try to rethink your instruction a little so that instead of teaching a lesson and following it with a two-page assignment each day, you concentrate your direct instruction into a longer period, maybe two or three weeks and then use selected pages as follow-up.)

### **4. Make some of the Practice and Enrichment Boxes for Independent Practice Time.**

Decide on the concepts for which you'd like more resources. Purchase the materials and make some of the Practice and Enrichment Boxes or, better yet, have classroom parents make them for you. Be sure to read the sections on Classroom Set-up, Management and Independent Practice in this chapter as well as the Discovery Time chapter. You will also want to read the appropriate Concept Instruction chapters before you begin.

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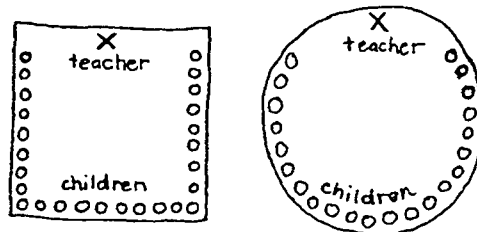
## **How Do I Set Up My Classroom?**

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There are many ways to set up a classroom; some help, some hinder our efforts to teach well. Here are some ideas that have helped teachers run an activity-centered math program effectively:

Create an open area for discussion, demonstration and instruction. Many people define such an area with a rug or by painting or taping a large circle on the floor. Children sit around the perimeter of the rug or circumference of the circle so that all can see

clearly and participate in games or activities.





If you have a very large class, some children may need to sit on chairs behind the circle or rug.

Be sure to have a chalkboard or easel nearby for the many times you'll need to record or present written information.

If you do the Calendar (Part Three, Teachers Resource Guide), post it at the front of your rug or circle area where everyone can see it clearly. If it's any great distance from where children can be seated together, you'll find it difficult to hold their attention.

Store materials in such a way that they're easily accessible. Set up the first two areas listed below if you plan to do Seasonal or Concept Instruction, all four if you're planning to use the Practice and Enrichment Boxes as well.

### 1. Classroom Tools

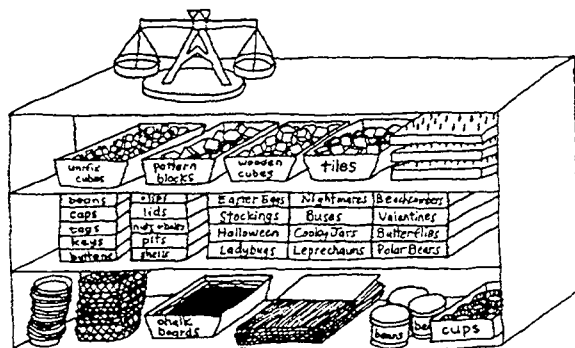
Set up easily reached, open shelves in a central location that will hold the tools children may need during math: extra pencils and crayons, colored felt markers, vis-a-vis or overhead projector pens, scissors, hole punches, paste, tape, glue, brass fasteners, paper and string.



### 2. General Math Materials

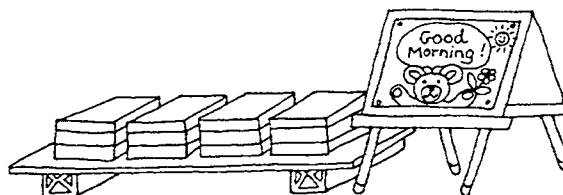
Set up low open shelving to hold the math materials you'll use over and over again all year: Unifix

cubes, pattern blocks, plain wooden cubes, geoboards and rubber bands, tiles, junk boxes, scales, individual chalkboards, small baskets or margarine tubs for distribution of materials, and, for grades 1 and 2, beans, portion cups and place value boards. (See Materials Index for ordering/ making information.)



### 3. Practice and Enrichment Boxes (set currently in use)

Store the 8-12 boxes currently in use close to your rug or circle area so you can demonstrate new ones or quickly review what's available.



### 4. Practice and Enrichment Boxes (not currently in use)

Boxes not currently in use need to be stored on teacher shelves or in closed cupboards so children are not confused about what's available or where to put things away at cleanup time.

## What Are Some Management Strategies?

Effective classroom management probably stands as the biggest challenge to teachers who want to implement activity-centered math instruction. It's

hard to offer answers that guarantee daily success but the following ideas may be helpful.

## DIRECT INSTRUCTION

Establish and review rules and procedures right away. Where do you want children to sit on the rug? How do you want them to sit? (Many people teach “safe sitting”—legs folded, hands in lap, so no one can trip over children or step on their fingers.) How do you want children to move from their tables or desks to the rug? Do you expect them to push in their chairs first? Primary children generally appreciate routines, so make sure you think through procedures carefully and establish your expectations.

Try to find ways to involve children so they aren’t just watching during direct instruction. Can the group chant or read along with you? Can they mime in appropriate places? Can small groups act out the story problem? Can children take turns leading the group? Can they use individual chalkboards to write the number sentences or draw the pictures along with you?

Establish several routines for response and let children know which you expect. Having children raise their hands to respond to teachers’ questions or to contribute thoughts during discussions is only one form of response and sometimes not the most effective.

Try having everyone whisper an answer to their neighbor and then say it aloud as a group at your signal. Instead of calling on a raised hand, pull a name card from a “feely box” (see Materials Index). Allow that child to formulate a solution with a friend if necessary. Since everyone’s name is in the box, this keeps children’s attention very well.

Have children respond by drawing or writing on individual chalkboards. If responses to a question or a problem vary, have children share and discuss the diversity.

Allow children to all respond at once. If you ask children what is special about their teddy bear and they all seem to want to answer, have them tell a child beside them.

Allow free flowing discussion. Be very careful about selectively praising responses because it almost always stops the risk taking needed for children to continue contributing different ideas.

Work with only half of your group if you have a very large class. The other half may be having In-

dependent Practice Time or doing other projects under the supervision of an aide or a parent volunteer. (Be sure, however, that you allow plenty of days to be personally involved with children as they work at the boxes or you will not understand individual progress and problems as well.)

Explain the goal of your lesson before you start and review that goal after the lesson.

Quit while you’re ahead. Stop the lesson while most children are interested and actively participating.

## MATERIALS MANAGEMENT

Set up your materials beforehand. Read through any lesson you plan to do. (Even if you’ve done it a hundred times, think it through again.) Gather everything you’ll need on a tray or in a basket and put it close to the area where you’ll be conducting the lesson.

Develop several ways to get things passed out quickly:

1. Designate table monitors each week and have them get needed items for their tables.
2. Teach children to “take one and pass them on.”
3. Set up several distribution centers for supplies and have children pick them up on their way to the rug or their work areas.
4. When you want to pass out items marked with the children’s names, play Upset the Fruit Basket. Distribute the materials randomly and have children deliver the items to each other when you say, “Upset the Fruit Basket.” Challenge them to do it without talking!

Make sure your children know what you expect. If you are going to have students use materials during a group lesson, show them what you will be distributing and how you expect them to use it.

Suppose the group lesson is ending and you are going to have them move to tables for an independent activity. Give them clear, specific instructions about what they’re going to be doing next by modeling the activity from start to finish, including clean-up. Be sure they know what to do if they finish early. Have helpers distribute needed materials (which you’ve organized on trays or in baskets) to appropriate areas and then begin excusing children to the work areas a few at a time.

## PROMOTING COOPERATION AMONG CHILDREN

Remember that most of the time teaching is your goal, not testing. Children should feel comfortable making mistakes, asking each other for help and copying one another. (If no one ever copied, none of us would know how to talk!)

Teach children to teach each other. When we model something for the whole class, not everyone will be sure what to do. Many children *will* know, however, and can be encouraged to help others.

Encourage children to solve problems together. Have children work in partners and later in groups of three or four to do joint projects: create a people pattern, illustrate a story problem, find many ways to sort a junk box, invent something that will fly or float, etc. (Seasonal Mathematics offers many ideas.)

Give children one worksheet with spaces for two or more names. Pose a computational, money count-

ing or measuring problem for the class. Ask children to work together until they come up with a solution at their tables. Gather the solutions and record them on your chalkboard. Continue to work toward solutions until the class agrees that all possibilities have been explored. (Be sure to record incorrect as well as correct responses so children have to try out all ideas that are in disagreement with their own solutions. Primary children have a very hard time compromising when they don't agree. Sometimes you will need to accept more than one solution from a table.)

Have your children work together in small groups to make a page for the Big Book that you may be creating in conjunction with Seasonal Mathematics. It is often helpful to have the group brainstorm jobs that will need to be done; that is, making up the story and adding details, illustrating the story, writing the rough copy, writing the finished copy (from the teacher's corrections of the rough draft), writing the number sentences and covering them with secret doors (paper flaps).

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## Tell Me More About the Practice and Enrichment Boxes and Independent Practice Time

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If you walk into a classroom during Independent Practice Time, you will see children working by themselves or in small groups at a variety of boxed games and activities. There are eight to twelve different boxes in use, laid out one per table and several on the rug. Some of the activities are very easy, some are much more complex, but they all deal with the math topic most recently taught. This is the children's practice time and they are literally surrounded by the concept.

Most seem very absorbed and will be able to explain the task if you ask. There is motion. As children complete games or finish tasks, they clean up and move to another available box (none of the boxes accommodate more than four students). You'll see a child or two "drift" occasionally, unable to choose or settle to a task. Such children are usually redirected by the teacher or drawn in by friends. There is "working" noise. Children talk to themselves or others negotiating games, counting, comparing results, planning what to do next, talking their way through procedures, asking questions, even having a good laugh.

The teacher is in constant motion—stopping here to ask a question and there to admire work in progress. He or she nestles in with a small group for a few minutes and then moves along, questioning, observing, teaching, interacting, describing.

You're watching the heart of an activity-centered classroom. This is where children come to grips with concepts, where the teacher has a chance to see children's understandings and misconceptions at close range. This is where primary children do their most important work because there is much more going on than math. Independent Practice Time affords children the chance to make decisions about their own learning. Once the boxes have been set out (helpers set out the boxes and tuck the lids underneath so the activity is easily seen), children decide where they will go first. As they complete tasks, they clean up and move to other boxes of their choice.

The teacher serves as facilitator, observer, instructor, and friend, but he or she does not rotate children through the boxes knowing that some tasks

take much longer than others; that some children will want to persevere at one box for thirty minutes while others will complete three or four tasks; that because the boxes range from easy to difficult, not all of them are appropriate for every child. The teacher also knows that often children move from hard jobs to easy, particularly if a task has been stressful.

The teacher does *not* choose for children knowing that Independent Practice Time is a safe, structured way for children to develop decision-making power, responsibility, commitment to task, ability

to follow through and cooperation with others. These are important life skills and they're not easy to learn. Children don't always make the right decisions. If they choose a box that's too hard, they can leave, try to figure it out, or ask the teacher for help. They may choose something that's too easy; decision making can be stressful and children often take comfort in activities that are simple and familiar. Given time and trust, however, they will usually move on to more difficult tasks. Young children are powerful learners who do not cease to challenge themselves if given the opportunity.

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## How Do I Get Started With Practice and Enrichment Boxes?

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1. The activities in the Practice and Enrichment Boxes are designed to follow the concept instruction lessons. The nine packets listed on page one contain blacklines, cardstock items and instructions to create and use independent practice and enrichment activities. Review the concepts you are teaching and the topics you would like to enrich and expand. Choose the appropriate packets.

We encourage kindergarten teachers to start with Pattern and Reading, Writing and Understanding Numerals 0-10; then add Shapes, Introduction to Measuring and Money. We suggest first and second grade teachers begin with Pattern, Arithmetic and Place Value Counting; then add Place Value Addition and Subtraction, Measuring and Money.

2. Contact The Math Learning Center. The packets may be purchased individually or in recommended sets for each grade level. The MLC catalog de-

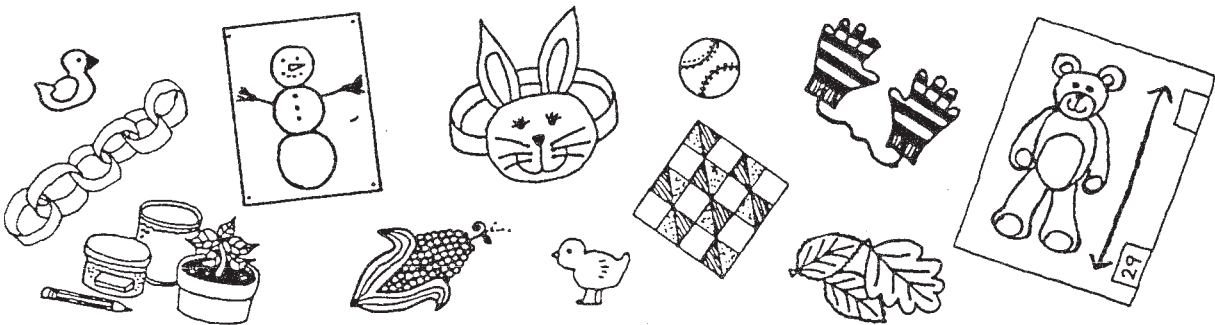
scribes the packets and others materials for creating and organizing the activities.

3. Set aside time to make your activity boxes. Make a starter set of eight to twelve boxes for each topic you've chosen.

To fully implement Box It or Bag It Mathematics requires time and dedication. We encourage teachers to work together and get volunteers to help. Parents like to be involved and can be a wonderful resource for putting together the activities.

4. Read the advice offered under Concept Instruction, Chapters 12-17, on how to make a smooth transition from Concept Instruction to Independent Practice Time. Plan to start the Independent Practice Time with the Discovery Time lessons and activities in Chapter 12. These will help children become familiar with your math materials and routines in a low stress setting.

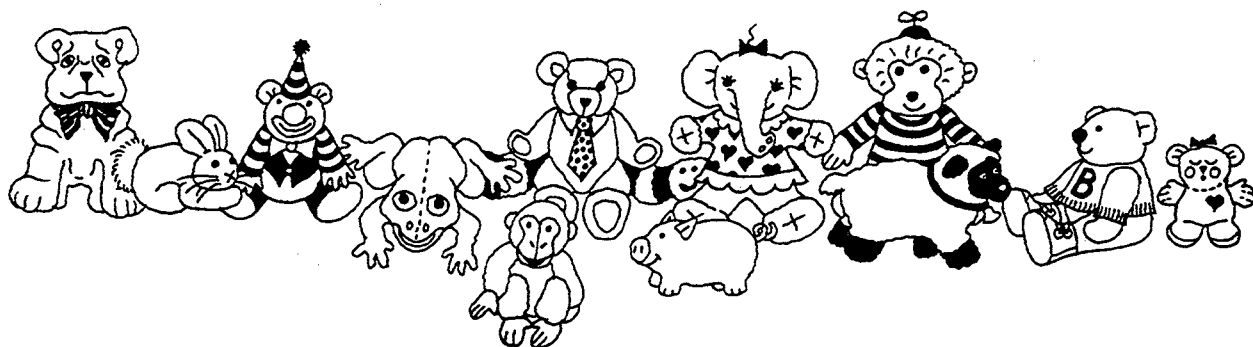
# Seasonal Mathematics





Chapter 1: September

# STUFFED ANIMALS



*You will want to plan several different days during this month for children to bring in their stuffed animals. It is really important for every child to feel he or she is a valued participant. Bring extra stuffed animals of your own or ask some of the children to bring more than one. There are always a few children who forget and others who may not have any stuffed animals. Send out a letter telling parents you'll need the animals every (Friday, maybe) for the entire month. It would also be a good idea to have children prepare a name tag for their animals to wear so problems of ownership don't arise.*

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## Sorting

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### CAGING THE ANIMALS

**You will need→**      shallow boxes or large pieces of paper to serve  
                                 as cages

                                 individual chalkboards (6 or 7)

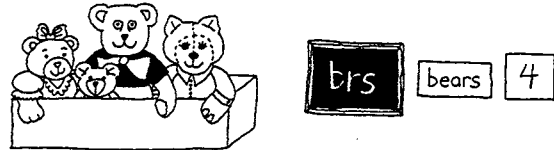
                                 paper for cage labels (animal names and numbers)

Place all the animals in the center of the rug. Ask the children if they can see any animals that are alike—for instance, bears. Have the owners place all the bears in a cage together.

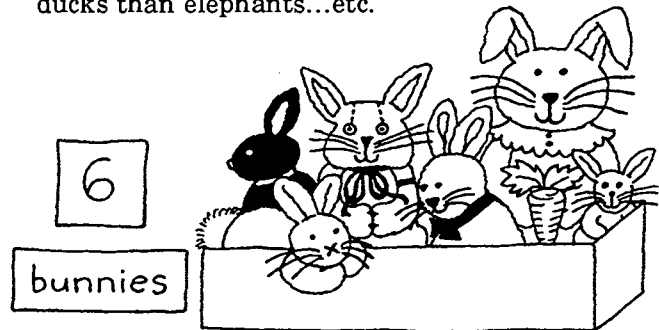
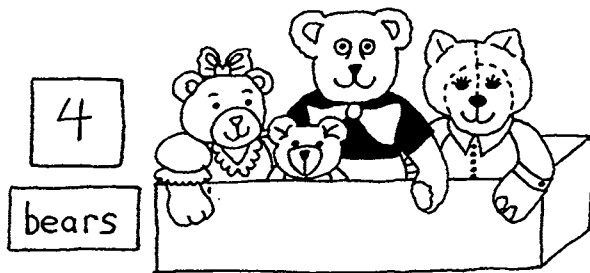
Ask if there are any other animals that are alike and once again have the owners place the like animals in another cage. Continue caging the like animals until there are no more possibilities.

Ask the children to help you name each cage—bears, ducks, cats, giraffes, etc. As they name each animal cage, write labels asking them to use their “best guesses” to figure out some of the letters in the animal name. (We like to write their “best guess” spelling on an individual chalkboard and then put “grown up” spelling labels on paper pointing out for them how many of the letters they already were able to figure out. (If you ask children this age if they can

read, many will give you a very emphatic “No,” but if you ask them if they can write, they often think they can and it’s amazing and wonderful how well they figure out parts of words so early.)



Go back to each cage and count the animals inside. Label each cage with an appropriate numeral. If interest is high enough or after a recess, you may want to compare numerals and even try arranging them from least to most. This is also a good time to begin setting foundations for more and less statements: there are more bears than giraffes but there are fewer ducks than kittens. There are three more ducks than elephants...etc.



## WHERE COULD WE FIND THEM?

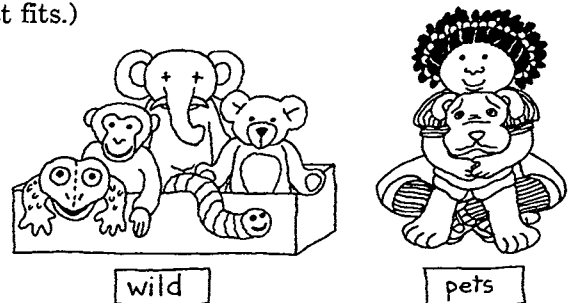
Another way to sort (perhaps another day) is to have the children prepare mats depicting forest, water, air, farm, house, zoo and jungle.



This time have the class assign each animal to its home. (Be really careful to have this be a teaching activity—not a testing activity. Don’t put individuals on the spot. Also, be sure you honor differences of opinion—many times children will not agree on where the animal best fits.)

## WILD ANIMALS AND PETS

Sort animals by placing the “wild” animals in a cage and the “pet” animals on owner’s laps. Once again label with names and numerals.





## FEELY BOX ANIMALS

**You will need→** a feely box (Materials Index)

Put a tiny stuffed animal in the feely box and ask the children to take turns feeling it. Be sure they understand that you don't want anybody to tell *what* it is as they feel it. As it goes around, ask those that can to tell some-

thing about how it feels: soft, furry, a large head, two ears, some paws, a fat tummy, etc. After everyone has had a turn to feel, ask the children to guess what is in the box.

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## Measuring

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### SHORT OR TALL? FAT OR THIN?

**You will need→** labeled mats—one for every pair of children (see sketch, the mats are labeled “fat/thin” on front side and “tall/short” on back side)



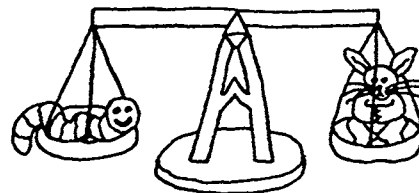
Children work in partners comparing their animals using the fat and thin label. Children love to switch partners and try this several times.



This activity can be repeated either the same day or another day by reversing the labeling cards.

### COMPARING WEIGHTS

**You will need→** a balance scale  
your own stuffed animal  
children's stuffed animals  
labels (“heavier”, “lighter”, “the same”)



The teacher begins this activity by placing his or her stuffed animal into a pan of the balance scale. The children then take turns comparing their animals to the teacher's animals by placing them in the other pan of the scale. Everyone helps decide whether the animal is heavier, lighter or the same as the teacher's animal. Once the decision is made, the animal

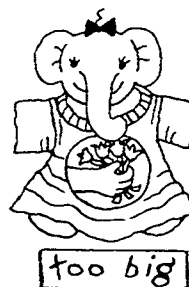
is placed beside the appropriate label. When all the animals are placed, the groups are counted, labeled and compared.

Note: If you have a class of more than 25, you may need to do this in half groups asking the other group to work at an activity they can do independently.

## THE RIGHT SIZE (Beginning Circumference)

**You will need→** an article of clothing such as a child's T-shirt  
labels (see sketch below)

The shirt (or whatever) is quickly tried on each of the animals. The class decides together whether it is "too small", "just right" or "too large." Animals are then placed by their appropriate label and once again counted and then compared with more and less statements.



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## Graphs

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**You will need→** Graphing Mat (Materials Index)

(Be sure to read the section on "real graphs" in Chapter 11.)

Using the Graphing Mat and the stuffed animals, the students place their sorted animals in two rows. Some sorting criteria might be:

1. Is your animal dressed or bare?
2. Do you sleep with your animal?

3. Is your animal a boy or a girl?
4. When your animal is in your room is it kept on your bed or somewhere else?

Any of the sorting activities above lend themselves to graphing by looking at only two columns at a time; otherwise it's a lot of data for this time of the kindergarten year.

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## Patterning

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These activities will help you set foundations for later independent work. You should begin the pattern with your animal and two or three of the children's animals.

"I'm going to start an animal pattern. I'll put mine in the line first. I'll have him lie down. Jason, would you bring your animal next and have her stand up next to mine. Wei-Ling, let's have your animal lie down. Jake, bring your animal to our pattern and have it stand up right next to Wei-Ling's duck.

"Let's stop and read our pattern so far: lying down, standing up, lying down, standing up,..."

"Tricia bring your bear to our pattern. Class, what should Tricia do with her animal to add onto our pattern?"

Continue as above until either the children get too wiggly or all animals are in the pattern. Go back and name the pattern parts again and again. Those children who weren't catching on in the beginning get many chances to make sense of this as the pattern grows. You can rename in several ways—

the children could actually pretend to lie down and stand up as the animals are touched, they could clap each time a standing up animal is touched, etc.

You and the children will think of many more ways to pattern but here also are some possibilities:

1. bear, some other animal, bear, some other animal
2. tall, short, tall, short
3. large, small, large, small
4. loved a long time, very new, loved a long time, very new
5. wild animal, tame animal, wild animal, tame animal



As many children catch on, start a new pattern silently and ask them to guess what comes next and then add on.

Children love to invent patterns so encourage their ideas as well. Don't shy away from trying out ideas that aren't really patterns. You can make these such wonderful learning experiences by thanking the children for contributing their ideas and giving the class the chance to help get it to work.

## ANIMAL PICTURE PATTERNS

**You will need→** magazines

9 X 12 tagboard or construction paper

Either ask the children to bring in some pictures of animals cut from magazines and catalogues or cut these pictures as a class activity. Mount the pictures on tagboard or construction paper. The cards can be sorted and used for patterning by themselves if you have enough repeats or they can be used to start patterns with the stuffed animals by laying out

two to three repeats of the card pattern and then reproducing and extending it with stuffed animals. Once again, this can provide wonderful practice in another form. (Dr. Raymond Barsch, Northridge University, Southern California, referred to these multiple practices as "diversified stimulation and diversified redundancy.")

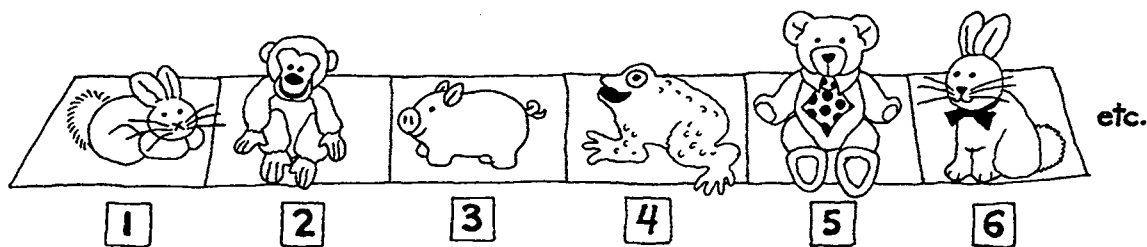
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## Estimating and Counting the Animals

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**You will need→** mini mat (Materials Index)

4 X 6 tagboard for numeral cards



Ask a parent to help you put together a giant counting mat from butcher paper or use the mini mat (Materials Index) and extend the extra animals beyond the mat. Write numeral cards to go with and beyond the mini mat or write numbers directly on the butcher paper mat.

Ask each child to whisper in your ear, as you go around, how many animals they think are in the room today. (You'll be quite surprised!) Lay out the animals on the mat (and beyond if needed) and put a numeral card beside each animal. Count the animals together by touching each animal as the counting continues. Touch and read the numeral cards together while the animals are still in place.

## Story Problems

It is helpful for children to experience the rich language of story problems and the joy of acting them out with their animals, even though learning addition and subtraction is not the goal at this time. Here are two examples to get you started—you'll think of many more and there may even be a few children in your group who can make up a story. *After you've told the story a time or two, have the class direct how it should be acted out.*

1. Three giraffes came to the Limpopo River for a drink. They drank and drank until one giraffe was no longer thirsty. He went back to his home. How many giraffes are still drinking?
2. Two small bears and one large bear were placed in a cage at the zoo. How many bears were in the cage?

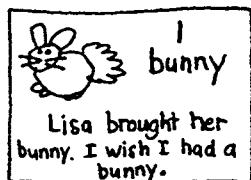
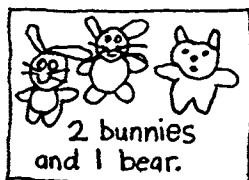
### BIG BOOKS (see Materials Index)

**You will need→** 12 X 18 white construction paper

Group the animals on separate tables by sets—one, two, three, four, five. Have each child sit at their table and draw the set of animals on 12 X 18 pieces of paper. After the animal(s) is/are drawn, a short story about the animal(s) is dictated for the teacher to write.

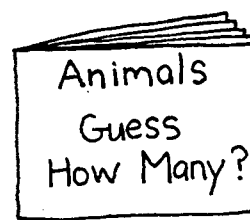
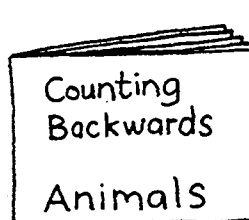
2. a book of counting from one to five
3. a backwards counting book: 5, 4, 3, 2, 1

Read the completed books often to your class pointing to the words. Make the books available for independent reading.



Finished pages can be assembled into books in a variety of ways:

1. a book of ones, a book of twos, etc.



Chapter 2: October

# FALL, GHOULS AND GHOSTS

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## Patterning

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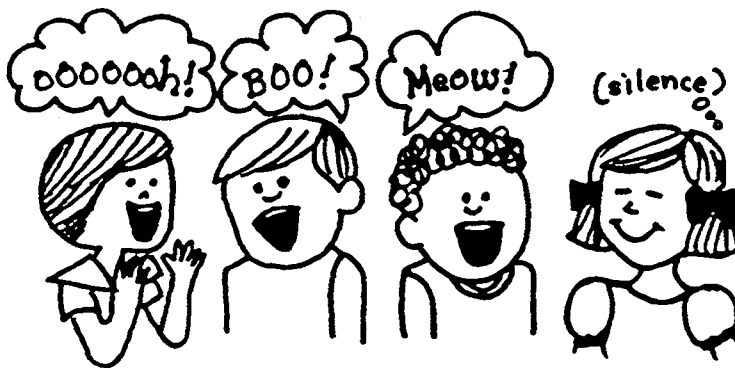
### THEATER PATTERNS

Brainstorm with your children the many sounds of Halloween. (Boo, oooooo, shrieks, thumps, bumps, laughter, witch's cackles, children knocking, children saying "Trick or Treat," etc.) Practice those sounds together.

Begin a clapping pattern such as clap, clap, snap, snap, and have the children join you in clapping and snapping that pattern. Once they are catching on and able to join in, replace the claps and snaps with

Halloween sounds: thump, thump, ooooooo, ooooooo, thump, thump, oooooo, oooooo...

When the children have the general idea, let them work in teams or contribute ideas individually to plan an orchestra pattern of Halloween sounds. (There will be repeats of ideas as you first begin this type of work with your class. There is security in repetition and you can remind the children that it is a nice compliment to have others like your pattern so much.)



## ART STRIP PATTERNS

**You will need→**      precut simple Halloween shapes: black cats, orange pumpkins, white ghosts, yellow moons, green goblins (See blacklines for Halloween Art Strip Patterns.)

paste

pencils

crayons

*for each child:*

several 4 X 18 strips of dark brown construction paper

Ask parent helpers to precut lots of simple Halloween shapes: black cats, orange pumpkins, white ghosts, yellow moons, green goblins. (These tasks can be done by parents at home if you get the materials and directions to them a few days before you need the shapes.)

Provide each child with several 4 X 18 strips of dark brown construction paper. Seat the children at tables and ask each child to build a pattern on one of his or her strips using any of the available Halloween shapes. Ask the children to work very hard to make each pattern different than any other at that same table.

Once a pattern is laid out the entire length of the strip, ask the children to raise their hands so that each pattern can be quickly checked. A good checking system is to ask each child to "tell me" about the pattern. (Not all patterns will be perfect at this time of year; in fact, if you are seeing *lots* of errors among your class, it's a good indication that you need to do more large group instruction to set foundations. If only two or three children are having difficulty creating patterns, encourage them to have the other children at the their table give them help.

Limiting them to just two Halloween characters will also help.)

Ask them to continue building patterns several different times (often children can sustain interest for six or more changes and you'll find the longer they work, the harder they think and the more innovative their ideas become).

Once you are worn out and it's getting harder to sustain their enthusiasm, ask them to glue their last pattern of the day to their brown paper. The teacher and parent helper can then label the first portion of the pattern (ghost, pumpkin, cat, cat) and the children can decorate their finished patterns with pencils and crayons if desired. These make a wonderful bulletin board or border design around the room; however, since most children can't bear to part with their first record, you may wish to repeat this activity tomorrow letting them know you liked their previous work so much you want them to do another to display for everyone to see.

Note: If you have children that are not allowed for religious reasons to use Halloween shapes, fall leaves also make very impressive patterns. We have included a blackline of those patterns in the blacklines section.

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## Sorting and Graphing

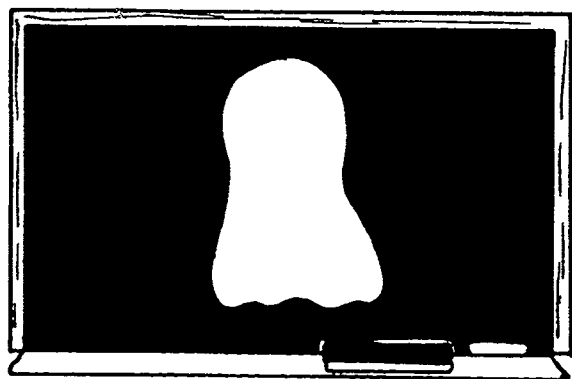
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**You will need→**      *for each child*

a white blob precut from 6 X 9 construction paper.  
(They needn't all be the same and once again this is a job that could be sent to home volunteers.)

4 X 6 index cards for labels

To set the foundations for this activity, draw a white blob (see sketch below) on the chalkboard. Ask for a volunteer to come up and add something that will make it look like a ghost. (The child may add eyes.) Continue asking for volunteers to come and change the blob until the class is satisfied with its ghostliness. (You may want to add two or three more chalk blobs; the more ideas you can encourage, the better.)



The children take the paper blobs to their table and change them into ghosts using ideas from the brainstorming session. (It helps to give the children an idea of how long they will have to work and what they could do if they finish early.)

When all the blob ghosts are completed (or at another time of your day) ask all the children to sit in a circle on the rug and place their ghosts in the center of the rug so each ghost can be seen.

**Teacher:** *Can anyone think of some ways we could sort the ghosts into groups?*

**Child:** *We could have a group that has mouths...yeah...and a group with no mouths!*

**Child:** *We could have ghosts that have hair together...oh, and some of them look happy...some are mean.*

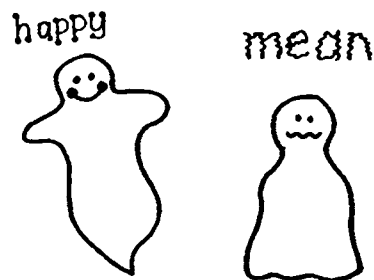
**Child:** *There are are some girl ghosts...and some boy ghosts.*

**Child:** *I see some ghosts with arms.*

**Teacher:** *You have thought of many ways to sort our ghosts today. Let's make some labeling cards that tell some of those ideas.*

**Teacher:** *What's one of the ideas you remember?*

**Children:** *Let's do the happy and mean ghosts.*



**Teacher:** *It would be fun to sort them that way. I'll make two sorting cards. (Cards are made with a simple illustration on each along with the word labels.)*

**Teacher:** *We'll lay these labels on the rug and see if we can sort our ghosts into happy and mean groups. (Children help to quickly sort the appropriate ghosts.)*

Continue sorting in this manner as long as their interest holds; in many classes, once might be all they can do for that day. If so, help them remember their other great ideas so labels can be prepared to continue this activity another day.

When there has been a very successful sort, turn it into a graphing activity. Paste or glue the blob ghosts onto large paper or quickly staple the ghosts onto a display board area in the room. Ask the children to tell you about the sorting and write their observations on precut "bubbles" (see The Talking Graph in graphing chapter). Some of their observations might include: there are lots of ghosts with big eyes, not very many ghosts have hair, there are only a few ghosts with small eyes, there are twenty-five ghosts if you count them all, there are only seven ghosts with little eyes, etc.

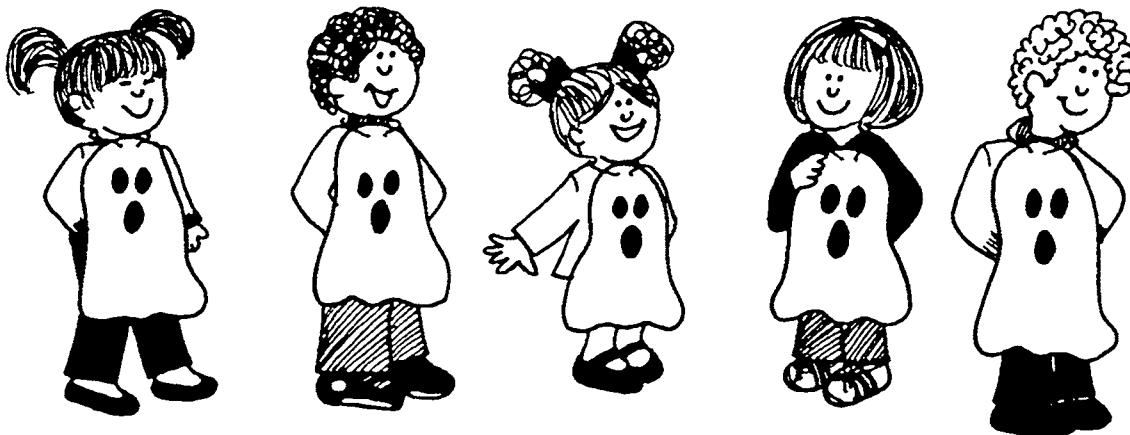
**Note:** If this activity is a hit with your class, repeat it with pumpkins, masks, or haunted houses. It can also be done with a variety of fall leaves gathered on a leaf walk.

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## Counting Word Problems

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**You will need→** five of each 9 X 12 Halloween shape (see blacklines)  
12 X 18 white construction paper



Ask parent helpers to cut five of each simple 9 X 12 Halloween shapes to be used as “costumes” for this activity. Punch two holes at the top and string with yarn so the “costumes” can be worn around the neck.

Place the “costumes” in separate piles in the center of the circle.

**Teacher:** *I need some ghosts for our counting stories. Would some of you like to be ghosts? Sara, Juan, Roberto, Mimi and Emily.*  
(Children wear costumes and stand in center.)

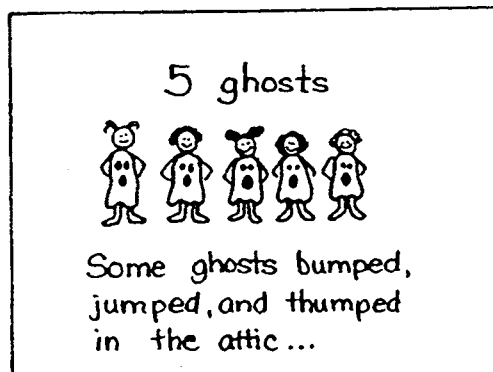
**Teacher:** *Listen very carefully to our story so you will know how to act it out. Some ghosts were jumping and thumping in the attic of the old haunted house.*

(“Ghosts” jump and thump in circle.)

**Teacher:** *How many ghosts were thumping and bumping? (Quickly help “ghosts” line up to be counted.)*

**Children:** *One, two, three, four, five...five ghosts.*

**Teacher:** *Good. Let’s make a record of our story (see sketch).*

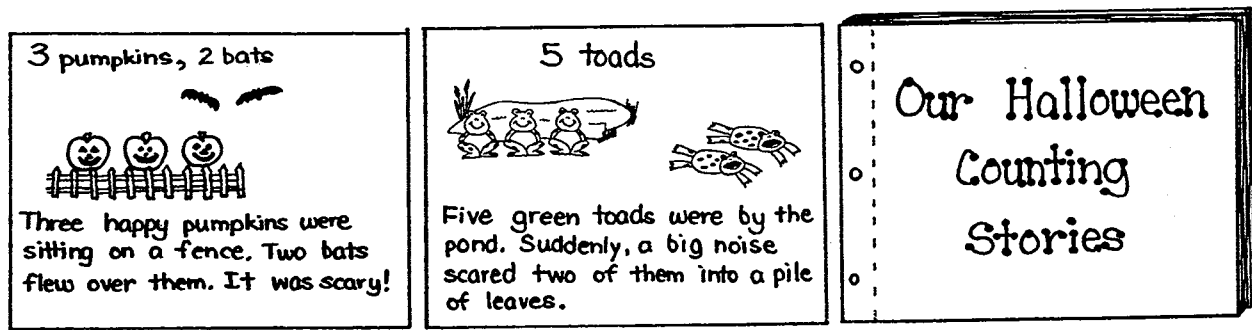


Continue in this manner with other stories as interest allows.

Save the story records to be illustrated later by interested children and assembled into a Big Book of counting stories.

Note: You could have the costumes be vegetables or favorite song or story characters if you want a theme for children who cannot celebrate Halloween.





## ARITHMETIC

**You will need→** for each child:

a cup containing five white and five orange unifix cubes

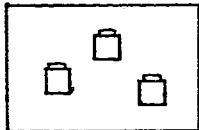
a 6 X 9 piece of black construction paper

Storytelling is a wonderful activity but sometimes hard to pull off this early with a very large class. If it seems too hard when you try storytelling with the whole class, take only a third or half of the class at a time and assign other work to the remaining children.

Give each child a cup containing five white and five orange unifix cubes. Each child will also need a 6 X 9 piece of black construction paper as the storytelling mat.

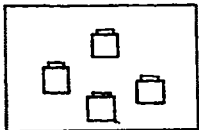
**Teacher:** I'm going to begin telling a story. I want you to use your best imaginations and pretend your unifix cubes are ghosts and pumpkins. Ready? Once upon a time there were three ghosts...

(Children put three white cubes on their storytelling mats.)



**Teacher:** Just as they were ready to leave, another ghost wanted to come...

(Children add another white cube.)



**Teacher:** How many ghosts were there now?

**Children:** Four!

**Teacher:** They opened the creaky old door and set off down the lane. All of a sudden a very loud noise scared them and one of the ghosts ran away...

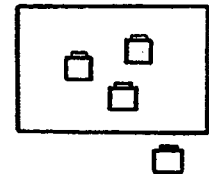
**Children:** We have to take off a cube.

**Teacher:** How many ghosts were left shivering on the road?

**Children:** Three!

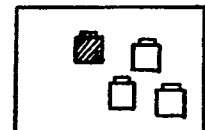
**Teacher:** As they passed the pumpkin patch, one of the pumpkins jumped on the fence and asked where they were going.

(Children add an orange cube at the edge of their mats.)



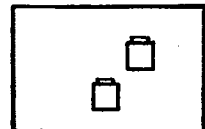
**Teacher:** They said they were off to scare people. The pumpkin asked if he could join them and of course they said "yes."

(Children move the orange cube into the action with the white cubes.)



**Teacher:** It was hard for the pumpkin to walk since he had no feet so he became tired very quickly. He said he could go no further but he was afraid to leave by himself so one ghost left with him.

(Children remove the cube and a white cube.)



**Teacher:** How many Halloween creatures were left?



Keep the story going for as long as the children are eagerly involved. If it is too short, some

never get involved. Encourage them to help one another if any are having trouble.

When you try this another time, add in still more cubes—green for toads or goblins, black

for witches, brown for owls, etc. Be sure to keep the story flowing. Children lose interest if the activity is presented as a series of little problems to be solved.

# PUMPKIN MATH

*If it is possible to take a trip to the pumpkin patch, these activities will be even more wonderful. If not, ask families that can to loan a pumpkin to the class for a few days. It's great if you can have a plentiful and varied collection.*

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## Measuring

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### PUMPKIN CIRCUMFERENCES

**You will need→**

scissors

tongue depressor wrapped with string

Break your group into small teams with an adult helper. Give each adult scissors and string wrapped around a tongue depressor. Ask the children to search for the biggest pumpkin in the "patch". Once the team agrees on which is the biggest pumpkin they can find, a string is carefully placed around the fattest part and then cut and stored in an envelope. Now the team searches for the pumpkin they believe to be the smallest in the "patch". Once again a string is carefully placed around the fattest part and then cut by the adult and stored in the envelope.

You will have your own ideas about how to handle the rest of the trip to the pumpkin patch and whether purchases will be made either for individuals or for the class.

The next day all the strings from each team's largest pumpkin are laid out side by side and compared.

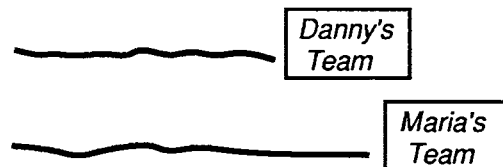
**Teacher:** *Here is the envelope for Danny's team. Danny, can you get out the string that fit the largest pumpkin your group found?*

*(Danny gets out the longest string and stretches it out for the class to see.)*

**Teacher:** *Let's get out another string. Maria, can you lay out the string your group cut for the largest pumpkin?*

*(Maria lays out the longest string from her group alongside the string from Danny's team.)*

**Teacher:** *Why don't we make a label for each of these strings so we'll be able to remember which string belonged to Danny's team and which belonged to Maria's. (Labels are quickly made by asking the class to help you figure out the letters for each of the names.)*



**Teacher:** *Let's look carefully at the strings. Can anyone tell me something about the strings?*

**Children:** *Wow! Maria's string is longer. Danny's team had a shorter string.*

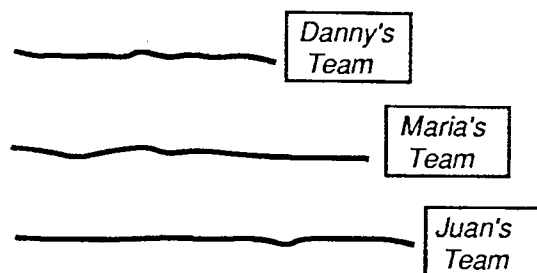
**Teacher:** *Why do you suppose that happened?*

**Children:** *Maybe they didn't cut it right—maybe they didn't find the same pumpkin.*

**Teacher:** *Good...you are really thinking hard.*

Continue to compare strings from the various groups. Math and reading can be such integrated lessons that it is often valuable to make “bubbles” or a chart of the children’s comparative statements and other thoughts. Post these “bubbles” or charts on bulletin boards. Make it a point to refer back to these on another day.

If interest holds and your group seems ready for it, see if they can arrange three or more strings in sequential order by size.



## GRAPHING THE PUMPKIN CIRCUMFERENCES

**You will need→**

scissors

masking tape

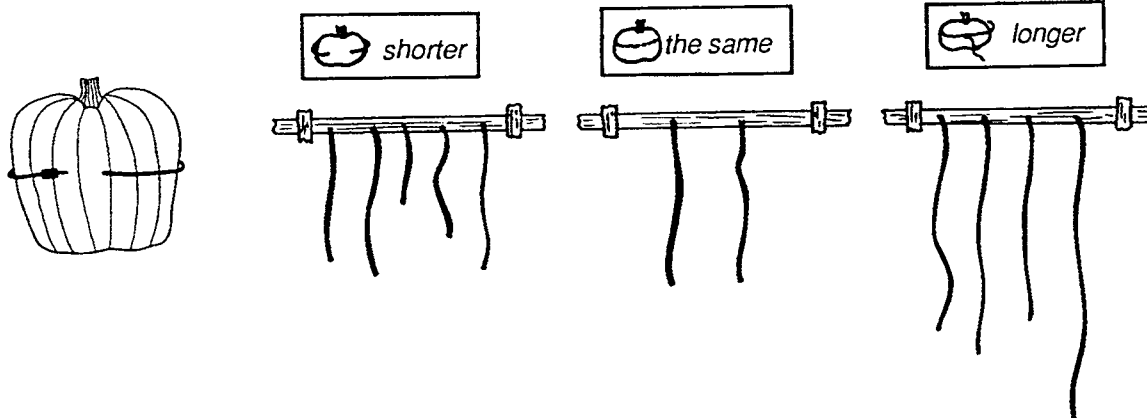
labels

tongue depressors wrapped with string

The children work in partners to cut a string that fits exactly around their pumpkin(s). That string is then wrapped around a class pumpkin at a midline marked by a piece of masking tape to see if their pumpkin was the same, less or more distance around than the class pumpkin.

The string is then added to the graph. (The graph is three lengths of masking tape hung with the sticky side out and appropriate labels. See sketch below.)

*How does your pumpkin string fit our class pumpkin?*

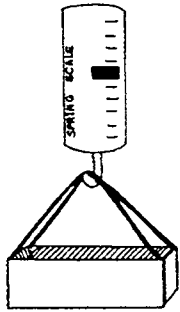


## WEIGHING THE PUMPKIN

**You will need→** a hanging spring scale with a box attached by strings (see sketch below)

floor label cards (see below)

colored tape



Weigh the class pumpkin by placing the pumpkin in the box and attaching the box to the scale. Mark the weight with colored tape.

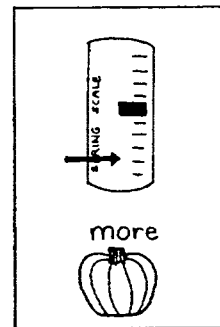
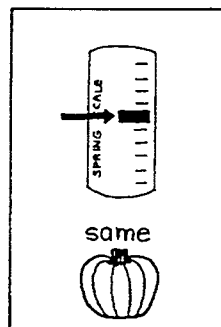
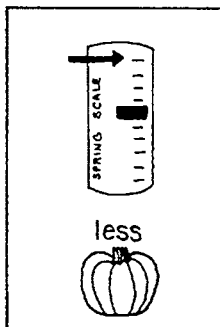
Talk with the children about how they think the scale would look if something lighter than the pumpkin were weighed.

that when something weighs less than the pumpkin, the needle is above the colored tape.

Next, discuss how they think the scale will look if something heavier than the pumpkin is weighed. Have them find some things to weigh that will be heavier than the pumpkin. Once again, help them see the needle comes below the colored tape when something is heavier than the pumpkin.

Have them choose something to weigh they think will be lighter (pencil, scissors, etc.) and watch how the scale looks each time. Help them to understand

Throughout the day, children take turns (in partners) weighing their pumpkins and placing them below the correct floor label card. Partnerships provide such good learning opportunities because discussions ensue and confused children can get some help.



## WEIGHING AND CARVING

**You will need→** a hanging spring scale



















chart paper graph marked with three rows of squares: one row labeled "More", one labeled "Less", one labeled "The Same"

a small paper pumpkin for each student

Weigh the class pumpkin before it is carved and mark the current weight on the spring scale with colored tape.

Ask your class if the class pumpkin will weigh more, less or the same after it has been carved and

seeds are removed. (If you want to really learn about your kids, have them whisper their guess in your ear. Things that seem obvious to adults may not necessarily be obvious to five year old children.) After their guess has been whispered to you, write it (more...less...the same) on a small

More									
Less									
The Same									

construction paper pumpkin. Do *not* write their names on their pumpkin records. Once everyone has been asked and guesses recorded, add their labeled pumpkin to the graph.

Discuss the graph with the class. Explore reasons why the children aren't sure about weight yet. Assure them they will understand so many more

things about weight and size after a year in your class where they will be able to try out many of their ideas.

Carve the pumpkin, scoop out the seeds letting each child reach in to help. Weigh the carved pumpkin and compare the "before" and "after" weights.

## Estimating and Counting

### SEED COUNTING

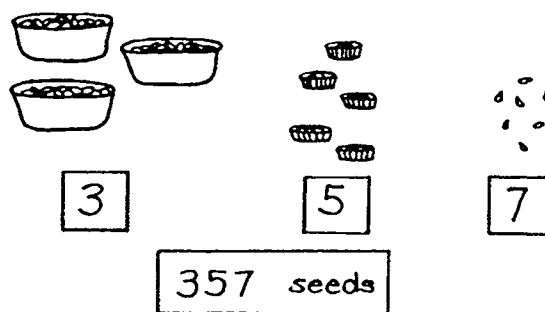
**You will need→** pumpkin seeds  
working space papers (see blacklines)  
portion cups (Materials Index)  
margarine tubs

Wash and dry the seeds overnight so they can be counted the next day.

Have the children seated in a circle on the rug. Show them all the seeds and ask them to guess how many seeds there might be all together.

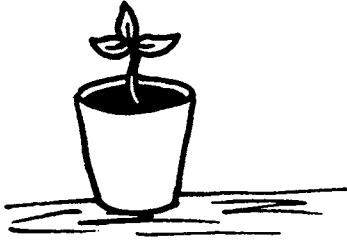
Provide working space papers and ask the children to quickly help count ten seeds onto each of the papers. Continue counting until no more tens can be made. Pour each group of ten into a portion cup.

Count the filled cups by tens to one hundred. Each time one hundred is reached, pour those ten cups into a margarine tub. When no more hundreds can be counted, the teacher then records the number for each group (hundreds, tens and ones) on cards. Place those numbers under the appropriate groups



Save the dried seeds until late spring and plant them in potting soil in cups (poke a tiny drainage hole in the bottom of each) so children can begin growing their own pumpkins. Kitchen detergent bottles make nice watering bottles.

# Spring



Even apartment children love this activity although they probably won't be able to transplant it at home. If you're lucky, you may get a pumpkin or two and perhaps some pumpkin bread the next fall as children come back to tell about their pumpkin patches.

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## Time and Duration

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### CHANGES

If you're up to it, there is a lot of science in watching the changes as the pumpkin begins to mold and self-destruct. Carefully observe

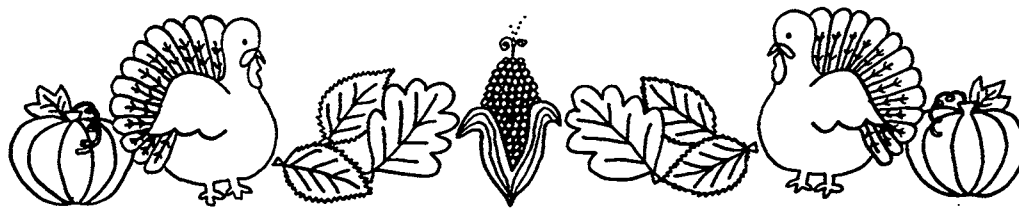
and record those changes daily (as long as you can stand it).

### BOOKS TO HELP EXTEND

*The Biggest Pumpkin Ever*, Steven Kroll,  
Scholastic  
*Mousekin's Golden House*, Edna Miller

Chapter 3: November

# VEGETABLES, VEGETABLES



*Ask your children to each bring a vegetable from home. You should also plan to bring in two to three vegetables from the following categories to be assured of enough variety. (The following lessons would be excellent Monday through Friday activities.)*

***Leaves and stems***

*cabbage  
lettuce  
spinach  
mustard  
parsley*

***Roots***

*potatoes  
carrots  
beets  
turnips  
onions*

***Seeds***

*cucumbers  
peas  
beans  
corn  
soybeans*

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## Sorting

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### EXAMINING THE VEGETABLES

**You will need→**

vegetable collection

3 X 4 tag cards

gardening magazines or pictures

Gather your children into a circle on the rug and examine the different vegetables looking at all the different attributes: firm, crunchy, soft, long, short, round, seedy, leafy, orange, white, green, large, small, smooth, bumpy, etc.

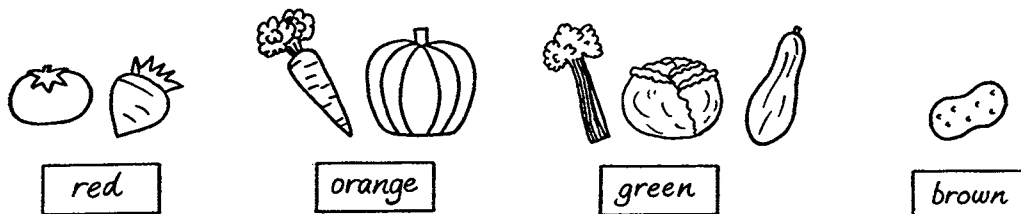
Discuss how it looks when it is growing. Many city children don't have a clue about how things grow; some never question how they got into cans and freezer packages. They have never seen the leafy stems of carrots nor opened a pod of peas. They have no idea potatoes are dug from the ground. It is really helpful to have some gardening magazines and pictures available at this time. Some of their parents may be home gardeners and might be willing to come in to talk with the children. Be sure to

ask the children to tell about garden chores they've done.

After your discussion, ask the children to remember some of the attributes and you create labeling cards with those attribute names. Don't forget to guide them to attributes of how things are cooked and eaten, how some vegetables are always eaten raw, etc. Help the children create general category names for the attributes they have already named and labeled.

Carefully gather and refrigerate all the vegetables for the next day. Save the label cards also.

## VEGETABLE SORTING



Use the labeling cards from yesterday's activity to sort the vegetables in a variety of ways. When the cards have been exhausted,

encourage the children to think of other ways (how, where, and when things grow, etc.).

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## Patterning

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### VEGETABLE PATTERNS

**You will need→** vegetable collection  
butcher paper

Lay out a long strip of shelf or butcher paper. Put out the class vegetables so they can be easily seen.

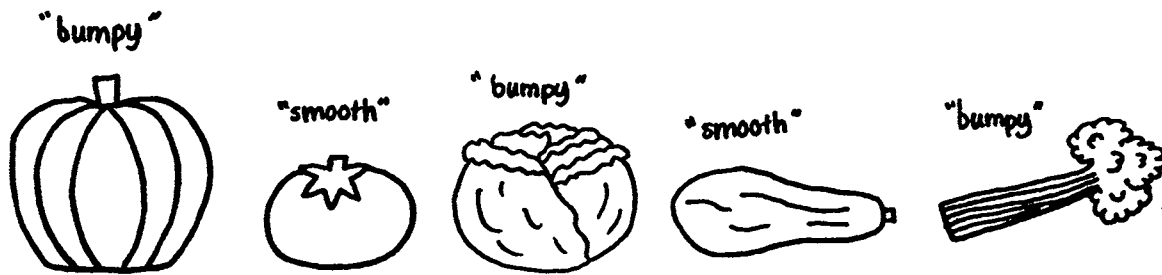
Start a pattern of vegetables on the paper strip: corn, zucchini, corn, zucchini, etc. Ask the children to help one another add vegetables to the pattern. Continue in the manner with kinds of vegetables for awhile and then begin a

pattern that uses other attributes: smooth, bumpy, smooth, bumpy; always cooked, usually raw, always cooked, usually raw. Encourage the children to figure out what the pattern is and then keep it growing. This is another good time to address the attributes of how, when and where things are grown: underground roots, above ground leaves, etc.



Be sure to extend to three and four part patterns as the children catch on.

If interest remains high, have small groups of children invent a pattern with the vegetables for the rest of the class to extend.



## VEGETABLE PRINT PATTERNS

**You will need→** vegetables from your collection  
tempera paints      sponges  
6 X 18 strips of construction paper (3-5 per child)

Select three or four of the vegetables (cabbage, potato, radish, carrot, etc.) and slice them in half—the carrot could be sliced lengthwise to make more variety. Pour very small amounts of tempera paint on sponges using appropriate colors.

Provide 6 X 18 strips of construction paper for the children to stamp out vegetable print patterns. Once again, encourage them to try to be different in their patterns from other

children. This encourages them to think very hard.



"carrot, carrot, potato, radish..."

These make a beautiful bulletin board or border around the room. They are nice when labeled with vegetable words also.

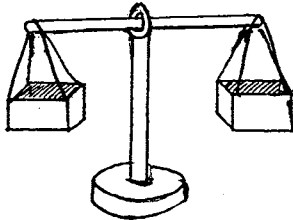
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## Weighing and Counting

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### HOW MUCH IS A POUND OR KILOGRAM?

**You will need→** scales (as many as you have)  
a 1-lb. weight (see below)  
12 X 18 construction paper (one for every 3-4 kids)  
3 X 6 pieces of construction paper in various colors  
vegetables with labeling cards  
scissors, crayons, paste



You will want to use your spring balance scales along with any other scales you can roundup. The more variety, the better.

Begin by experimenting with the varied scales so children can see how they work. (You will need one pound weights for the balance scale. If you don't have any weights available, create your own by bagging something like ceramic tiles or sand, or by bringing in a pound of macaroni or a bulk item you have bagged and weighed in a grocery store.)

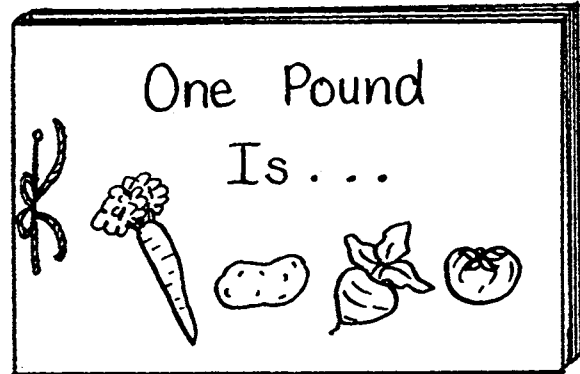


Group your vegetables by kinds, each with a labeling card—carrots, potatoes, etc.—and put out your different scales with groups of vegetables at different tables. Provide 12 X 18 sheets of construction paper as record sheets at each table along with 3 X 6 pieces of white construction paper, scissors and crayons.

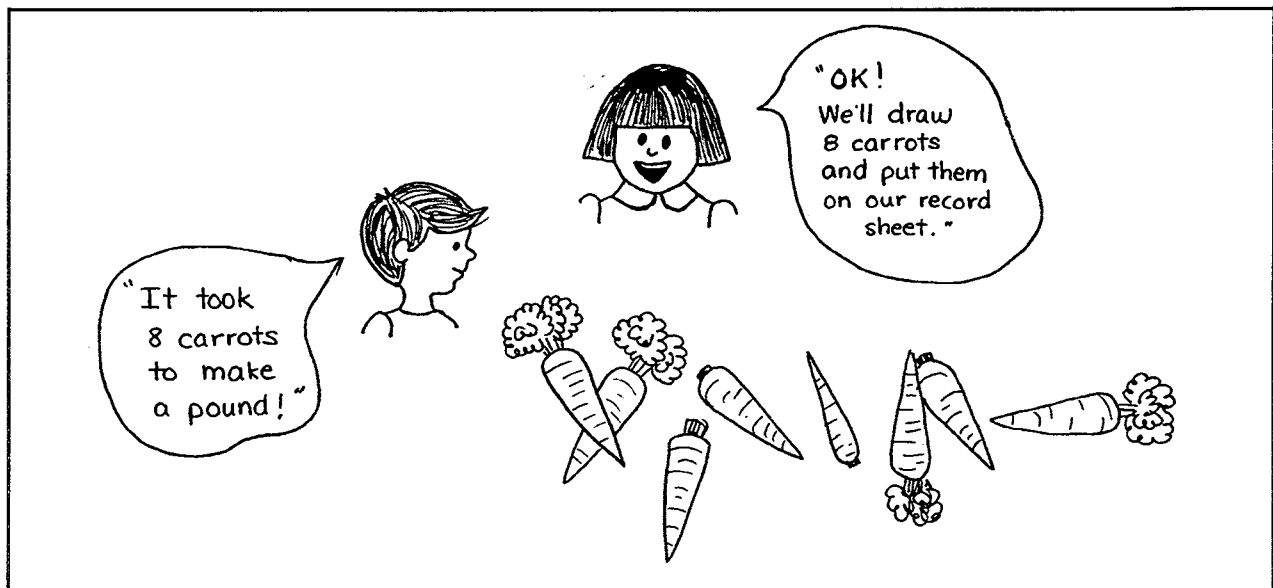
Send your children to tables in teams. They work together placing vegetables (all carrots, all squash, etc.) into the scales until one pound (or kilogram) is reached. (If you have a very

large class, you may want only half of your children to do this at a time.)

Once a pound is reached, the children count their vegetables and write the numeral on their record sheet. The vegetable name is printed beside the numeral and each child in the group helps color and cut out vegetables until they have created the correct number to paste on the record sheet.



When all the groups have finished their work, the pages are gathered and saved for assembly into a Big Book, "One Pound Is...". The book is read to the class as often as interest merits and then stored with the Big Book collection for independent enjoyment.



## VEGETABLE SOUP

### You will need→

*Stone Soup*

a crock pot

a smooth, clean stone

vegetables from your collection

peelers and table knives

magazines (optional)



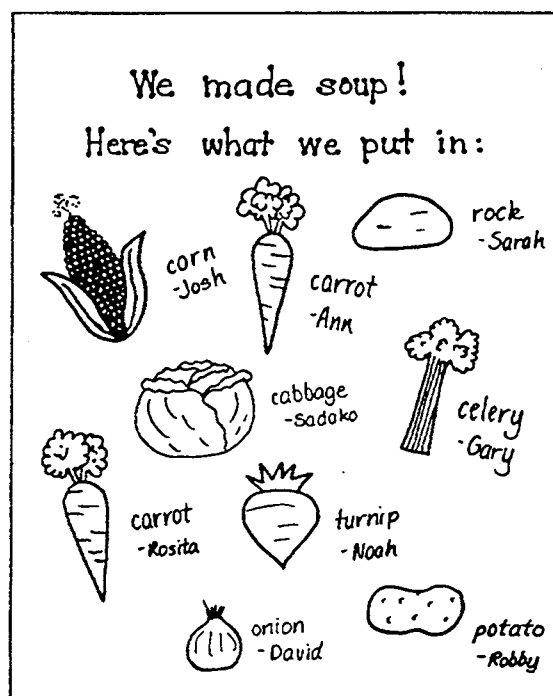
Read *Stone Soup* to your group and ask someone to bring a stone the next day to help with the soup.

You may also want to make graphs of whether the children liked the soup and the salad.

Have the children cut up the vegetables they would like to have in the soup and cook some stone soup. You will be amazed how quickly children learn to use peelers and table knives to prepare the vegetables. We usually ask a mother helper to be at the preparation table and let about six children at a time take a turn. (A crockpot is a very safe way to cook but start early in the day.)

It's amazing that many children actually believe the soup flavor came from the stone even after they have added all those vegetables. It keeps teachers humble and respectful of the magic of five year olds.

With the vegetables that are best raw, you could even make a salad or a platter of vegetables for dipping. Ask children to draw or cut from a magazine a picture of the vegetable they prepared for the soup or the salad. Make a wall chart with those pictures for a permanent record of the day's events.



# THANKSGIVING MATH

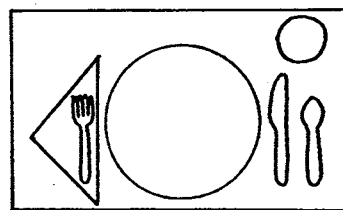
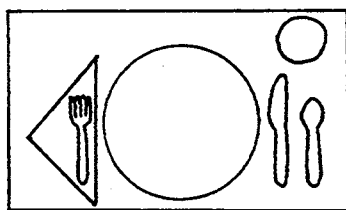
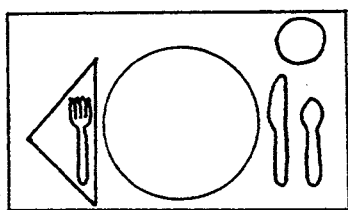
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## Patterning

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### TABLE SETTING

**You will need→** place mats or 9 X 12 construction paper  
play or real dishes and silverware



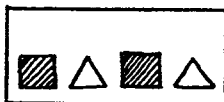
Set out place mats (real or construction paper) in the center of the rug area and set the first one with a plate, cup, napkin, fork, knife and spoon. Go around the circle asking small

groups of children to continue the pattern by setting up place mats in the same manner. This can be repeated by using a variety of plates, glasses, name tags, etc.

### HEAD BANDS (Day 1)

**You will need→** several 3 X 5 index cards per child  
precut triangles and squares in different colors  
paste or glue  
3 X 21 construction paper strips (1 per child)  
precut construction paper feathers (3 colors)

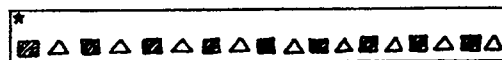
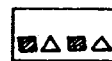
Give each child some 3 X 5 file cards. Have a container of precut colored triangles and squares on each table.



Ask them to build a different pattern on each of their file cards. Go around continually checking their work. Encourage them to try many different patterns. The more children build, the more complex their patterns become. Ask them to choose their favorite pattern and glue the pieces down on that card. Save those cards for the next day.

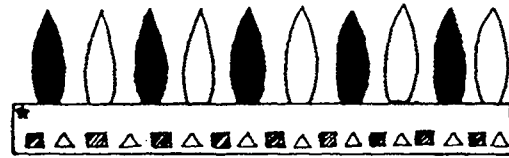
### HEAD BANDS (Day 2)

Give each child a long paper strip (about 3 X 21) marked with a star in the upper left hand corner. The children place their file cards from the day before directly above the star and begin reproducing and extending their patterns the length of the paper. (Some children move their cards along as they do their work to be sure of their patterns.)



Staple the completed strips to fit the child's head, in some cases a bit needs to be cut off. Save for the next day.

they create a pattern they especially like. Give them their headbands and have them glue their feathers on in a pattern to complete their headband.

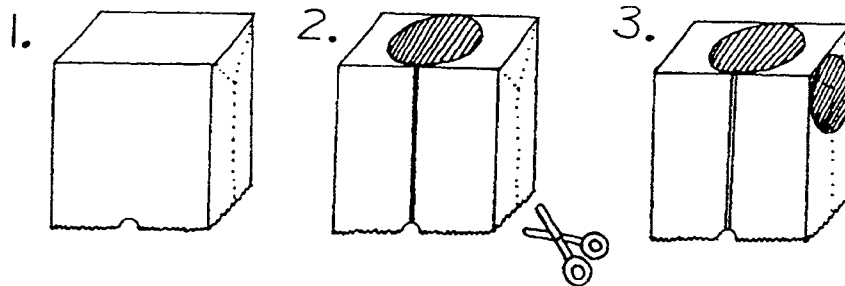


## HEAD BANDS (Day 3)

Provide baskets filled with precut colored construction paper feathers for each table. Ask the children to lay out feather patterns with several repeats until

## INDIAN VESTS

**You will need→** one large brown grocery bag per child  
 precut triangles and squares (two colors)  
 paste or glue

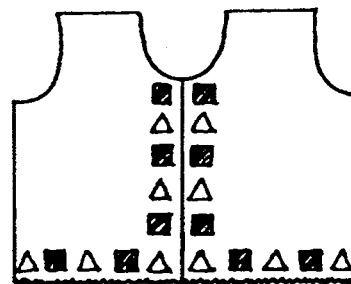
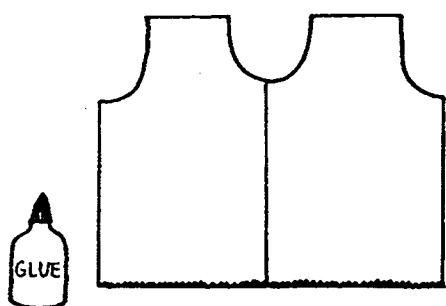


Use a large brown grocery bag. Open the bag and place the open end on the floor. Draw a circle (about 8 inches) on the bag bottom and a line all the way down the center front. Cut along the line and around the circle. Turn the bag inside out so the store name is now on the inside. Cut armholes on the sides.

Give the children baskets of the cut squares and triangles from the headband activity and ask them to use the shapes now to make beautiful matching patterned vests. (Model how these can be arranged in positional type patterns such as diagonal, high, middle, low, or linear patterns or rows.)

Have the children place their flattened bags on the table or rug in front of them.

Note: If you plan a feast, decorate the tables in patterns beginning with patterned place mats (vegetable prints are nice), table settings done in pattern, and fruits and vegetables arranged in patterns down the long tables.



## MACARONI NECKLACES (two days)

### You will need→

a variety of dry macaroni such as salad macaroni, wagon wheels, rigatoni (3-4 bags for class of 30); colored (see directions below)

several gallon ziplock bags

one 3 X 8 piece of construction paper per child

rubbing alcohol

food coloring (3-4 colors)

newspaper

prepared strings (dip both ends of 24" strings in white glue, dry overnight)

white glue



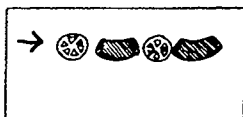
Preparing the macaroni: Dump all macaroni into a large container and mix. Using gallon ziplock bags, put 2 tablespoons of rubbing alcohol and 20-30 drops of food coloring into each bag.

Fill the bag half full of macaroni, seal and shake until the macaroni is thoroughly colored. (If macaroni isn't coloring well enough, you can always pour in a tiny bit more alcohol and a bit more food coloring, then seal and shake again.)

Pour colored macaroni onto several thicknesses of newspaper and let dry. (Be careful here if you've used too much alcohol because it does soak through.)

Give each child a 3 X 8 piece of heavy construction paper labeled with an arrow to indicate where their pattern begins.

Have them experiment with the macaroni laying out different patterns until they have the "perfect" pattern for their necklaces.



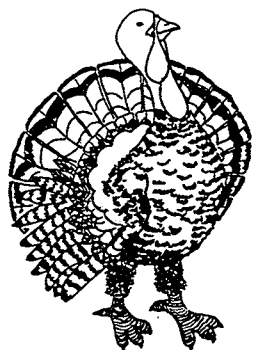
Once they are ready, they raise their hand and you squeeze out a line of white glue on the bottom third of their cards. They then move their macaroni down onto the line of glue. Let these dry overnight.

The next day have each child take a string and read their prepared pattern card to a friend before stringing the necklace. When the necklaces are finished, ask the children to read their completed pattern to you and then tie the necklace for them.



## GROUP TURKEY PATTERNS

**You will need→** large sheets of brown construction or butcher paper  
4 colors construction paper, 1-1/2 X 8 strips  
paste or glue



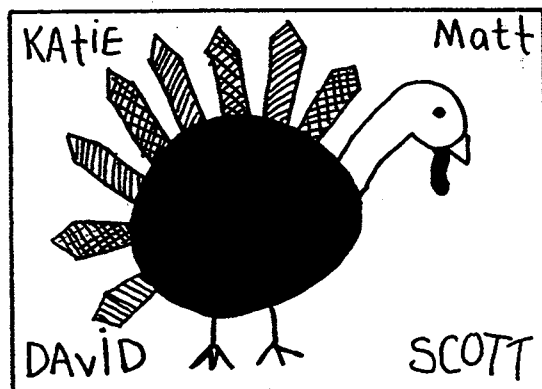
Draw the turkey outline on enough large pieces of brown paper so four children work on each turkey. Cut a generous supply of 1-1/2 X 8 inch colored strips of construction paper.

Assign your children to teams of four (heterogeneously grouped)

to cut out the turkey and arrange the tail feathers into a beautiful repeating pattern. Once the group is satisfied with their tail pattern, they raise their hands so the pattern can be checked and then the feathers are glued down.

After the tail feathers are complete (it may need to be another day if you teach a very short kindergarten session), give the children a

variety of smaller cut pieces of colored construction paper and crayons to complete their turkey. If you don't have room to display these gorgeous creatures, consider offering them as cafeteria decorations properly labeled with a sign giving credit to the wonderful artists in your class.



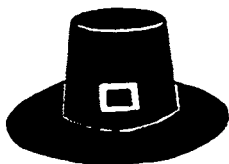
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## Geometry

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### PILGRIM BOY HATS

**You will need→** *for each boy:*  
a 1 X 12 square piece of black construction paper  
a 6 X 24 piece of black construction paper  
a 3" square of yellow construction paper  
white or craft glue  
string  
scissors

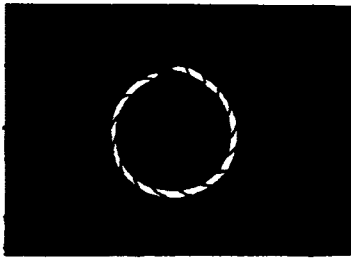


(This activity is best modeled for all the class to see but then completed in very small groups.)

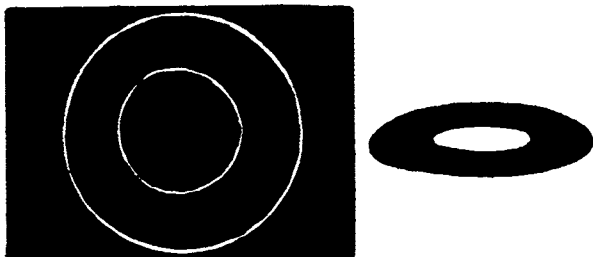
School white glue will work but, if you are feeling rich, a bottle or two of craft tacky glue

makes this activity a bit faster and easier. The directions below sound complicated but once you've assembled a hat, they will make sense. It is such a nice way to relate head circumference measuring to something real.

To model, measure one boy's head circumference with string. Cut the string exactly where it meets. Place the string on a twelve-inch square of black construction paper and carefully form a string circle.

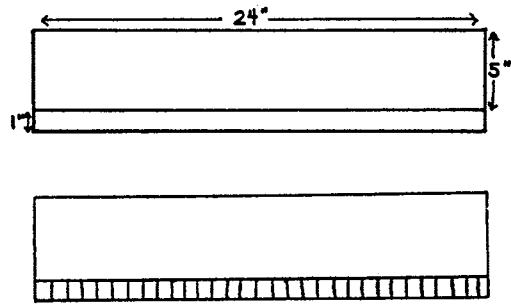


Have the children help you decide when it's really round. Use chalk or a yellow crayon to draw around the outside of the string circle onto the black paper. Remove the string and draw another circle which will touch the outside edges of the square as it goes around. When it is cut out (inside line and outside line) it forms the brim of the hat.



Take a 6 X 24 piece of black construction paper (you may need to begin with a 6 X 18 piece and add on) and lay it out flat. Fold in one edge (lengthwise) about one inch. Mark that edge

with your chalk or yellow crayon at about one inch intervals. Cut on the interval marks into the fold line.



Curl the cut strip into a cylinder (be sure to call it that with the children) and put a dab of glue on the top side of each cut strip. Now slide the hat brim down over the cylinder and press it to the glued flaps. Presto! A black pilgrim hat!



Model how to fold a three-inch square of yellow paper so that a buckle can be cut.

Try to have a parent or an older student available to help with this activity. Only do four boys at a time. The results of this experience in practical geometry are terrific so it's worth the struggle!

## PILGRIM GIRL HATS

**You will need→**

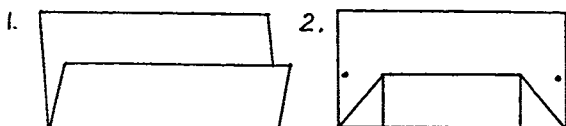
*for each girl:*



one piece 18 X 24 white butcher paper

scissors

yarn



Once again model this with the whole class. Take an 18 X 24 inch piece of white butcher paper

and fold it up from the bottom two thirds of the way. Next, fold each top end corner down to the bottom edge to form a triangle.

Punch a hole in the center of each side. Tie a piece of yarn through each hole and fit it to your head so it can be tied in place with each wearing or tied permanently to slip on and off when worn.



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## Story Problems

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**You will need→**      *for each child:*



a margarine tub with unifix cubes in each of the following colors: 5 brown (turkeys), 5 black (Pilgrim men), 5 white (Pilgrim women)

6 X 9 construction paper for story mats

(See October story problems also.)

Begin telling stories such as the following sample being very careful to keep the story flowing with excitement. Have children help one another if they are having difficulty.

**Teacher:** *Five Pilgrim men were sitting around discussing what to do about Thanksgiving dinner.*  
(Children set out five black cubes on their story mat.)

**Teacher:** *Two left to discuss the menu with their wives.*

(Children remove two black cubes.)

**Teacher:** *How many Pilgrims were still there?*

**Children:** *Three.*

**Teacher:** *A turkey dashed into view and was quickly caught.*

(Children put out a brown cube.)

**Teacher:** *How many turkeys were there?*

**Children:** *One.*

**Teacher:** *Each Pilgrim went into the forest and caught another turkey.*

(Children match a brown cube to each black cube.)

**Teacher:** *How many turkeys did they catch?*

**Children:** *Three.*

**Teacher:** *How many turkeys are there altogether?*

**Children:** *Four.*

Continue the story adding some Pilgrim women along the way. Be aware that it takes several rounds before some children get the idea. Be sure to keep an active pace or you begin to lose your most talented children's interest. It seems to be better to trust the others to eventually catch on.

---

## Estimation and Counting

---

### POPCORN ESTIMATION

**You will need→**      a hot air popcorn popper      unpopped popcorn  
a tub or paper cup for each child  
working space papers (see blacklines)

(If you can borrow a hot air popper, it is perfect for this activity.)

Get out a note requesting small margarine tubs (you will need one per child). If you can't get enough of these, purchase styrofoam or plastic cups, one per child.

Explain to the children that you want them all to have some popcorn to eat. Since it is important that everyone be treated fairly, you have serving containers all exactly the same size. Each child is to have one level serving container of popcorn. You have a problem, however. You have *no* idea how many kernels of popcorn

to put in the popper to get one tub of ready-to-eat popcorn. Problem solve with your class how to find this out.

Accept all suggestions with appreciation. Eventually have the class decide how they would like to begin with the suggestions that have been offered so far.

Let's assume they have chosen starting with 100 kernels. Ask them to count out ten kernels per working space paper so you now have lots of tens. Once the tens are counted onto working space papers, pour each into a portion cup. Ask them if they can figure out how many of those tens you will need to make 100 kernels. (Again, accept their suggestions with appreciation and have the class decide how best to figure it out.)

Hopefully, they will have you count the cups by tens, especially if you've done some counting by tens before with the group.

Once the hundred kernels are reached, ask them to quickly help you recheck to be sure and then pour those hundred kernels into the popper. (They are spellbound as they watch and listen to the popping.)

When the corn is popped, ask them to help you count corn into a serving container to see how

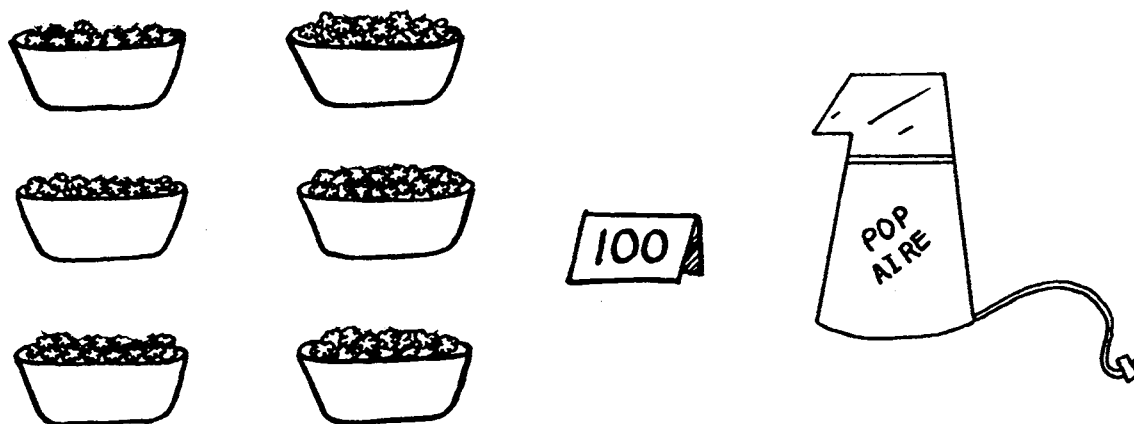
many popped kernels it takes to fill the container to the brim.

Brainstorm with your class what to do next:  
How many containers did 100 kernels fill?  
How many containers would 200 kernels fill?  
What would happen if we keep popping 100 kernels each time?  
What would happen if we popped 200 at a time?

Most classes are so eager to eat popcorn and so fascinated by the scope of this problem, they stay attentive for a long time. You could continue to pop in hundreds and set out the filled serving containers in a manner similar to the sketch below.

Children might also suggest after the counting of the kernels in a filled serving container, that every child count out that many kernels into his or her tub and then figure out how to efficiently pop the corn. (*Flow with their ideas; when they have suggested solutions, they are much more committed to waiting for outcomes.*)

Make a chart story of this when you are finished. It will be fun to read about this day another time or two during the year.





Chapter 4: December

# WINTER MAGIC

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## Calendar Counting

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### VACATION COUNTDOWN CHAIN

(This project or the next one needs to be started on the first school day of December.)

*Waiting is so difficult for children when magical events are ahead. When children are able to make paper chains to count the remaining days until the big event, it gives them another chance to experience measurement of time.*

**You will need→**

*for each child:*



a variety of colored 1 X 9 strips cut from colored construction paper

a sheet of construction paper to make a collage of things they will do during vacation

glue

the child's xeroxed school picture

Have each child complete a chain using their colored strips for the appropriate number of school days left until vacation. You complete a chain as well. Discuss with the children what each will be doing during vacation. Tell them your plans too

so they won't worry about you being left alone at school. Have everyone make a collage of things they will be doing during vacation. Label each with a xeroxed school picture. Attach the last link of each child's chain to their vacation collage and hang

the completed collages and chains around the room in spots that are easy for the children to reach. You could hang your chain by the class calendar. Each day, just before going home, everyone will rip off one link for the day just completed. Count how many more days (links) until vacation. Make a record to post by your chain. (Vacation starts in 3 days. We've cut away 15 links, We have 3 links to go.)

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15				

Vacation starts in 3 days!  
We've cut away 15 links.  
We have 3 links to go!



## COUNTING DOWN TO WINTER VACATION

**You will need→** *for each child:*

a construction paper copy of the Snowman (see blacklines)

enough cotton balls to count the days until winter vacation

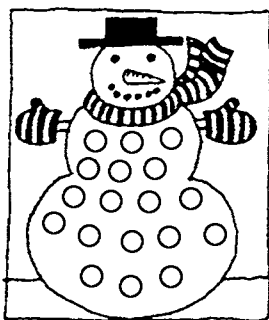
small pieces of black, brown and orange construction paper to decorate the snowman

glue

pencil

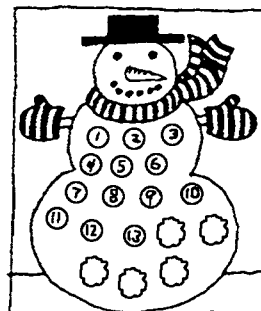
a ziplock sandwich bag or envelope to hold cotton balls

Have your children complete the snowman by cutting it out and doing needed finish work.



They will need to count out the appropriate number of cotton balls for the days remaining before winter vacation. Keep these in an envelope or sandwich bag.

On a large classroom version of the snowman, show the children how to write in the numerals for the remaining days until vacation begins. Also demonstrate to the children how they will cover a number with a cotton ball each day in their count-down, *beginning with the highest number they have written.*



# Money

## THE DREIDEL GAME

### You will need→

bags of ten pennies or nickels for each team

a chart of the dreidel symbols

*for a large class dreidel:*

a gallon milk carton

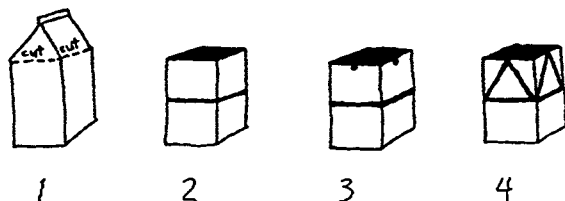
adult scissors

a permanent marking pen

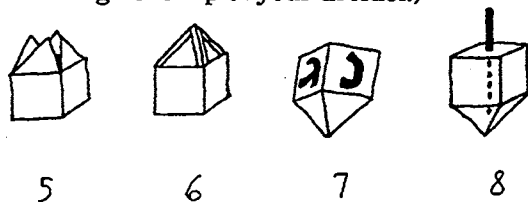
a ruler

a piece of doweling 1/4" X 10"


To make the dreidel, cut off the top portion of your milk carton (the part that folds in to seal the box). Now measure half way up the milk carton (4") and mark a line all around the carton. At the top open edge, make a dot at the mid-point of each side (1-7/8"). Draw triangles as shown. Cut away the portion not needed for the triangles.



Use strapping tape to tape the sides of the triangles together to form the dreidel. You may wish to cover it with contact paper to make it more attractive. Write the symbols on the sides as shown. Sharpen your doweling in the pencil sharpener and then run it through the center of the bottom point. (It should be sharp enough to poke through the top of your dreidel.)



Make the dreidel chart to show the children the directions for which each symbol stands.

gimmel	nun	hay	shin
			
take all	do nothing	take half	put one in

To play, each team will need a bag of ten pennies (or nickels). Divide your class into four teams. Give each team their bag of coins and ask them to count the money. Decide which team will get the first turn. Each team puts one coin in the "pot". The team with the first turn spins the dreidel and follows the direction of the symbol spun. Play continues in turn until the group either tires of the game or time runs out. The team with the most cash wins or a preset amount (the team to first get 10 cents) could determine the winner.

(This can later become a small group game for extra time if you wish to keep it available.)

# Graphing

## THE DREIDEL GAME GRAPH

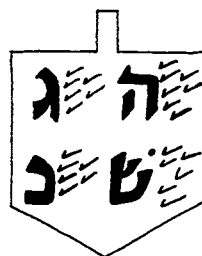
**You will need→** a dreidel

Ask the children, if the dreidel is spun twenty-five times, which side or sides will come up the most often and why. Make a chart of their guesses and reasons. Discuss how they might conduct this experiment and how they could graph the results. Have the children help make the graph. Allow them to use their imaginations and previous experiences to devise their graph. Some possibilities are illustrated.

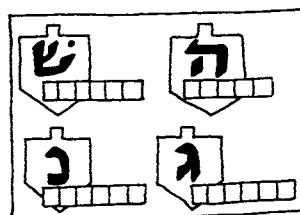
Once the graph is complete, ask the children what they found out. Record their observations on talking bubbles to surround the graph when it is displayed (see Chapter 11).

chart paper

marking pen



Take	Do	Take	Put
All	Nothing	$\frac{1}{2}$	1



## HOLIDAY BOOKS

**You will need→** chart paper  
3 X 5 cards

Read several of your holiday books to the children. Ask the children what they might like to know about the characters in the stories. Some of their responses might include:

What makes Santa's sleigh fly?

How can Santa get into houses that have no chimney?

How did Frosty's magic hat work?

How did Morris's bag make everything disappear? (*Morris's Disappearing Bag.*)

Make a list of all their questions. Have the children select one to discuss. Write all their

crayons

marking pens

5 X 8-1/2 cards for labels

answers to the question on separate 3 X 5 cards and sort them. Make a label for each sorting category with your 5 X 8-1/2 cards.

Magic Ways

shrinks tiny

magic words

fairy dust

Not Magic Ways

has a key

comes in through a window

Mom leaves the door open

Knocks and Dad lets him in

Then choose three favorite answers. Have the children help you compose a graph to see which explanation they believe is most likely.

## HOLIDAY ORNAMENTS

**You will need→** an ornament or decoration for each child—have them bring one of their favorites from home

Have children bring their favorite holiday decoration. Brainstorm ways to sort them and

use children's ideas to sort several times. Graph their favorite way of sorting.

## MORE HOLIDAY GRAPHS

Graph any of the following questions: Do you—celebrate Christmas, celebrate Hanukkah or not celebrate any December holiday? Where do you hang your stockings? Is Santa real? How

do you like your potato latke (with applesauce, sour cream, plain, not at all)? Which winter sports do you enjoy?

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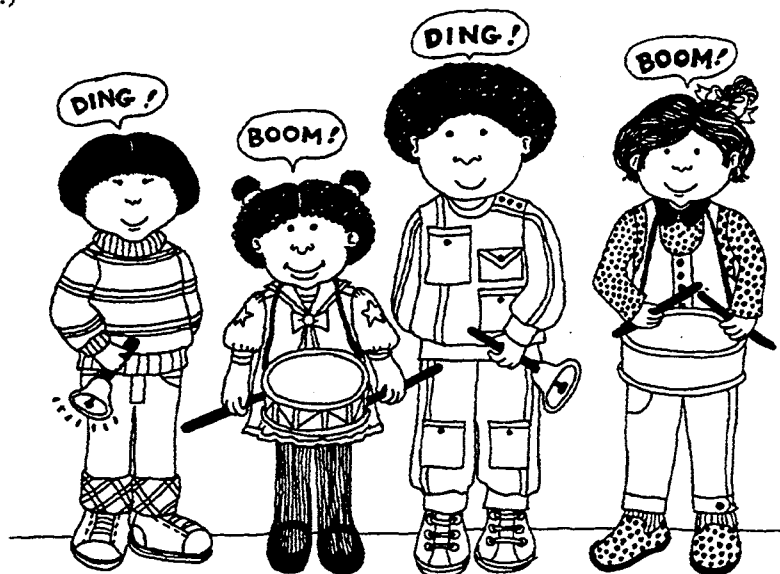
## Musical Patterns

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**You will need→** a collection of rhythm instruments

It's fun to invent musical patterns with the children. Explore the unique sounds of each of the instruments and invent some holiday music sounds to perform in repetitive patterns. (Santa's bells, Santa's bells, Rudolph's clicking hooves...)

Your children may also enjoy adding rhythm instrument patterns to favorite songs such as Jingle Bells. Let them figure out what sounds should go with each line.



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# Geometry

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## SANTA CYLINDER TREE ORNAMENT

### You will need→

red glitter

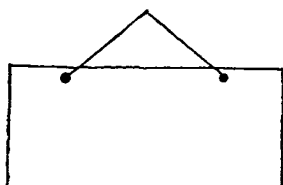
marshmallows (miniature)

red yarn

crayons

glue

hole punch

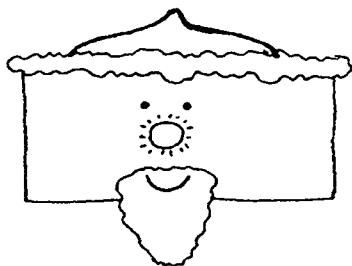


*for each child:*

a 4 X 8 piece of white construction paper (punched with two holes at top—see drawing)

2 cotton balls

Punch holes and tie yarn as illustrated before children start this project. Have the children draw two eyes and a mouth in the center of the white strip. They place glue on one side of a marshmallow and dip it in the red glitter, and quickly place a dab of glue where Santa's nose will go and set the "nose" in place.



Next they stretch one cotton ball out to make it long and fluffy and glue it on for a beard. Then they stretch out a second cotton ball long and thin and glue it to the top of the white strip for hair.



Finally, they place a line of glue down one end of the strip and curl the strip into a cylinder, with a partner's help.

## RUDOLPH CONE ORNAMENTS

### You will need→

*for each child:*

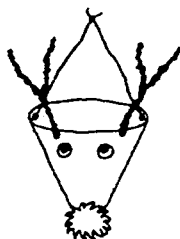
a brown construction paper copy of the Rudolph Cone Pattern (see blacklines)

scraps of red and black construction paper

a brown pipe cleaner

tacky glue

red pom-poms from a craft store make adorable noses (if your budget allows)



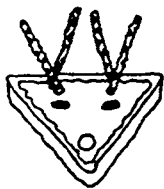
Problem solve with the children how to roll their cut pattern into a cone and make it stay. Ask them to decorate it with a red nose, black eyes and pipe

cleaner antlers. Finish Rudolph by tying a yarn loop through the top so he can be taken home as a Christmas tree ornament.



## RUDOLPH TRIANGULAR SANDWICHES

### You will need→



*for each pair of children:*

precut paper squares, bread-size

a plastic knife

a slice of wheat bread

a small paper plate a napkin

raisins (eyes)

maraschino cherries (a red nose)

peanut butter

stick pretzels (antlers)

Ask partners to work together to cut their bread so they will end up with equal triangles. (It's good to have some precut squares of paper for kids to try out their solutions before they actually cut their bread.)

Once the triangles of bread have been cut, the children spread peanut butter on their half and decorate it with raisin eyes, a maraschino cherry nose and pretzel antlers.

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## Counting

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### VISIONS OF SUGARPLUMS

#### You will need→

a copy of the book, *The Night Before Christmas*

magazines

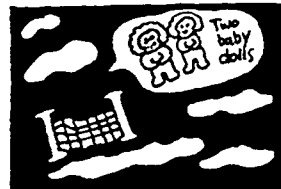
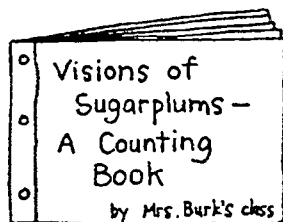
scissors

*for each child:*

a 12 X 18 piece of black construction paper

a small piece of polyester stuffing (fabric stores)

copy of the Visions of Sugarplums Bed (see blacklines)



Read a favorite version of *A Visit From St. Nick* (*The Night Before Christmas*) to your class. Even though the language is difficult for young children, they will begin to understand the story as you retell it while looking again at the pictures. Have them act out portions of it.

When the story is over, generate a chart of favorite words, phrases and sentences. Discuss the meanings of some of these.

The next day, read the story again. When the children hear some of the language they listed on their chart, they'll be very excited. Stop and point out on the chart the words and phrases they remember.

Make night snow pictures using black or blue construction paper and polyester stuffing. (Be sure to show the children how to thin it out by stretching it.) Run copies of the Visions of Sugarplums bed

for children to cut out and color to add to their night pictures.

The next day, ask them to search through magazines for "sugarplums" of which the children

may have dreamed. Once the sugarplums have been found and cut out, have them brought to the class rug. See how many different ways they can be sorted. Use the pictures with the night snow scenes to create a Counting Big Book of Visions of Sugarplums.

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## Story Problems

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### **You will need→**

a map or a globe

pictures of reindeer

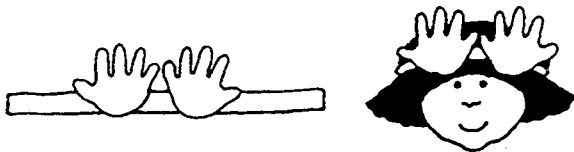
*for each child:*

a 2 X 24 strip of brown construction paper

two 8 X 8 pieces of brown construction paper (Children trace around their hands and cut to make antlers.)

Teach the song Rudolph the Red-Nosed Reindeer. Bring in large pictures of reindeer if you can locate some. Point out where Lapland is on a map or globe. Discuss the Laplanders who care for the reindeer and how the reindeer help the people.

Make reindeer antler headbands from brown construction paper. Have parents help staple them to fit each child.



Over the next few days, have the children join you in telling and acting out some story problems. It is helpful to tell the stories once and then ask the children to brainstorm the acting. (See Chapter 14 for Story Problems in script form for acting and creating a Big Book.)

Expand on these possibilities :

Once there were four reindeer getting ready to pull Santa's sleigh. As they began to pull, they realized the sleigh was too heavy. Four more reindeer came to help. How many reindeer were ready to pull the sleigh?

Five of Santa's reindeer were at the North Pole getting ready for the big Christmas season; Comet, Cupid, Donner and Blitzen joined them. Now how many reindeer were preparing for Christmas?

Santa took six reindeer for a practice flight. Two of them became a bit dizzy and had to stop off for hay. How many could still practice flying?

It was after Christmas and all eight of the reindeer were preparing for a long winter's nap. Mrs. Claus took them extra hay and some carrots. After they had eaten, four went to the stable to sleep. How many reindeer are still awake?

Santa wanted to give each of his reindeer a lump of sugar. Even Rudolph was there. How many lumps of sugar does Santa need? (Children might want to find things in the room such as unifix cubes to solve this problem with their people reindeer.)

Santa wanted to hook the reindeer to his sleigh in partners. He began with two just in front of his sleigh, two in front of them... How will it look when he's finished hooking up his reindeer if eight of them will pull the sleigh? What would it look like if Santa had ten reindeer? (Children line up the people reindeer to solve the problem.)

Ask the children to help make up some story problems to act out. If your children have enjoyed this activity, work together in small groups to prepare some Big Books of each story as in Chapter 14.

Chapter 5: January

# EXPLORING CHANGES

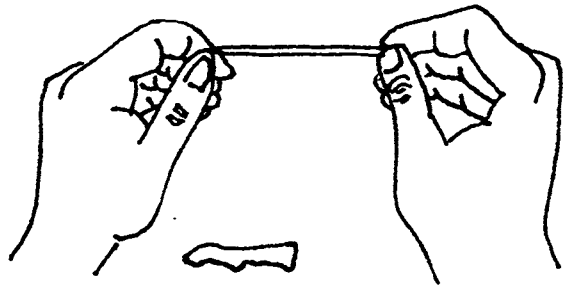
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## How Can We Change Things?

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### CHANGES BY HAND

**You will need→**      assorted pieces of paper  
                                 crayons  
                                 brass fasteners  
                                 paper clips  
                                 pipe cleaners  
                                 ribbon, string  
                                 rubberbands  
                                 crackers



Have the children join you on the rug in the class circle. Begin by choosing a piece of paper. Ask the children how the paper might be changed if you use *only* your hands. (They may suggest tearing, crumpling, folding,

bending, etc.) Make a labeling card for each suggested change and change pieces of paper accordingly so they can be set by their labeling cards.

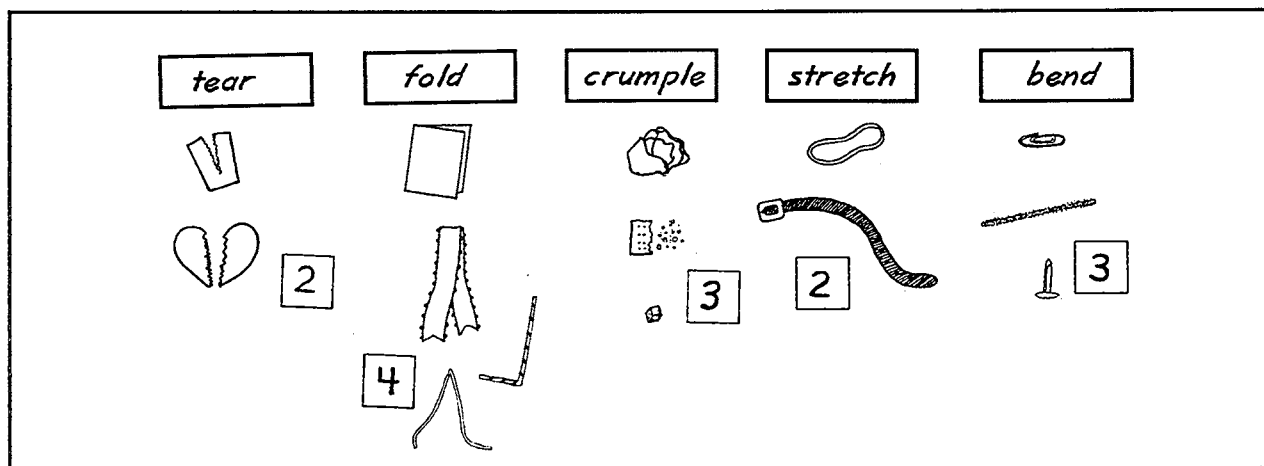
**tear**      **fold**      **crumple**



Continue to choose items and brainstorm how *hands only* could change each item. Make labeling cards for any new categories that come up and set the changed examples by each new card. When you are finished, you have a wonderful graph of how things can be changed by hand.

Make a chart of the children's observations about the graph, for example: Which technique changed the most objects? Which changed the least? Why? Which item could be changed the

most ways? Why was that possible? Count the items in each category and label with numeral cards.



## INDEPENDENT CHANGING BY HANDS

Set out an assortment of items (as above) that children can change by using their hands. Set out bags labeled with each of the changing labels brainstormed in the group. Ask children sometime during classtime to choose one or two

items to change (hands only) and have them put their changed item(s) in the appropriate bag. At a later time, explore the bags to determine the results of the changes.

## Changes by Growing

### You will need→

a real live baby

large sheet of paper

string

At five, growing is very important! Birthdays are major milestones. Often children are unaware of the many changes that have happened to them as they've been growing. The following activities help young children see the many changes that have happened to them in the past five years.

Try to find a newborn infant (your own, a relative's child, a class member's new baby). If you can't find one, invent one! Find out the baby's length and weight at birth. Make a tracing of the baby's hand and foot. Introduce the baby to your class and tell the children all about it. Discuss how often new babies eat, what

they eat, how often they sleep, how hard it is for new babies to find their pacifiers, etc.

Send each child home with a length of string attached to a note. Ask parents to help their child cut the string equal to the length he or she was at birth so the child can return it to school the next day.

The next day, ask children to lay out their strings. Have each child compare their string to the string of the child on either side of them. Discuss what reasons there might be for so many different lengths of string. Also, discuss why we measure a baby's length rather than height.

## BIRTH LENGTH GRAPH

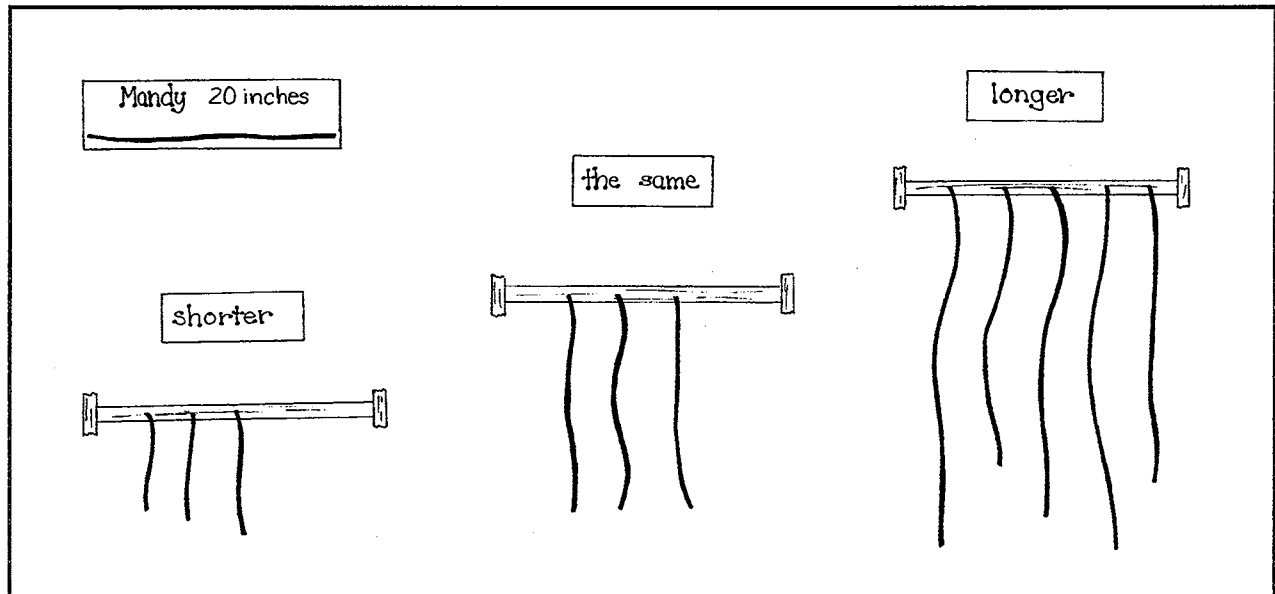
**You will need→** strings (from activity above)

masking tape

9 X 24 construction paper

Tape the newborn baby length string (from the activity above) to a piece of construction paper and post above the following labels (masking tape, sticky side out).

Ask each child to compare his or her string to the class baby's sometime during the day and add his or her string to the appropriate graph label. Be sure to discuss the graph at the end of the day or the next day and make a class chart of labeling bubbles to go with the graph.



## COMPARING HANDS

**You will need→** *for each child:*

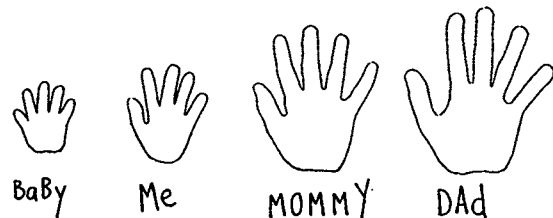
a large piece of construction paper

large sheet of newsprint or butcher paper

Send a note and large piece of construction paper home with each child asking them to trace around their own hand as well as two different adult hands. The drawings should be returned to school the next day.

Give each child a tracing of the class baby's hand and have each child cut out the four hands and lay them out on a large piece of newsprint or butcher paper from the smallest to the large-

est. Help each child label the hands—Baby, Me, Mommy, Daddy.



## LOOKING AT BABY CLOTHES TO SEE GROWTH

**You will need→** clothing children wore as babies

Ask each child to bring a piece of clothing they wore as a baby to school. (Label clothing with their names and set aside to use over several days.)

Have the children seated on the rug in the class circle. Give out an item of clothing and ask the

child to show what they brought and try to put it on. Talk about how much the child has grown. Continue in this manner until children get too wiggly. Save the rest of the baby clothes for other days so interest stays high.

## LOOKING AT BABY PICTURES TO DETERMINE CHANGES

**You will need→** childhood pictures brought by students

Ask each child to bring one or two early childhood pictures of him or herself to school. Carefully tuck those pictures away so the following activities can take place over several days. Focus on only a few children each day. Place a

child's pictures in a pocket chart and have him or her stand nearby. Discuss the changes the class can see, such as more hair, taller, heavier, more teeth, can walk, more grown-up clothes now.

## BIG BOOK OF GROWTH CHANGES

**You will need→** a baby picture and a current photograph of each child in your room

12 X 18 white construction paper



















Ask parents if you can keep one of the pictures for a class book of changes. (If parents can't spare the picture, it can be copied on a blackline copier.) Take a current picture of each child as well for this activity.

Use the baby picture and a current picture to create a page for each child to assemble into a class Big Book (see Materials Index). Have the children help you write stories of the changes that have happened over time. (When Katie

was one, she had just a little hair. Now Katie has lots of hair. When Mark was three months, he had no teeth. Now Mark has twenty teeth. When Mary was two, her dog was much taller than she was. Now she is taller than her dog.) Once the Big Book is assembled, read it a few times together with your class and then make it available for children to explore and read in partners or smaller groups during class reading times.

# Changes Over Time

## WEATHER CHANGES

<p>Prediction</p> <table border="1"><tr><td> Sunny</td><td> Cloudy</td><td> Rainy</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table>	 Sunny	 Cloudy	 Rainy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Sandy said it was cloudier than we thought, because it's still winter.</p> <p>Mary said we guessed 3:00 and it was really 1:00. We were off 2.</p> <p>Tom said it rained a lot!</p>
 Sunny	 Cloudy	 Rainy					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<p>Really</p> <table border="1"><tr><td> Sunny</td><td> Cloudy</td><td> Rainy</td></tr><tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td><input type="checkbox"/></td></tr></table>	 Sunny	 Cloudy	 Rainy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 Sunny	 Cloudy	 Rainy					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

On Monday, make some group predictions of weather for the school week. Record those predictions on a class chart.

Record the actual weather for that week on the calendar weather graph (see Calendar chapter).

At the end of the week, compare the class predictions with the actual weather.

## CHANGES OF THE MOON

(With many thanks to Margo Morrison and Kumi Ishido)

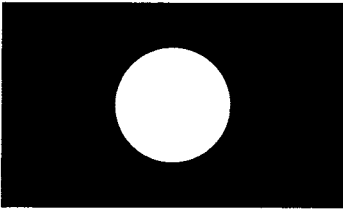
**You will need→** *for each child:*

ten copies of Moon Phases (see blacklines)

Begin by sending home a copy of the Moon Phases blackline. It includes a note to parents so they will know how to help their children complete the homework. The note reads: "We are doing a class study of Changes. We will be completing 10 of these pages with your child throughout the month. Please take your child out tonight after dark to observe the moon. Help him/her color with a yellow crayon how the moon looks. Please return the paper tomorrow. Thank you!"

Dear Parents,  
We are doing a class study of Changes. We will be completing 10 of these pages with your child throughout the month. Please take your child out tonight after dark to observe the moon. Help him/her color with a yellow crayon how the moon looks. Record the date and time. Please return the paper tomorrow. Thank you!

Name \_\_\_\_\_

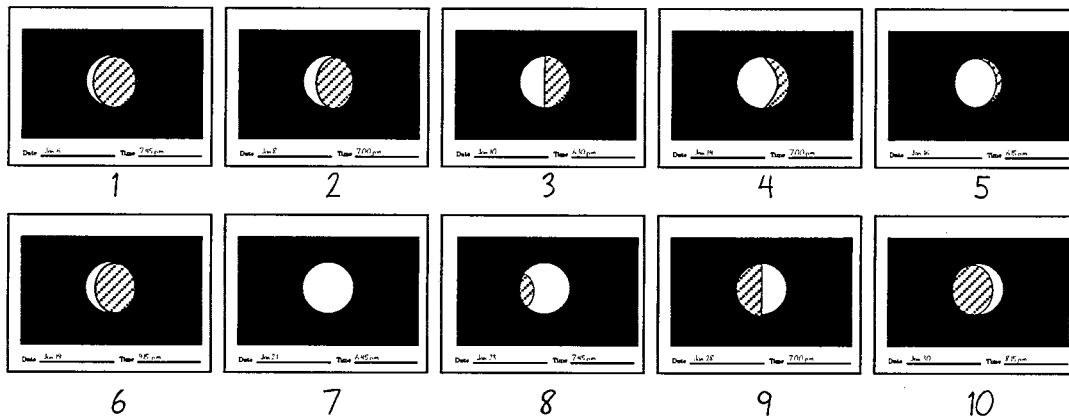


Date \_\_\_\_\_ Time \_\_\_\_\_

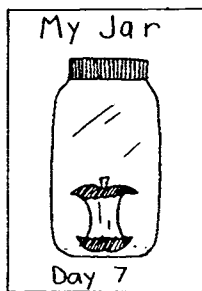
After the first time, choose three days per week to send papers home, unless weather makes it impossible to see the moon. Save the returned drawings in envelopes each labeled with a child's name.

When all ten records have been made, go through each envelope and number the papers 1-10. Mix the squares up as you return them to the envelopes.

Work with one child's envelope to model the activity for the class. Set out all the black squares and ask the children to help you order the records from one to ten. (It would be very helpful to have models displayed of the phases of the moon: crescent, quarter moon, half moon, three-quarter moon and full.) If you have time enough and adults enough, it's nice to go around and help label some pages of the children's books with appropriate phases of the moon. Show how to staple the pages into a booklet with a cover the children design to complete their books.



## OTHER CHANGES





prevents allergy problems as mold begins to grow.)

Have children bring something to school they believe will change over time. (Some may bring fruits or vegetables, others might bring a flower or seeds, etc.) All items should be sealed in a plastic bag or jar with a tight fitting lid. (This

Sort the items into categories making simple drawings of how they look now. Reexamine the items daily and make additional records of change once weekly. Children get very excited as they watch things change.

In one classroom, Kristie brought herself. The class measured Kristie, taking measurements of her feet, her waist, length of her hair, how many teeth, traced her hands, etc. A chart was made with all those vital statistics. Every seven days, Kristie was remeasured. The class loved it.

Day 1	Day 7
hair <u>15</u> cubes	hair <u>10</u> cubes
feet <u>10</u> cubes	feet <u>10</u> cubes
waist <u>20</u> cubes	waist <u>20</u> cubes
teeth <u>20</u>	teeth <u>19</u>
hand 	hand 

Kristie's hair is shorter. She got a haircut.

Kristie lost a tooth! One less tooth.



---

# Story Problems

---

## SNOW PEOPLE

**You will need→** margarine tubs of plain wooden cubes for children to share

cotton balls or white construction paper circles

12 X 18 light blue construction paper

Begin by telling snow people stories. (Review October and November Kindergarten Seasonal Math if you've forgotten how this goes.)

Some children woke up early one morning to discover the ground covered with fresh new snow. They quickly dressed in their warmest clothes and went outside to begin rolling big snowballs.

At first they each rolled out three snowballs. (Children set out three cubes.) They wanted their snowpeople to have a head, middle and bottom. Do they have enough balls? (Children stack their three cubes and check.) They were

so excited they kept rolling balls. This time they had six big snowballs. How many snowmen can they make? They rolled four more. How many can they make? How many more balls do they need to complete that last snowperson?...and so on.

When these story problem experiences have excited the children and seem magical, have them work together with cotton balls (stretched and flattened) or cut paper circles to create pages for a Big Book. It is lots of fun for them to add details with additional cut colored paper and crayons. You can help with the writing.



## Chapter 6: February

# GROUND HOG DAY

*Tell the children the legend of the ground hog: The ground hog wakes up from its long winter sleep on February 2 each year. Once it awakens, it sticks its head up out of the hole to check on the weather. If the sun is shining and it can see its shadow, it becomes frightened and quickly goes back into its hole to sleep because it knows the next six weeks will still be winter. If it is a cloudy day and it doesn't see its shadow, it eases itself out of the hole because spring weather is just around the corner.*

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## Shadow Graph

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### You will need→

*for each child:*

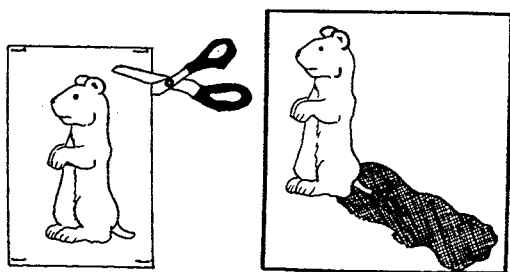
a 6 X 6 piece of black construction paper

a 6 X 6 piece of white construction paper

a 6 X 9 piece of light blue construction paper.

scissors

paste or glue

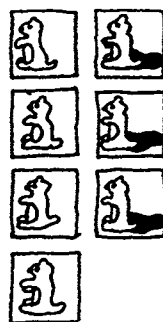


Find a picture of a ground hog (woodchuck) to show the children. Ask them each to color their own ground hog on their white piece of paper. Staple their coloring paper to their black square and ask them to carefully cut around their ground hog cutting through both the white and black papers.

Once the ground hog and its shadow are cut, give them the following directions: If they believe the ground hog will see its shadow

today, they will paste (glue) both their colored ground hog and its shadow on their blue papers. If they believe it will not see its shadow, they will paste only their colored ground hog on their blue paper.

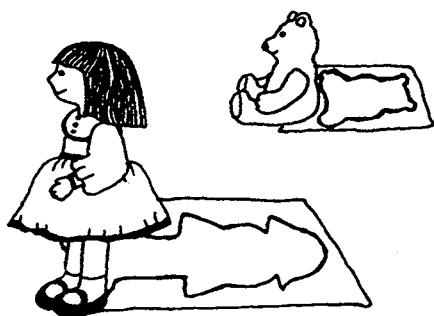
Once the ground hog papers have been completed, the children bring them back to the class meeting area where a graph is constructed, discussed and a chart story of the results is written.



Groundhog  
 More thought the groundhog  
 wouldn't see his shadow.  
 1 more thought the groundhog  
 wouldn't see his shadow.  
 3 thought the groundhog  
 would see his shadow.  
 4 thought the groundhog  
 wouldn't see his shadow.  
 Mary said she saw her shadow.

## Shadow Search

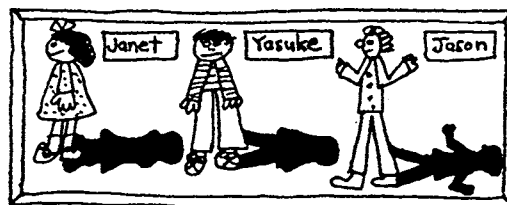
**You will need→** 2 large pieces of white butcher paper (child-sized)  
 black crayons  
 a piece of white construction paper  
 a stuffed animal



Take your class outside on a sunny day. Have a child stand at one end of the white butcher paper. If their shadow can be seen, trace around the shadow with a black crayon. (Children will work together later to shade this in.) Also put the stuffed animal on the white paper and look for a shadow. If one is seen, trace around the shadow with a black crayon. Again, children can color this in later.

Once you are back in the room, trace around the child whose shadow you've traced onto the butcher paper. (Ask children to help color this later.) Cut out both the shadow picture and the tracing of the real child and compare. Arrange on a pinning board the way it looked outside. The same thing may be done for the stuffed animal.

It is nice to follow through on this by having the children make small shadow pictures of themselves following the same procedure as the ground hog shadow pictures. These make a beautiful bulletin board.



# Class Weather Prediction Graph

## You will need→

a large square of butcher paper or tag 28 X 28

42 cut squares of white construction paper 4 X 4

glue stick

Remind the children that when the ground hog sees his shadow, many people believe there will be six more weeks of winter. Discuss the number of days in a week and ask the children if they think it would be possible to figure out how many days would be in six weeks. They will usually propose some very good problem solving ideas. They might make trains of seven unifix cubes until they have made six trains, then count the cubes. They might want to cut up an old calendar until they have cut out six weeks. They could reassemble the weeks on a large piece of paper and then number the days. Try out their ideas until you have reached a satisfactory solution. (It is important that you try out their ideas, even the ones you know won't work, so they keep taking those risks in proposing solutions that are so critical to learning!)

Once the children have determined that six weeks will have 42 days, make a large six-week chart, help them determine what day of the week the second of February will be and have that be the first day of the big grid.



Ask the children to help you label each day of the week with the appropriate name. Ask them again on which day of the week February 2 will fall. Explain that you will glue a paper square on the appropriate day and that will become number one in your six weeks of weather watching to see if the ground hog weather story is true in your area. Continue to glue a paper square up for each day of the six weeks labeling each one with an appropriate numeral for the 42 days. Stop at the end of every seven squares and draw a double red line to indicate that one week has been completed. It's fun to make a record of those ending numbers and tell the children this is a counting-by-sevens pattern (7, 14, 21, 28, 35, 42).

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	32	33
34	35	36	37	38	39	40
41	42					

Another day, the children will make predictions about the weather for each day. Discuss with them the idea that six more weeks of winter means spring isn't ready to come yet. Ask them to think about spring. Do they know what the weather is like in spring? Do they think spring will happen suddenly or will there be gradual changes in the weather as spring is near?

Decide the types of weather you will predict. (If you've been doing the weather graph with your daily calendar, they will have strong ideas about winter weather.) Assign a picture symbol to each weather type. In San Francisco, we would choose:



 <div style="border: 1px solid black; padding: 5px; display: inline-block; margin: 5px 0;">same</div>	 <div style="border: 1px solid black; padding: 5px; display: inline-block; margin: 5px 0;">different</div>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

"We don't think  
Spring will ever  
come to San  
Francisco!"

"More predictions  
and reallys  
were different  
than were the  
same."  
 "4 more were  
different."  
 "10 were the  
same."  
 "14 were different."  
 "Our weather  
showed more  
foggys than  
any other!"

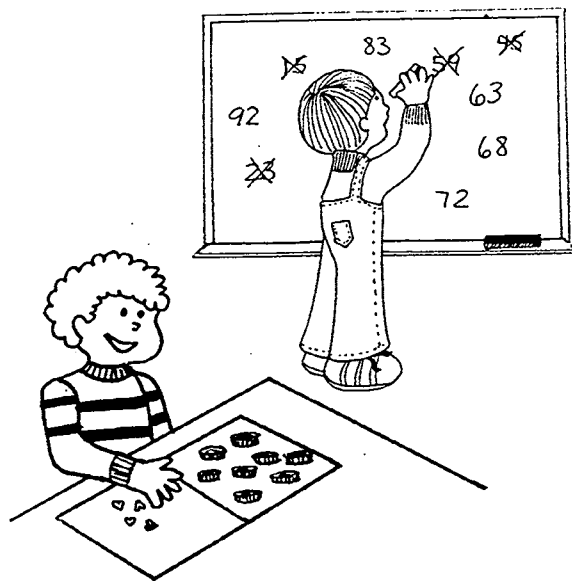
# VALENTINE'S DAY

## Sorting

## ESTIMATING AND COUNTING

**You will need→** portion cups (Materials Index)

Have the children estimate the total number of candy hearts. Record their estimates on a chart or the chalkboard. Ask a few children at a time to come up and quickly count ten candies into counting cups. As soon as all the hearts have been counted into tens cups (there will probably be a few leftovers), count by tens and ones to find out how many in all. As the counting is going along, cross out the numbers you pass on the guess chart. When the actual number of candies is known, try to decide which estimates were closest. (Be careful not to give special credit to the children who were closest; if they need it they'll speak up anyway, but so will five or six others who think they guessed those numbers!)



## SHARING THE CANDIES

Ask the children to help you decide how the hearts can be divided so everyone gets the same amount. Children will have a variety of solutions. You can help them structure their reasoning by asking some questions.

**Teacher:** How many children are here today?

**Children:** 32.

**Teacher:** How many hearts are there?

**Children:** 97.

**Teacher:** Are there enough hearts for everyone to take one?

**Children:** Yes.

**Teacher:** Are there enough hearts for everyone to take two?

**Children:** Maybe...it looks like it.

**Teacher:** Are there enough hearts for everyone to take three?

**Children:** We don't know. Maybe some people wouldn't get three.

**Teacher:** Let's try having everyone take two and see if we have any left. Did everyone get two?

**Children:** Yes, and there are some left.

**Teacher:** Let's count how many we have left.

**Children:** We have 33.

**Teacher:** How many of us are here today?

**Children:** 32!

**Teacher:** Do you think we have enough for every person to take one more?

**Children:** Yes!

**Teacher:** Are there any left?

**Children:** Just one...you could eat it!

## SORTING BY COLOR

**You will need→** candy conversation hearts

9 X 12 construction paper in colors matching the candy hearts

Look at the candy hearts. Have the group estimate which color will have the most. Write the color on the board.

Send the children to their tables in groups of four. Give each group a handful of hearts to sort by color. When each group has finished sorting, call them to the rug to place their sorted

candies on matching construction paper. Once all the hearts have been laid out, estimate which color looks like it has the most.

Count the group of hearts they think has the most. Record the total on the construction paper and ask them which color they think is next to the most. Continue in this manner until the groups are all

counted. Use the talking graph bubbles (Chapter 10) or a chart to record the outcome of sorting by color. Be sure to explore how and why they think it turned out this way and whether they believe all bags of candy hearts would be the same.

Once again, find a way to count and distribute the hearts so everyone will be happy.

## VALENTINES FROM HOME

Ask each child to bring a Valentine or two from home. (This is a nice activity to do after Valentine's Day.) Once again, lay out the valentines and

brainstorm ways to sort. Sort by one of the suggested ways and graph.

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## Money

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### PAPER HEARTS ART STORE

#### You will need→

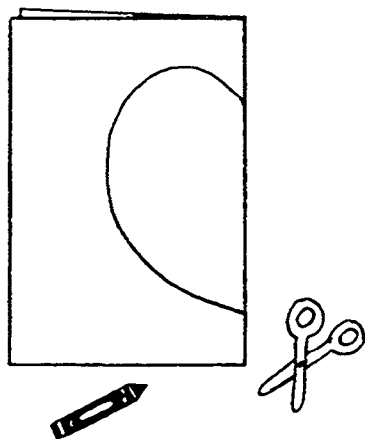
*for each child:*

a 9 X 12 piece of red construction paper

scissors glue

bits of lace, buttons, paper scraps, stickers, fabric scraps, pom-poms and sequins

a portion cup containing 14 pennies



Give each child a piece of red construction paper (9 X 12) and show them how to fold the paper in half and place the fold to their right. (Help as needed.)

Show them how to draw a capital C with a black crayon starting at the fold and ending at the fold.

Have each child cut along the black line remembering to leave the paper folded.

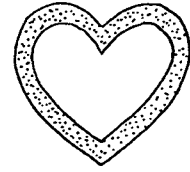
Give each child a portion cup containing 14 pennies. Have them go through an Art Store and purchase the materials to decorate their hearts, using the supplies they've purchased. (See Art Store directions on page 186.)

Once the hearts have been completed and allowed to dry, have the children place them in the center of the rug in a way that all can be seen. Brainstorm the ways the hearts could be sorted and make a chart of those ways. Choose one of the ways to sort and complete the chart by describing the outcome of the sorting. These make a lovely bulletin board along with the chart. Be sure to hang them in the sorted categories.

# Measuring

## ONCE AROUND THE HEART

**You will need→** sandpaper  
scissors  
red construction paper (for graph labels)  
string wrapped on tongue depressors

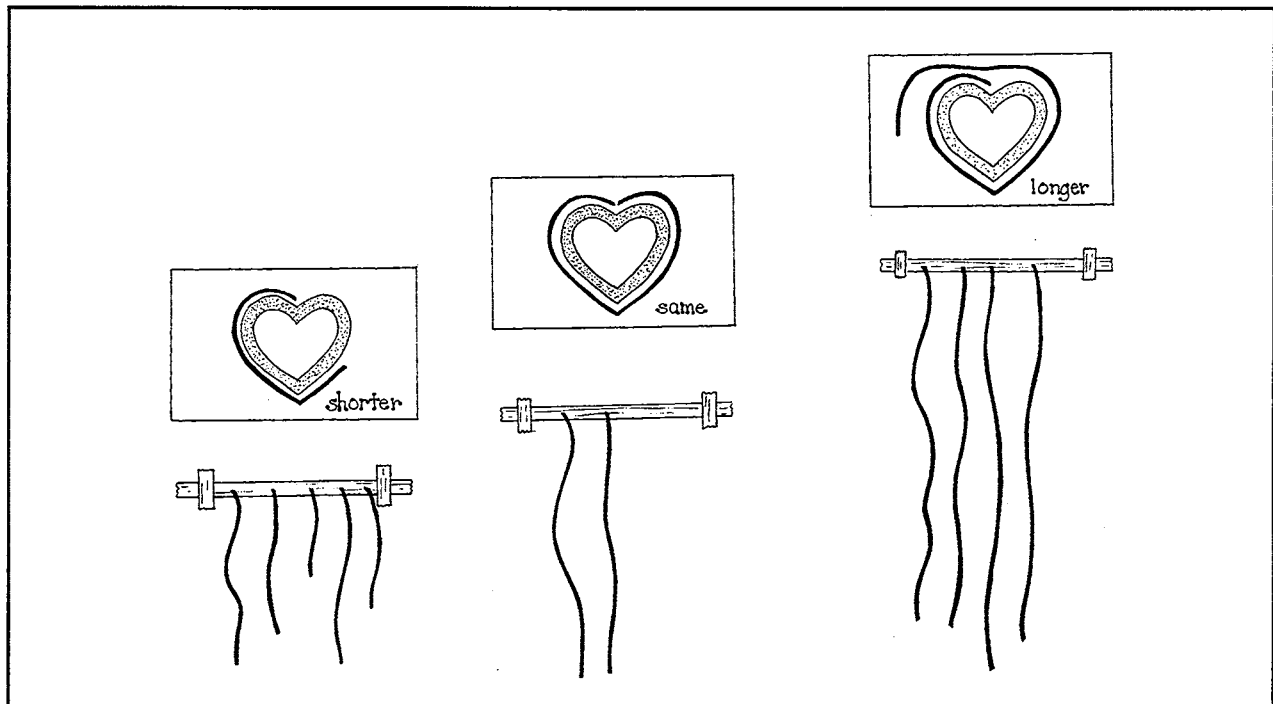


Draw a large heart on a piece of sand paper and cut it out. Cut another heart from the middle of the first, so you end up with a heart-shaped outline about one inch wide. Set the heart on a table.

Have the children take turns tracing the heart with their fingers to get a feel for its size. Model for them how they will be using a string they have cut to complete the graph. Then send them to their tables where you have set out string (wrapped around popsicle sticks or tongue depressors for ease in handling) and scissors. They help each other cut pieces of string they think will fit exactly around the heart outline.

Once the strings are cut, ask them to wear them around their necks while the math boxes are set out for the day. During the morning, when there is room to check their string against the heart, they will do so and then add their string to the graph.

When everyone has had a chance to measure and hang their strings in the appropriate column, talk about the outcome and why they think it came out that way. Record their observations either on talking graph bubbles or as a chart story.





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## Counting

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### LOVE NUMBER BOOK

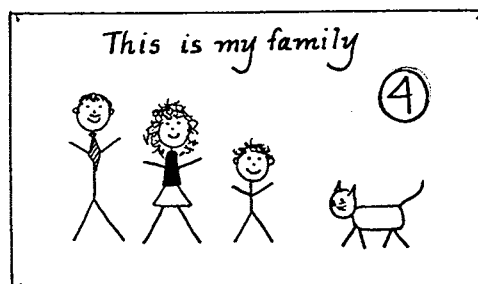
**You will need→** 9 X 12 white construction paper

magazines

glue

Discuss groups that show love: a family, a boy and girl, a husband and wife, a mother cat and kittens, three best friends, etc. Have each child either draw a picture of a love group or find a picture to cut from a magazine. Have those

pictures glued onto construction paper pages. Label the pages with the children. Assemble the pages into various counting books: Best Friends, Animal Families, Families, Boy Friends and Girl Friends



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## Patterning

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### HEART PATTERNS

**You will need→** pink, white and red construction paper hearts cut in 3 or 4 different sizes

4 X 18 lavender construction paper strips

glue

Give each child a variety of small cut hearts. Ask them to lay the hearts out in patterns and show a friend. Keep this going until they've tried several different patterns and then give

them a cut construction paper strip to glue down their last pattern. These make a beautiful bulletin board or border if the children are willing to leave them at school.

### VALENTINE PATTERNS

Once again, this one works well after Valentine's Day. For this activity ask the children to bring in one or two of the valentines they received.

Lay out the valentines and brainstorm ways to sort them. Choose one or more of the ideas and actually sort. Then decide how these categories could be laid out in a pattern.

# THE 100TH DAY OF SCHOOL

*If you have been doing the Numberline Strip (see Part 3: The Calendar), your class will be anticipating the hundredth day of school with great excitement. Help them be aware that Zero the Hero is about to have a new friend!*

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## Hundreds Activities

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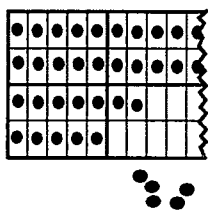
### COLLECTIONS OF 100

**You will need→** children's collections of 100 items  
8-12 hundreds counting mats (see blacklines)

Ask each child to plan ahead for a collection of 100 small items they could bring for the hundredth day. Have them bring those items in a bag, labeled with their name, on or before the hundredth day. (Common items children bring include pennies, toothpicks, beans, tiny toys, noodles, Cheerios, tiny sticks, rocks, etc.)

Run many copies of the hundreds counting mats blackline, lay them side by side and tape together into large hundreds mats for this counting activity. (Ask parent volunteers to

help.) Prepare your room for collection counting by taping down a counting mat or two at each table and perhaps a few on the floor. Groups of children then choose a collection bag and count it out onto the mat to determine whether it is 100. If not, it is placed on a graph in the less than 100 column. If it is more, it is placed in the more than 100 column. Discuss the outcome and allow for bags to be rechecked by the group if children feel errors have been made. Make a chart story of the outcomes.



Less Than 100	- 100 -	More Than 100

## HUNDREDS NECKLACES

**You will need→** Fruit Loops or Cheerios

prepared strings: dip one end of each string in white glue, dry overnight

hundreds mats as prepared for Collections of 100 (p. 60)

Use the hundreds mats to help children lay out 100 Fruit Loops or Cheerios to string a necklace.

Help each child tie one piece of the cereal (as a stopper) to the non-glued end of their string. The other 99 pieces are then strung on the necklace and the string is tied. These necklaces provide sustenance for the remainder of the morning.



## HUNDRED SNACKS

**You will need→**

containers of:  
Cheerios  
Fruit Loops  
raisins











peanuts  
banana chips  
popcorn  
tiny fish crackers

carob chips  
pretzel sticks  
sunflower seeds

6 bowls (these bowls will be used for children to count their snacks from the items above before pouring them into their own sandwich bag)

sandwich bags (one per child)

record sheet (see drawing, your sheet will reflect the food items you choose)

<i>My Snack</i>	
peanuts 	<u>10</u>
cheerios 	<u>10</u>
raisins 	<u>10</u>
pretzels 	<u>10</u>
sunflower seeds 	_____
carob chips 	_____
banana chips 	_____
marshmallows 	_____
fruit loops 	_____
popcorn 	_____
<b>total snack</b>	_____

Each child has a record sheet, a pencil and a bowl when it is their turn to prepare a snack.

Each of the snack items need to be labeled with a word and picture to match your record sheet.

As the children count ten of each item into their bowls, they record that on their record sheet. When all their items have been counted and recorded on the record sheet, they count their tens to one hundred and record the total at the bottom.

Each snack is then emptied into a sandwich bag and saved for snack time.

## FINGER PRINT DESIGNS

**You will need→** 12 X 18 white construction paper (one piece per child)  
10 small sponges each painted with a different color of tempera paint

When it is a child's turn to do the finger print designs, they use every finger (including thumbs) to make the design. Each finger is

dipped in a different color paint and stamped ten times (ten red thumb prints, ten green "pointer" prints, etc.).

## PATTERN BLOCK CREATION OF 100

**You will need→** the mats used for counting the hundreds collections (see Collections of 100, p. 60)  
2 sheets of 12 X 18 black construction paper taped together (for each group working space)  
large containers of Pattern Blocks

The children, working in small groups, begin by counting out 100 Pattern Blocks onto their counting mats. Once they have 100, they work together to build a design or pattern with all 100 blocks. This is quite a job! It is very exciting if

you take pictures of the final designs and patterns to hang under the hundredth day on the numberline strip as part of your growing timeline.

## MONEY TRADING

**You will need→** 100 pennies

Do this activity with your whole class. Children take turns coming up and counting out ten pennies with the whole group helping to count until there are ten groups of ten pennies.

Count together by tens to check. You could also fill a hundreds mat to check.

Ask your class how many pennies are in a nickel and then count out five of the pennies to trade for a nickel. If you continue to trade for nickels in this way how many nickels will you end up with? Write the children's estimates on your chalkboard.

20 nickels

Have children take turns and help you in the trading. When you have only nickels left, count them by fives to show you still have 100. (Many children won't believe it!) Check the outcome against the estimates and make a chart story of these events.

## GOOD BOOKS TO READ THAT EXPLORE 100

David Schwartz, *How Much Is A Million?*

Richard Scary, *Best Counting Book Ever.*

## Chapter 7: March

# GIRLS' DAY

*The Japanese celebrate Girls' Day on the third day of the third month of each year. This holiday is also known as the Doll Festival. Elaborate arrangements of dolls are set up in Japanese homes and displayed during the month of March. The following activities can easily be spread over three days.*



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## Sorting

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### GIRL SORTING

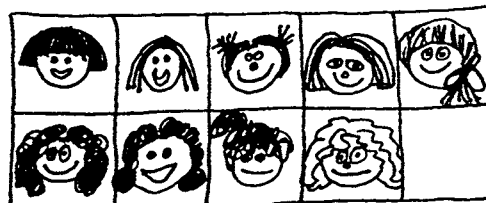


Ask all of your girls to sit or stand silently in the center of the group circle. The boys brainstorm different ways the girls could be sorted. Some possibilities include:

- by how they are dressed
- by height
- by hair color
- by shoes
- by jewelry

Be sure to list all the possibilities either on your chalkboard or at the beginning of a chart story.

Once the brainstorming is complete, sort the girls by one of the suggested categories. Discuss the results of the sorting and make a graph to show how the sorting turned out. When the activities are completed, finish the chart story with your class.

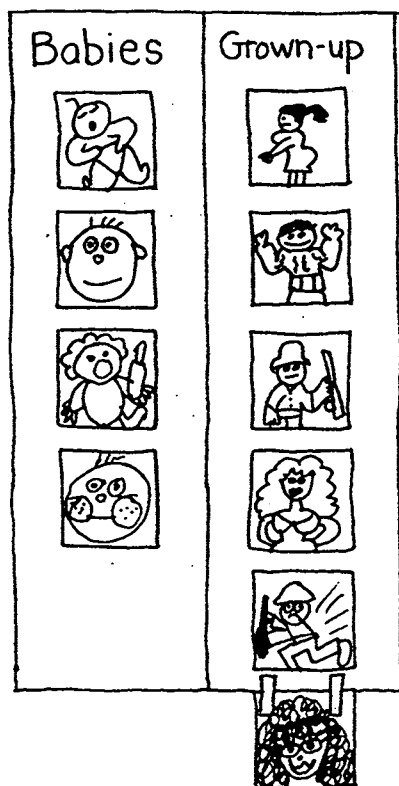


### Girl Sorting

We sorted the girls by  
Straight hair  
Curly hair.  
More girls had straight hair.  
1 more had straight hair.  
Straight hair is easier to  
comb.

## DOLL SORTING

**You will need→** each child's favorite doll



Ask each child to bring in their favorite doll. Remind your boys that many of their hero characters are dolls (G.I. Joe, He-Man, Thundercats, etc.).

This is a great time to read Charlotte Zolotow's book, *William's Doll*. This will help boys feel better about the dolls they have at home and make it more comfortable for them to bring them to school. If you own any dolls, be sure to bring them to school at this time.

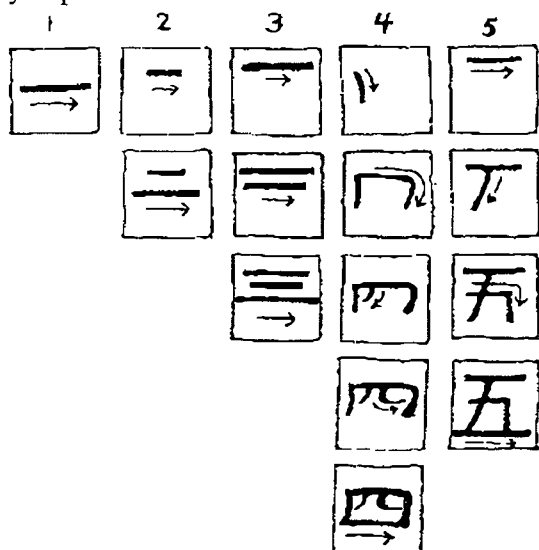
Place all the children's dolls in the center of the class circle and brainstorm the different ways they could be sorted. Choose several of the ways and actually sort the dolls. When the sorting is finished, recall some of the ways they were sorted. It is fun to make a graph about the last way the children sorted the dolls since the real data will still be set out. Each child could draw and color their doll to create a picture graph.

## Other Girls' Day Activities

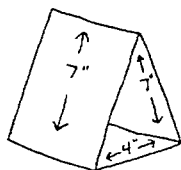
### JAPANESE NUMERAL WRITING

**You will need→**      thinned black tempera paint  
                                  medium-sized paint brushes  
                                  stand-up models of each numeral  
                                  five sheets of 9 X 12 white construction paper per child

It is very exciting for children to learn to write the Japanese numerals 1-5. Use the diagram below to teach the children how to form the numerals step by step.



When children are ready to practice the numerals independently, set up an area of the room as follows: Make stand-up models for the numerals by folding a 9 X 18 piece of white construction paper so that you have two seven inch sections and one four inch section. The four inch section becomes the base of each stand-up model.



Paint the Japanese numerals 1-5 on front and back of each of your five models. Be sure to include painted dots at the bottom so children will have a way of identifying each numeral as they come to

paint their own. Designate an area of the room where children's numeral paintings can be placed to dry.



Once the paintings have dried, have children design a cover and then assemble their pages into a Japanese numeral book.



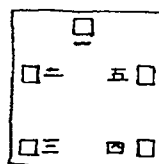
### SONGS AND FINGER PLAYS

Sing and chant some of the children's favorite songs and finger plays that involve counting but substitute the Japanese numeral names one to five for the English numbers.

itchi	ni	san	shi	go
(eechee)	(knee)	(sun)	(she)	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

Some of our favorites include "Five Little Ducks", "Five Little Monkeys Jumping On the Bed", "Five Little Monkeys Sitting in a Tree", "There Were Five in A Bed" and "Five Little Speckled Frogs".

### DOT TO DOT PAPERS



Create very simple dot to dot papers using basic shapes but have the numerals be in Japanese.

# ST. PATRICK'S DAY

*The following activities are wonderful ways to explore some of the Irish customs related to St. Patrick's Day. If you have children who are not allowed to celebrate special holidays, you may wish to plan these activities in a manner so as not to exclude those children.*

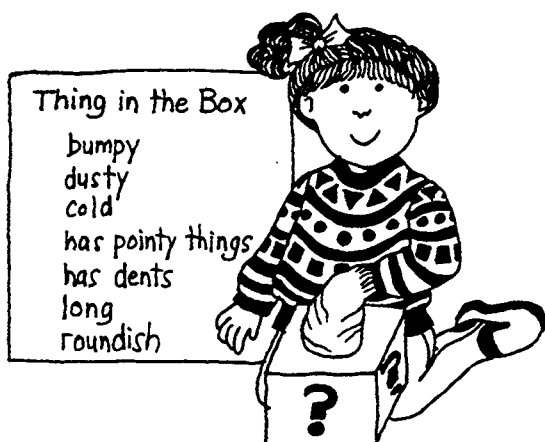
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## Potato Math

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### MYSTERY BOX SORTING

**You will need→**      a large feely box (Materials Index)  
                                 a potato



As the children give you descriptive words, create a chart. After all the children have had a chance to feel, review the chart and then guess the item inside.

### POTATO COUNTING

Hold up a bag of potatoes and have children guess how many potatoes are in the bag. Create a chart of their guesses. Count the potatoes.

### POTATO SORTING

Empty a sack of potatoes in the center of the class circle. Brainstorm ways the potatoes might be sorted. Choose two or three of those suggestions and sort. Select one of the sortings to graph. Create an experience chart or Talking Graph bubbles to describe what happened.

### WEIGHING

**You will need→**      a pan balance scale  
                                 potatoes in a variety of shapes and sizes labeled A, B, C, D, E, F, G  
                                 10-12 pieces white construction paper for record sheets



**Teacher:** Humberto, could you choose a potato for us to weigh and put it on one side of our scale.

**Humberto:** I like this one. It has an A on it and lots of little spots.

**Teacher:** Good. Class, look carefully at the rest of our potatoes and see if you can tell me the letter of a potato you think will be heavier.

**Children:** We could try E. No, I think it will be C. Maybe they are both heavier.

**Teacher:** We can check. Which potato shall we try first?

**Children:** C! It's the biggest.

**Teacher:** Humberto, will you set Potato C into the other pan.

**Teacher:** What do you think boys and girls? Which potato is heavier?

**Children:** C because that pan went down and A went up.

**Teacher:** Let's make a drawing of how the scales look so we can keep a record of

what happened. What will the picture need to show.

**Children:** Draw the pans. Have a potato in each one. Have that great big potato in the pan that is lower. Put a C on that potato and an A on the other one.

**Teacher:** Good. Let me see if I can do that. Does this look about the same as our scale?

**Children:** Yes. That's good!

**Teacher:** Let's write a sentence or two about the weights of these potatoes. What could it say?

**Children:** The C potato is heavier than the A potato. It's a lot bigger too!

And so it goes as you try out other potatoes checking for heavier and lighter and recording the results as you go. When the comparisons for these six potatoes have been exhausted, add one more potato, "G", and try to locate a potato that is the same. Can the children also find two potatoes that weigh about the same as G?

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## Extended Number Patterns

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### SHAMROCK COOKY MATH

**You will need→** shamrock frosting for each cooky (recipe below)  
cooky decorations such as raisins, peanuts,  
carob chips, etc.  
4 X 6 index cards  
for each child:  
a shamrock cooky and a paper plate

You can either have the children prepare, cut out and bake the shamrock cookies or prepare them yourself ahead of time (or even purchase plain shamrock cookies at a bakery if you are too busy to face this task!) If you choose to make your own or have the children make them, use your favorite sugar cooky recipe.

It is lots of fun to have the children prepare at least part of this project so here's a nice frosting recipe they could help you make:

#### Shamrock Frosting

2 cups powdered sugar  
6 oz. package of cream cheese, softened  
1 1/2 tablespoons milk

Add 1 to 1 1/2 teaspoons of vanilla or lemon juice and a few drops of green food coloring. Beat until well blended.

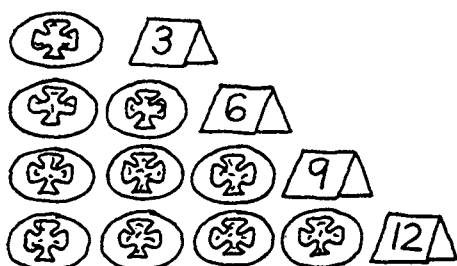
After the children have frosted their cookies, you may wish to have the following available for counting and decorating: raisins (plain or yogurt covered), peanuts, carob chips, etc.

Label each bowl of goodies with a card telling its name and how many they may use.



Once the frosted cookie is decorated, it is carefully saved on a paper plate labeled with the child's name.

At snack time, each child brings their plate to the class circle to help build an extended counting pattern. Begin the activity by asking one child to set out their plate with the cookie on it and have the group count the leaves of the shamrock. Label this shamrock with a stand-up numeral card.



Ask two more children to bring up their plates and again, count the leaves. Label with a numeral card.

The activity continues as you add three plates and then four, etc., always counting the leaves and then labeling. Children like predicting what will come next as they begin to get the idea that the pattern is increasing by threes.

When all the plates are set out, ask the children to count with you by ones to thirty as you write the numbers on the chalkboard or a strip of butcher paper.



Once this is finished, ask the children to read the stand-up cards aloud so you can circle the numbers of the pattern. Many classes enjoy trying to extend the pattern beyond the actual plates they have set out. Ask your children if they can guess what would come next.

## SEARCHING FOR THINGS THAT COME IN THREES

**You will need→** magazines, newspapers, phone books, catalogues

Help your class begin a search for things that come in threes. You might want to bring in some leaf clusters that grow in threes. Also have magazines available and newspaper ads. Here are some possibilities to help you begin your search:

### Magazine pictures or catalogues

- a tricycle
- a Big Wheel
- teepee poles
- a shirt with three buttons
- a juice ad with three stripes on can
- a bridge with three sections
- a trimaran (three-hulled sailboat)

### Newspapers

- three-letter words
- ads of items selling three for a dollar

### Real items (small enough to go on

#### a Big Book page)

- three-hole notebook paper
- a cut triangle

### Other things

- the first three digits of phone numbers  
(Children this age are often very excited about phone numbers.)

Ask children to search the classroom and their homes for things that come in threes. For things that might be too large for a Big Book page, they could draw a picture of the item they found.

Once a few threes have arrived, share the children's findings daily because that motivates more searching on everyone's part.

Display all the items the children have found on a bulletin board or in a class Big Book. Be sure to write short phrases or sentences under each item so you can make this a reading event as well as a Things That Come In Threes display or book.

## PATTERN BLOCK TRIANGLE DESIGNS AND PICTURES

**You will need→** all your triangle Pattern Blocks  
cut green triangles to match (see blacklines)  
9 X 12 sheets of black or white construction paper

(This activity works very well as an ongoing center for a few days with only five or six children working there at a time.) Children use the triangular Pattern Blocks to create designs, patterns and pictures. Children who enjoy making paper reproductions of their

work may use the paper triangles to copy their creations. If you enjoy taking photographs of your class at work, that would be another opportunity to keep records of their beautiful designs.

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## Measuring

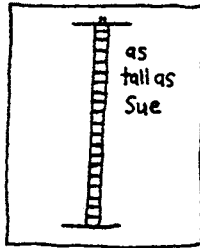
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### MAKING A LEPRECHAUN (Proportions and Comparisons)

**You will need→** 5' length of butcher paper  
construction paper in various colors  
unifix cubes  
string

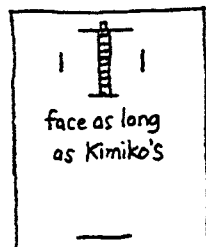
#### Height

Cut a large piece of white butcher paper. Have the class select a student they think would be a good height for the class leprechaun. Measure that person from head to heel with unifix cubes. Place the train of unifix cubes on the white butcher paper and draw lines for the head and heel.



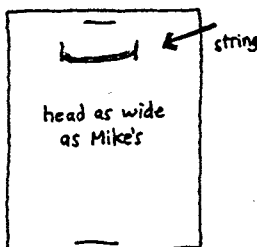
#### Head Size—Length

Work together to figure out how long the leprechaun's head should be. Again, choose a child and a means of measuring and indicate that measurement on your butcher paper.



Repeat in this manner until the children have found a measurement for all body parts. (i.e., arms, two cubes longer than Jimmy's arms; body, five cubes shorter than Gabriela; legs, same as Levi; feet same as Mrs. Theer-man; hair, shorter than Mrs. Marquez, etc.)

#### Head Size—Width



Have the children figure out a way to measure how wide the leprechaun's head should be. Choose a child to measure and determine how to measure the front portion of the child's head (string, perhaps). Indicate that measurement on the butcher paper.



Once the butcher paper leprechaun is drawn, the children brainstorm ways to dress him. They might decide to color him or to make construction paper clothes—a difficult task but worth the effort in learning skills. The pride and joy in the finished leprechaun is well worth the efforts to get there!

## SPRING GRAPHING, ESTIMATING AND COUNTING

**You will need→** a flowering branch  
2" squares of tissue paper  
chart paper  
butcher paper  
glue

Buy a flowering branch at a florist shop. Make sure you pick one that has only one or two flowers in bloom with *lots* more buds. Keep it in water.

Show the branch to your children and discuss whether they've seen anything like it before and where.

Ask the children to estimate how many blossoms they think will emerge altogether over the next few days or weeks.

Allow a lot of close, *gentle* inspection to help make those estimates. Record their guesses on chart paper.

How many blossoms will come out altogether?			
34	25	13	
17		500	
86	18	14	
67	12	98	50
			72

How many days to bloom?				
7	4	5	2	12
6	3	8	10	
20	9	15		

Have them guess also how many days it will take before the whole branch will have blossomed. Record those guesses on your chart as well.

Finally make a guessing chart of how many blossoms will appear the following day. This portion of the activity will be repeated daily as long as there are buds still blooming.

Day 2				
2	9	3		
	4	6	1	
5			12	
	20			

For the next day, prepare a chart to record actual new blossoms with tissue paper blossoms (easily created by pressing two-inch squares of tissue over the eraser of a pencil. (While the tissue is still pressed over the eraser, dab it in a bit of white glue and stick it to the chart.)

			3	4	6
Day 1	2				
				5	

Continue this activity as long as new blossoms appear and create a chart story or Big Book afterward to remember this magical happening.

Chapter 8: April

# EGGS, CHICKS, AND RABBITS



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## Estimating and Counting

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**You will need→**

- 3 bags of large white marshmallows
- an outline of a lamb drawn on white poster board (about 18 X 18)
- bowls of unifix cubes laid out at each table
- a brown bag to hide the marshmallows
- a guess-counting paper per child (see sketch below)
- white glue
- a large bowl

If March came in like a lion and went out like a lamb, then what better way to start the new month than with a decorative lamb!

Place your bags of marshmallows in a brown grocery bag and show the sealed bag to your

class. Play the Mystery Box Sorting game as described in Chapter 10. If you are doing the Hangman version, it may take two or three days for your children to figure this out but many will talk it over at home and come back armed with new questions.

Once they know it's marshmallows, pour a bag into a large bowl, and show the children the lamb outline.



You take a handful of marshmallows (get as many as you can). Count, with the children's help, how many marshmallows you were able to hold in your hand.

Give each child a counting paper. Ask each child to guess how many marshmallows they can hold in their hand and record the guess on the counting paper. (Many children will write the amount you held in your hand but some will ponder the size difference and attempt to adjust their guesses.)

15	
Guess	Really
Marshmallow Count	

Ask the class to help you estimate how many marshmallows it will take to cover the lamb. Write their guesses on the board. Problem solve together what should happen if not all the handfuls of marshmallows fit on the lamb.

23	4	47	103
32	5	9	11
6	3	28	18
		17	8

Now have each child take a handful of marshmallows. They count out how many they have and record the actual count on their counting paper in the "really" box.

15	4
Guess	Really
Marshmallow Count	

Once the marshmallows have been counted and recorded, the child counts out unifix cubes equal to the number of marshmallows they held in their hand and sets them on the counting paper in place of the marshmallows. Encourage one-to-one matching to be sure they've picked up the correct number of cubes.

After the cubes are set out, the children take their marshmallows to the lamb and dip one end of each into the bowl of glue and then add it to the lamb (marshmallows as close together as possible).

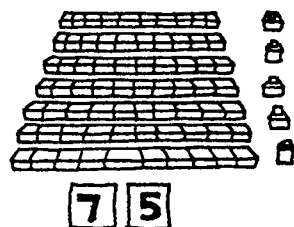


When a child has finished gluing their marshmallows, they gather up the unifix cubes from the counting sheet and snap them together. The goal is to have links of ten. If they need more cubes, they bargain with a friend or two to work together until all possible tens have been made. Trains of tens are set out in a pile on the rug. (It's a good idea to put the bowls of cubes away as this is happening so kids don't just reach into the bowls for enough to make ten.)

Once all possible tens have been made and placed on the rug along with the leftovers, ask the children to sit around the pile in a circle. Find out if they'd like to change their guesses of how many marshmallows are covering the lamb. If some want to change guesses, make those adjustments now.

Count the unifix cubes by tens and ones. As you are counting, stop periodically and ask helpers to cross out any guesses the class is sure it can't be.

<del>23</del>	<del>4</del>	103
<del>32</del>		87
<del>6</del>	<del>3</del>	<del>76</del>
		100



When all the cubes have been counted, write appropriate numerals on cards and set them by appropriate groups of cubes. Discuss why each numeral needs to be in that location.

Hang the lamb with pride along with a chart story or talking bubbles about how the project was completed.

## MORE COUNTING (To begin on April 1)

Get a copy of *April Rabbits* by David Cleveland. On April 1 at calendar time, show the children the cover of the book. Tell them you plan to read them the story but only one page each day at calendar time. Show them the first page and read. Each day, thereafter, show them a new

page and read it. On Fridays, read both Friday and Saturday. On Mondays, read for Sunday and Monday. Have the children count the rabbits each day. After awhile, have them predict how many rabbits there will be the next day and what they might be doing.

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## Sorting

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### CANDY SORT

**You will need→**

Easter candy  
paper graph

feely box  
graph markers



Look around your local stores at the Easter candies that are available and choose candies that come in several color and shape variations, such as marshmallow figures and foil-wrapped items. Place half of the candy in a feely box and save the other half out of sight. Place your hand in the feely box so the children know it is safe—no alligators lurk inside!

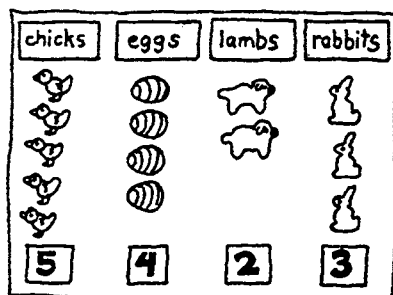
The first child reaches in and takes out one candy. Everyone helps describe it: It is blue. It is a lamb. It has a bow.

Ask them to predict what the next child will pull out. The next child then removes a candy and everyone describes its attributes. They try to predict what will be removed next. This is continued around the circle. Encourage the children to pay attention to what has been removed so they might predict what the next candy will be.

After all the candies have been removed from the feely box, ask the children to look around the circle at the candies that are laid out.

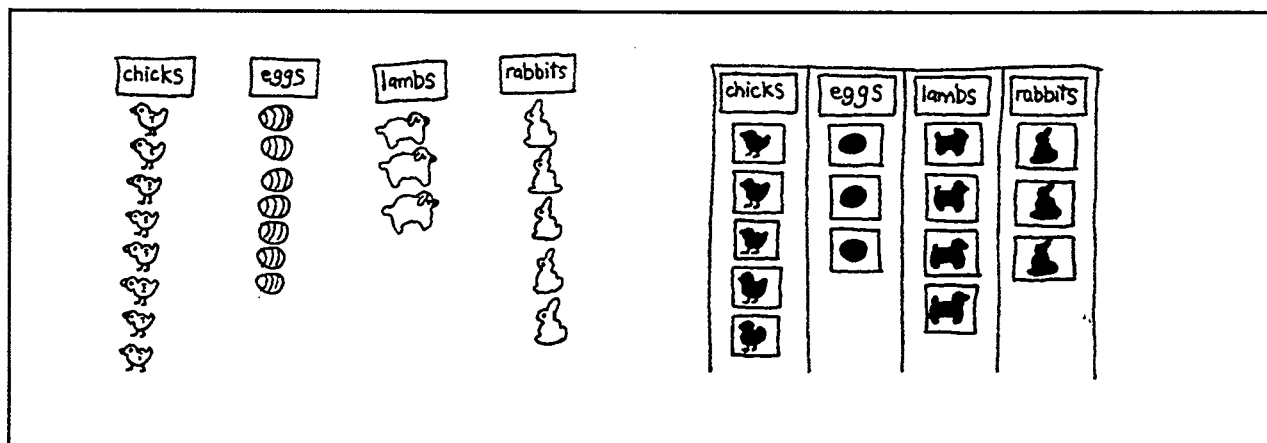
Brainstorm some ways to sort the candies and try out some of the sorting ideas. After several sorts, choose one of the ways to graph by arranging the candies in a way that helps children compare quantities. (It is very important to help children see that order helps to make the comparing easier.)

Make a chart story or talking bubbles about the activity to post with the candy graph. (Save the candy in graph form until the next day, perhaps on a large cooky sheet.)



**CANDY GRAPH**  
 Ashley said there were more chicks than any other.  
 Kimberlee said lambs were the fewest.  
 Max said the order goes 5, 4, 3, 2.

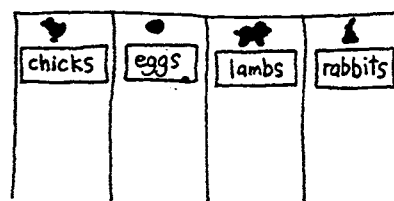
The next day, prepare a chart paper graph with the categories from the previous day's graph.



### EASTER EGG DYE AND SORT

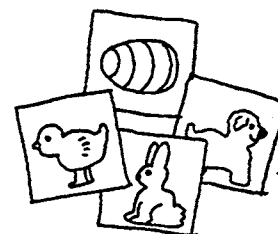
Dye Easter eggs letting the children choose how to dye their eggs. See how many different ways

the eggs can be sorted when dry. Graph the results.



Prepare a simple ditto to be cut and colored or construction paper outlines of the candies to serve as graph markers.

Show the children that you didn't put out all the candy yesterday but you are going to get it out in a few minutes. Ask them to choose a graph marker of the candy they think will be the most when all the candies are added onto yesterday's graph. Have the children glue their colored graph markers in the guess column of their choice.



Dump out the candies, sort them and then add them to the previous day's graph. Compare the results to the guess graph. Make a chart story or talking bubbles about what happened.

Finally, problem solve how to share the candies so everyone is happy.



## EGG PATTERN PAIRS

**You will need→** pairs of eggs cut from wallpaper or fabric scraps

Cut pairs of wallpaper and/or fabric eggs.  
Have the children help scatter them around the

rug area and then have children take turns  
matching pairs of eggs.

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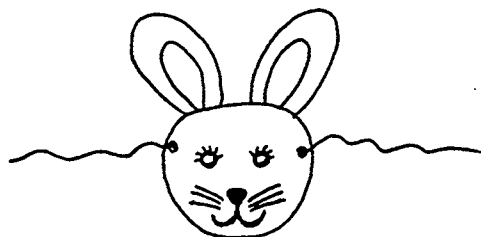
## Story Problems

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### BUNNY STORIES

**You will need→** bunny masks or headbands  
individual chalkboards, chalk, erasers

Have your children make bunny masks.



The children then wear their masks to act out story problems. By this time of the year some children enjoy working together to invent stories for a given number sentence. Give it a try along with telling many stories yourself.

If your class is becoming comfortable with story problems it's also a nice touch to begin adding student chalkboards so they can sketch some of the happenings and write the numbers that accompany the story. Be sure to give them a good model on your chalkboard so it is a learning time, not a testing time.

Some possibilities:

Six bunnies were eating carrots in Mr. McGregor's garden. Mr. McGregor discovered them and caught one in a basket. The rest escaped. How many escaped?

Three bunnies were drinking Camomile tea and two were eating turnip leaves. How many bunnies were there altogether?

All the boy bunnies were digging in the vegetable patch. How many bunnies were there?

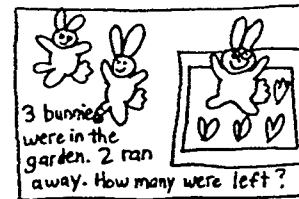
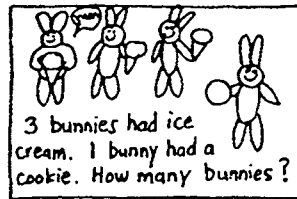
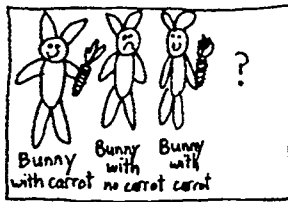


Every bunny in the countryside was hiding behind a brick wall. Part of the wall was high and part was low. When the bunnies hid, they looked like this: One bunny standing tall to hide and peek over the tall wall, one bunny crouched down low to hide and peek over. The next bunny was standing tall, the next was crouched down low. What should the next bunny do? (Class helps every bunny join the pattern.)

Sometimes when children have particularly enjoyed an activity like this, they enjoy creating a Big Book together. If they loved making the bunny pattern, brainstorm other bunny patterns and ask if they might like to work together to make some Big Book pages for a book of bunny patterns. If they loved the story problems either in counting form or as addition and subtraction sentences, brainstorm how they could work together to make some book

pages. Encourage them to make a rough copy of their idea using their best guess spelling and promise them you'll help them fix their spelling for

the final copy. See also Bunny Story Problems and Big Books, page 148.



# EGGS, EGGS, EGGS

*Spring is a time when new life begins. There are many ways for children to experience the phenomenon, but the most extraordinary is to hatch an egg. The science of this activity is more than enough to make it worthwhile, so what a bonus to extend the wonder of new life by getting a lot of math out of it as well!*

*Many school districts have incubators available for loan to teachers who would like to hatch an egg. It is also possible to make your own incubator out of simple materials (check [chickscope.beckman.uiui.edu](http://chickscope.beckman.uiui.edu) for instructions). Or purchase an inexpensive incubator from Murray McMurray Hatchery at [www.mcmurrayhatchery.com](http://www.mcmurrayhatchery.com). Fertile eggs can be obtained from nearby farms or hatcheries (send a note to class parents asking if anyone can help you). Arrange to use a large wire cage and attach a light for warmth to care for your newly hatched babies. Be sure to arrange also for someone to adopt them when they outgrow the classroom.*

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## Incubator Activities

(With thanks to Kumi Ishida, Margo Morrison and Ruth Schooler, San Mateo, California)

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### CALENDAR COUNT (Duration)

#### You will need→

incubator

fertile chicken eggs

empty calendar grid

copies of Incubator Activities, Calendar Count to make paper eggs (see blacklines, 3 pages)

an 8-1/2 X 11 paper calendar for each child to take home (see blacklines for Sample Egg Calendar)

Next to your regular calendar, hang another empty calendar grid. Use copies of blacklines, run on tag or heavy white construction paper. Cut out your eggs and number them on the back side from one to twenty-one as shown on the blacklines.

As you show the children your fertile egg(s), tell them it takes 21 days for a chick egg to hatch. Ask them to help you count out 21 unifix cubes (this helps children to see how many "21" represents). Ask the children if anyone can find the day on the blank calendar grid that is the same day as today. (Encourage the children to discuss the problem before anyone tries pointing out the day. Ask them to figure out which space of the blank calendar was the first day of this month. Talk about today's date. How many days is that after the first day of the month?) After the discussion, ask partners to come up and point out the space that would represent today.

Place the number one egg face down on the "today" space. Ask your children to help you figure out which day will occur 21 days from now. Write their guesses on the board: "Right in the middle." "That one...just before the last one." "The Friday on the third row." Etc.

Discuss ways that it would be possible to figure it out. After the discussion, choose some of their strategies and work together to find the space for day 21. Mark that space with the twenty-first egg hung face down. Check whether the strategy worked by hanging up eggs two to twenty.

APRIL						
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	
.	.	.	.	.	.	.
.	.	.	.			

Eggs						
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	

At a later time in the morning, turn over egg number one and discuss what the egg is like as you begin. Continue each day turning over an egg and discussing the development so far.

Send a small calendar home with the children along with a note that explains the classroom hatching project. Ask parents to help their children keep track of the days passed and the number of days still to go by coloring an egg daily.

## WEIGHING THE EGGS

**You will need→**      developing chick eggs  
                                  balance scale  
                                  metal washers to be used as weights  
                                  unifix cubes

Ask your children if they have any idea how one might tell if there are chicks growing inside the egg. Listen to all ideas. Help them along by asking them to name some of the things that happen to them as

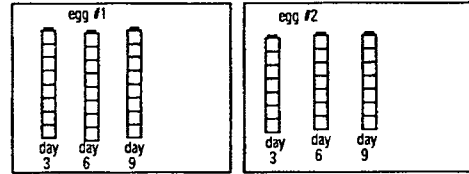
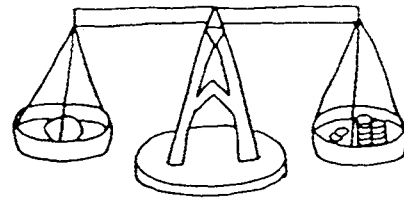
they grow (they get bigger, they weigh more, their feet grow, etc.). Since they can't see if the chicks are getting bigger (unless someone knows about candling) the alternative is to weigh the eggs.

**Eggs**

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		①	②	★③	④	⑤
★⑥	⑦	⑧	★⑨	⑩	⑪	★⑫
⑬	⑭	★⑮	⑯	⑰	★⑱	⑲
⑳	★㉑					

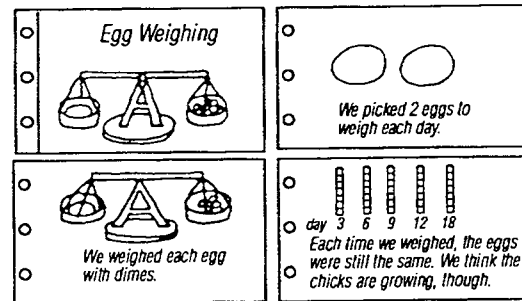
Choose a counting pattern, for example, 3, 6, 9, 12, 15, 18, and 21. Mark those eggs on the calendar with a gold star. As each of the days come up, carefully choose two eggs to remove (be sure to choose these same two each time) and weigh them by placing them in a balance scale. Dimes or metal washers serve well as units of weight. See how much the eggs weigh each time.

Keep a record of the weights by making a unifix cube graph. What you will find, much to the children's surprise, is that the eggs' weights won't change appreciably over time. This fact makes it no



less exciting for children to pursue the investigation; in fact, it may trigger much speculation and discussion.

Discuss the meaning of the results. Is the chick growing? How do you know? Make a Big Book of the weighing process and the children's remarks.



## PATTERNING THE GROWTH CYCLE

**You will need→** a large copy of the Growth Cycle for yourself (see blacklines)

for each child:

a copy of the Growth Cycle (see blacklines)

a 5 X 18 strip of light-colored construction paper

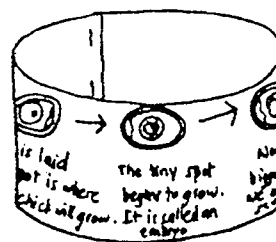
Locate the Growth Cycle blackline and run copies for each child. Enlarge a copy for yourself and laminate if you can. If you have a flannel board, you may wish to glue pieces of felt on the back of each egg so you can display them easily.

Tell the children the story of the egg cycle as you place eggs and a chick in a circle on the felt board. Repeat the story often enough so the children will see that it is continuous.

(Try to have a parent helper or other friendly adult available for the next part of this activity.)

Have your children work in small groups to cut out and order their copies of the developing eggs, hatched chick, growing chick and adult chicken. Once they are arranged in order, they are pasted onto 5 X 18 strips of light colored paper. The children draw arrows from one step to the next and then dictate their ideas of the cycle to a teacher or parent helper who records them under the pasted

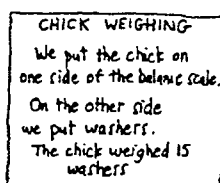
pictures. The construction paper strip is then stapled into a cylinder to complete the cycle.



## WEIGHING THE CHICKS

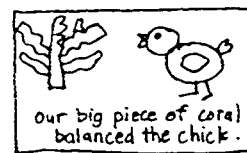
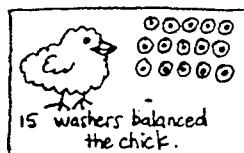
**You will need→** a chick  
a pan balance  
weights

When the eggs have hatched and the chicks have had a few days to rest and dry out, choose a chick to weigh. Use a pan balance. Place the chick carefully in one side and washers or other appropriate weights in the other pan. Make a chart story about the weight of the chick.



Remove the chick. Ask the children to find things in the room they think will weigh the same as the chick. They test each item they choose to see if it will balance the chick. Have a box labeled "weighs the same as the chick" in which they place all items which balanced.

After everyone has had a chance to explore the problem, take the box and share everyone's find with the class. Begin a "Same Weight as the Chick" Big Book by writing on each page as articles are checked; for instance, "20 unifix cubes are the same as the chick." As the pages are prepared, hand them off to children to illustrate once the items have all been checked.



Assemble the Big Book and add it to your collection to be enjoyed for months to come!

## BOOKS TO HELP EXTEND

*Chickens Aren't The Only Ones*, Ruth Heller (Putnam, 1981)

*A Chick Hatches*, Joanna Cole (William Morrow, 1976)

*Egg to Chick*, Millicent E. Selsam (Harper & Row, 1970)

Chapter 9: May/June

# BOATS, BATH TOYS, AND WATER

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## Calendar Counting

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### MAY HIPPOS (Begin on May 1)

**You will need→**      *April Rabbits* by David Cleveland

12 X 18 drawing paper

If you have done the April Rabbits activity in April, this is a simple extension. If you haven't, you will need to read *April Rabbits* by David Cleveland on May 1. If this is the first reading, involve your children in the story by having them guess how many rabbits will be on the next page each time. Encourage them to predict what the rabbits will be doing. After the reading, you are ready to begin the May Hippos activity.

The teacher does the picture and the story for May 1 on 12 X 18 construction paper. Thereafter, the children will decide on the story and do the illustrations.



On May 2, put up a blank piece of 12 X 18 paper and ask the children to think about what you should write today. Solicit many ideas and write them on the chalkboard. (Be careful about praise so everyone will feel safe contributing ideas.)

On May 2 I saw two hippos....  
 paddling prettily  
 playing ping-pong  
 eating apples  
 catching butterflies  
 dunking donuts  
 frying fish.

Choose an idea for the second page and have the children help you write it in the richest language possible.



Once the page has been written, ask for volunteers to work together to draw, color and cut out two hippos for the page. (If you let them

color directly on the page, they'll worry about mistakes and may even make too many hippos.)

Ask for two more volunteers to fill in the background once the hippos are glued to the page. (Be sure to keep a list of children who have already volunteered so everyone will get turns to contribute to the art work in this book.)

Continue this activity by reading all the previously completed pages daily and then working together on the new page until the end of May. Assemble the pages into a Big Book to add to your collection.



## Measuring

### WHICH CONTAINER TODAY? (Capacity)

#### You will need→

a large plastic tub filled with water

five or more containers (small and large margarine tubs—a Cool Whip tub, cans of varying sizes, plastic bowls and jars, plastic drinking glasses, small plastic pitchers, and plastic bottles, plastic or metal measuring cups, empty milk cartons)  
 Label each container with a letter

2 large towels

small squares of paper for record sheets

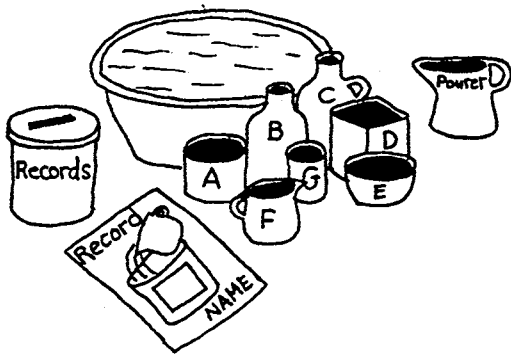
a coffee can with slotted lid to hold record sheets

an additional container labeled “pourer”

a plastic tub to hold all containers

Set up a table just outside your room where water spills won't matter or inside if that's necessary for safety. Ask your custodian to

adjust the table height if needed so it's a comfortable height for children to stand while at work.



Children work in partners to explore the jars. The question is: Which container will the "pourer" fill exactly? They dip the pourer in the tub of water and fill it to the top. (Show them how to use a small cup to top it off.)

Once the pourer is full, they pour that water into one of their containers as they begin the search for the *one* that it will fill exactly. After each trial, they refill the pourer to the top and try again until they find the "right" one.

When they know which container fills exactly, they clean up their spills, write the letter for the "right" container, fold it and tuck it in the record box. *Be sure to talk to the group about keeping their discoveries secret!*

At the end of your day, open the record box and look at the papers. Discuss the results. (There will quite likely be disagreement because children this age aren't very careful about filling to the top and they tend to spill as they fill!) If there is not agreement, tell them it sounds like you'll need more time to find out which container is really the "right" one. If there is agreement on their papers, check out the results by filling the designated container with the pourer so all can see.

By changing pourers from day to day, this activity can stay open-ended and challenging for as long as you can stand the mess!

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## Graphing

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### DO YOU PREFER TO TAKE A SHOWER OR A BATH?

#### You will need→

- a pitcher of water colored with blue food coloring
- a pitcher of water colored with green food coloring
- 2 half-cup measuring cups
- 2 plastic gallon jars (These are easily obtained from fast food places. Label one of the jars "shower" and the other jar "bath"—one on a blue label, one on green—so kids will know which color water to pour in the jar.)



Ask the children whether they prefer to take a bath or shower. Ask them to carefully measure out a half cup of the correct color water and pour



it into the container that indicates their preference. Children then compare water heights to determine whether more children take showers or more take baths. Make a chart story or talking bubbles about the event and outcomes.



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## Tallying (Counting by Fives and Tens)

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### TURKEY BASTER RACES

**You will need→** a plastic gallon jar 12 towels a turkey baster  
individual chalkboards, chalk and erasers  
chart paper to record each round

This activity works best when done outside. It is also important to have the water jar, a bucket and the turkey baster available in an activity center before the Big Day so your children can learn how to fill and empty the turkey baster.

Use your teacher feely box to pull out five children's names for the first team. The team stands behind the jar while the class sits in front of the activity ready to tally on their individual chalkboards.

The team takes turns dipping the baster into water, filling it and squirting it on the grass. Each fill is tallied until the jar is as empty as the team can make it. The tallies are then counted by fives (also by tens, fives and ones) and the score is recorded. The jar is refilled with water, five more names are chosen and

the emptying and tallying begins again. Be sure to compare the results as each new team finishes and ask children to ponder why some teams needed more fills and some teams needed less. Continue until everyone has had a turn.



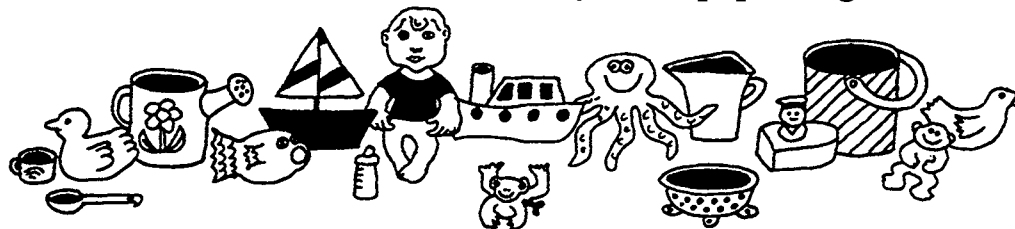
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## Sorting

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### BATH TOYS—WATER TOYS

**You will need→** *for each child:*  
a collection of water toys in a paper bag



Ask the children to bring a selection of their favorite bath and water toys to school in a paper bag. Tell them you'll bring a few extras in case some of them don't have any and ask if there is anyone in class who might bring a few extras

as well. Discuss what could be called a bath toy (margarine tubs, small milk cartons, boats, etc.). Remind them to mark each toy with their name. (You may want to have a parent volunteer double-check this when the toys arrive.)

Children place their toys in the middle of the rug area and brainstorm ways to sort the toys. Sort the toys several ways and then make a

graph of one of the sorts. Make a chart story or talking bubbles about the graph.

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## Counting

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### BATH TUB TOYS

**You will need→** *for each child:*

a collection of water toys in a paper bag

There are lots of ways you can do this activity. Here are some possibilities:

Everybody who has a duck in your bag take it out and put it in the center of the rug. Now let's count how many ducks we have. (Fifteen.) I'm going to write fifteen on this card. Can anyone tell me how to write fifteen?

Joey is going to dump out his bag and we'll count how many toys he brought. (Twelve.) Can anyone tell me how to write twelve on my card?

Is there anyone else who has twelve toys in your bag?

Is there anyone who has one less than Joey?



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## Story Problems

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### BATH TOYS

**You will need→**      *for each child:*

a collection of water toys in a paper bag

Have each child get out their bag of toys. Reach into your teacher feely box and pull out two children's names to dump out their toys in the middle of the rug area. Have the children help name all the toys and then remind them to listen well so they can all help solve the problems.

Jimmy brought one rubber ducky to school. Ashley brought one large rubber ducky and one small plastic duck to school. How many ducks did they bring altogether?

Julie brought four tiny Cabbage Patch dolls and Leah brought a soft rubber dolly. How many dolls did Julie and Leah bring?

If Ashley sorted out all her filling containers from her bathtub toys, how many toys would she have left? How many filling containers did she take away?

This activity is best repeated over several days. Pull names out of the feely box to determine who will dump their toys and who will give the answer after they whisper about it together.

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## Comparing Times

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### WHICH BOAT WILL MAKE IT ACROSS THE POOL IN THE LEAST TIME?

**You will need→**

plastic and/or styrofoam meat trays

straws (lots—a set so each child will have one labeled with their name on masking tape and a set for constructing boats)

several types of paper cut into various sizes and shapes

towels

a plastic wading pool

hole punches

tape

#### Inventing Sailboats

Children use the materials provided to invent boats. They may either work in teams or alone. As boats are completed, children will need opportunities to try them out. Do they float, are they durable enough to withstand a race? When I blow through my straw, can I make my boat go? Is there any way to improve it? Store finished boats in a safe place.

#### The Big Race (another day)

Fill a child's wading pool with water. Stretch string across the pool to create two sailing

lanes. Tape the string with strapping tape at each edge.

Two boats at a time are placed in the water and racers blow through their straws to propel the boats along the course. After everyone has had a turn, winners race one another until the fastest boat is determined.

Discuss with the class what factors may have contributed to success. Also be sure to keep this available at recess if there is continuing interest.

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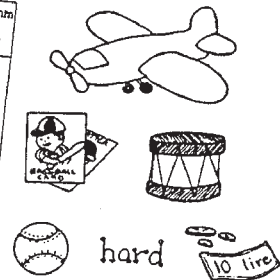
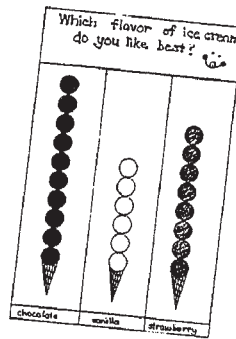
## Notes

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# Organizing Information

How Often Do You Sleep With Your Teddy bear?

	Frank	
	April	Shaun
	Travis	Kelly
Autumn	Katie	Monty
Gretchen	Christopher	Bruce
Tera	Michelle	Robbie
Kara	Tammy	Benito
Matt	Jennifer	Lisa
Danny	Angie	Fletcher
always	sometimes	never
6	9	8





## Chapter 10

# SORTING

*We have found in our own classrooms that children who understand sorting seem to make so much sense of their learning world. We particularly like the following quote:*

*“Probably the most essential and important intellectual jobs that we all perform day in and day out aren’t counting and measuring and ranking events in time, but just classifying things, sorting objects into groups for simplicity’s sake and reasoning about things, analyzing classifications and interpreting them, drawing conclusions. Together, these skills might be called logic.”*

*Your Preschooler Ages 3 and 4  
Richard Rubin and John Fisher III*

*There are several types of sorting in the Seasonal Mathematics strand. Hopefully, the following instructions will help you conduct each type.*

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### Mystery Box Sorting

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This activity requires children to find out what you have hidden in a box, bag or your pocket. They can only find out by asking you questions about its attributes which can be answered “yes” or

“no.” (Is it green? Is it round? Can it be used in the kitchen? Could we eat it?)

The first half of the year, many children will have difficulty asking such questions. They

tend instead to ask, “Is it a ball? Is it a candy bar?” Tell them there are probably a million things that would fit in the box but in order to really figure it out, they’ll need to be detectives and gather clues. Some of the clues that would help would be its color, size, what people do with it, its shape, etc. Give them some examples of appropriate questions.

After the children have asked a few questions, have them tell you what they know so far. List that information on the board or a chart and then go on with more questioning. Stop every

few questions and add to the list of what they know so far:

round ?	yes
sweet ?	yes
bigger than a ring?	no
blue ?	no
red?	yes

**Children:** Is it an apple?

**Teacher:** Let's look at the information we know so far. Could an apple be round?

**Children:** Yes.

**Teacher:** Could an apple be sweet?

**Children:** Yes.

**Teacher:** Could an apple be bigger than a ring?

**Children:** Yes.

**Teacher:** Could an apple be red?

**Children:** Yes.

**Teacher:** Could an apple be blue?

**Children:** Oh no!

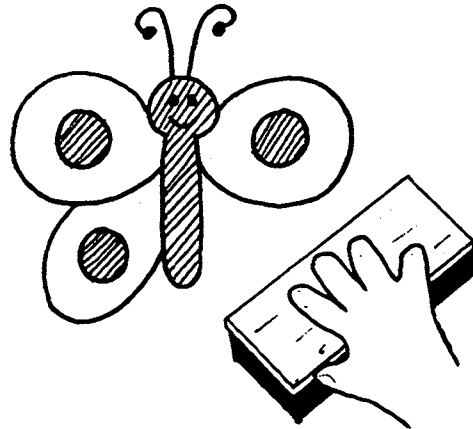
**Teacher:** Is there anything else that would match the information we know so far?

**Children:** A cherry? A pomegranate? A red cookie?

Often this activity is extremely challenging to young children and they persevere at asking specific questions, "Is it a doll?" etc., despite your best efforts.

You can often improve their questions by adding the game of Hangman the third or fourth time you play. Add a body part to the

hanging person each time any question is asked (yes or no). If the drawing of the Hangman is complete before your class has figured out what is in the box, promise to let them try again the next day. They won't like this a bit but their questions will improve dramatically. (They will often have talked it over at home.) They'll listen to each other better and work more cooperatively.



A more graphic version of the Hangman technique is "Erase a Part." It is played the same way, but this time the teacher draws a complete figure (a person, animal, insect, etc.) and erases a part for every question asked (yes or no). Children seem to recognize more easily when they are running out of questions with this method.

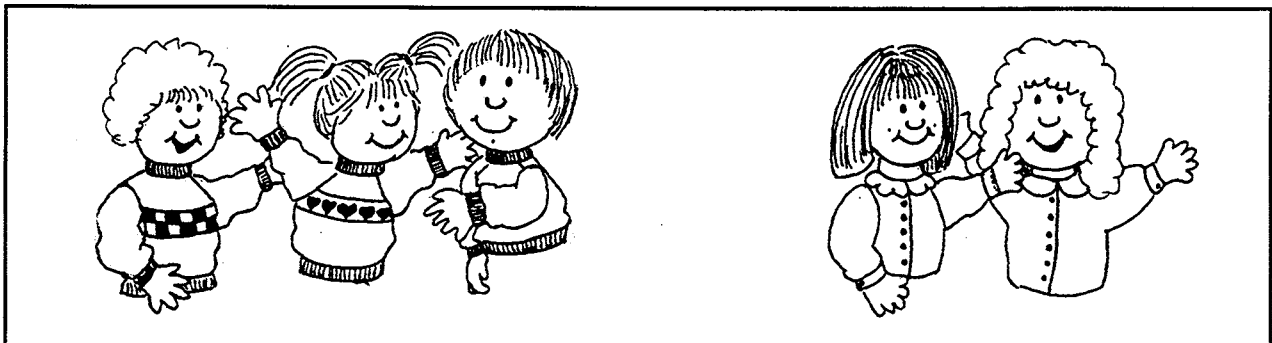
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## People Sorting

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### PEOPLE SORTING: LEVEL ONE

**You will need→** 2 pieces of 8 1/2 X 11 paper for classroom labels





The activities under People Sorting, Levels One, Two and Three, involve using one attribute (such as length of hair, color of pants, type of shirt) to sort your class into two groups. The first several times you try People Sorting with children who have had limited sorting experience, tell the children what your People Sorting categories will be.

**Teacher:** *Today, we're going to sort the children in our class. Children with pants will stand up front to my left under the "pants" sign and children with skirts will stand to my right, near the "skirts" sign.*

**Children:** *There are going to be more kids in the pants group!*

**Teacher:** *Really? Let's try it out and see if your prediction is correct. Courtney, will you come up and stand by me? Boys and girls, where should Courtney go...by the pants sign or the skirts sign?*

**Children:** *By the skirts sign?*

**Teacher:** *Why?*

**Children:** *Because she's got a dress on. That's like a skirt.*

Continue calling children until about half the class is standing.

**Teacher:** *Which group is larger?*

**Children:** *It looks like there are more kids on the pants side.*

**Teacher:** *How could we find out?*

**Children:** *Count them!*

**Teacher:** *OK, let's try it.*

**Children:** *Nine pants and seven skirts. Yep, more pants!*

**Teacher:** *Is there any other way we could show there are more children with pants?*

**Children:** *Hmmmmmm...*

**Teacher:** *What would happen if every child in the pants group up here tried to find a partner in the skirt group?*

**Children:** *Some of the kids wearing pants wouldn't get a partner.*

**Teacher:** *Why?*

**Children:** *'Cause there are too many of them!*

**Teacher:** *Let's try it.*

Have each child in the pants group find a partner from the skirt group and sit down with his or her partner on the spot.

**Teacher:** *Why are these two children still standing?*

**Children:** *Because there were too many pants kids to find partners! There weren't enough kids with skirts left!*

You can revisit this lesson several times. Let the children suggest the sorting categories too.

## PEOPLE SORTING: LEVEL TWO

**You will need→** 2 pieces of 8 1/2 X 11 paper for classroom labels

This time, let children know what one category is, but not the other.

**Teacher:** *We're going to sort the children in our class today but it's going to be a little more tricky than usual. Children with velcro shoes will stand up front to my left near the picture of the velcro shoe. I'm going to send some other children to my right, to stand under the label with the question mark. That's the mystery side. There will be something the same about all of those children too—but I'm not going to tell you what it is yet. I bet you'll be able to figure it out if you really watch!*

Call children up one by one placing those with velcro shoes to your left and tie shoes to your right.

**Teacher:** *We've got two children under the question mark. What do you notice?*

**Children:** *They're both wearing blue jeans!*

**Teacher:** *That's true. Shayne, I'd like you to join the question mark group.*

**Children:** *Oh, oh! Shayne doesn't have blue jeans on. She's wearing a dress.*

**Teacher:** *But she's in the right spot. I'd like David to join that group too.*

**Children:** *He has red pants on. Oh, I see! They all have pictures on their shirts.*

**Teacher:** *That's true. Brian, would you join the question mark group too?*

**Children:** But he doesn't have a picture on his shirt, it's just plain blue.

**Teacher:** Well, maybe the thing that's the same about these children doesn't have to do with their clothing. What's the same about the other group?

**Children:** Velcro shoes...that's it, look at their shoes! Yeah! They all have ties.

**Teacher:** I'd like Joshua and Carissa to join the question mark group too.

**Children:** They both have ties on their shoes. That's got to be it!

### PEOPLE SORTING: LEVEL THREE

Explain to the children that you are going to sort them into two special groups and their job is to try to figure out how you're sorting. Let them know you will draw a large happy face and that as soon as the face is drawn, no one can talk, not even the teacher!

Once the face is drawn, touch a child and motion him or her to follow you to the special place for that group (remember...no talking!)

After you have two or three youngsters in each group, touch a new child, snap your fingers to get everyone's attention, and silently mime that you want the group to point to where they think you'll send that child. Continue this way so your entire group will stay involved *thinking* very hard about how you are sorting.

When you have sorted at least half of your class into the two groups, erase the happy face briefly and ask a few questions to help focus the guessing. Your questions will depend upon how you are sorting but here are some examples:

1. Am I sorting by the kinds of shoes the children are wearing?
2. Am I sorting by the color of their pants?
3. Am I sorting by girls and boys?

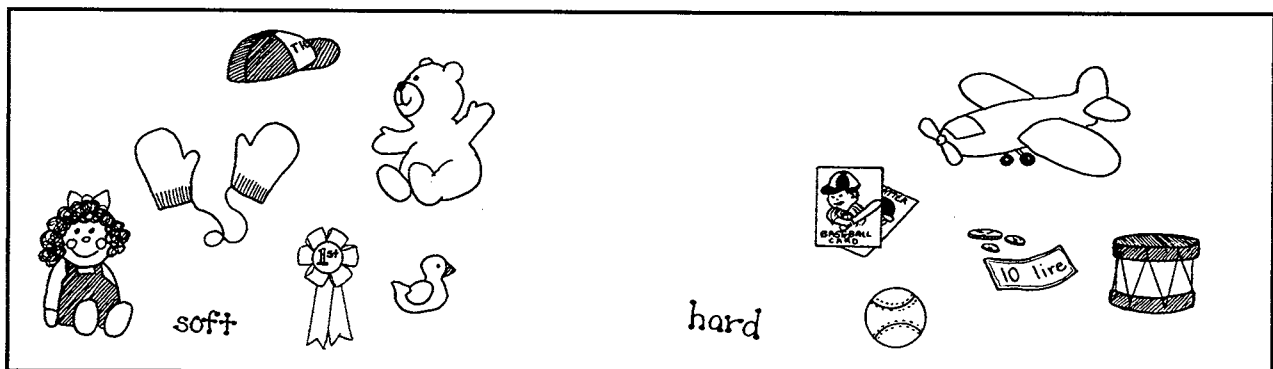
4. Does my sorting have anything to do with their hair?

Kids quickly answer "yes" or "no" and then the happy face is redrawn to keep the momentum. Be sure you have asked a question or two that helps focus on how you are sorting. It is so exciting for children to have a chance to figure it out before the sorting is finished.

When you have finished the sort, or your group is getting too wiggly to continue, once again erase the happy face and ask them if they can guess how you have sorted them. When the categories are known, have the group help verbally label each group with you: "These are the children wearing sweat shirts. Those are the children wearing other kinds of tops."

This activity can be repeated many, many times throughout a school year. Children love to be the leaders too, but it's a good idea to have them tell you beforehand how they will sort the group.

Later in the year, as your children know each other well, you can sort by less obvious



attributes: missing teeth—lots, a few; bus riders/non bus riders, soccer players/non soccer players, Brownies/non Brownies, etc. Don't do this frequently since it is so difficult but children love occasional strenuous mental exercises. Warn them ahead that this day's sorting will be much harder to figure out.

You can apply this activity to things as well as people. Try this extension of sharing sometime: have the children lay their sharing items in the middle of the circle. Draw the happy face. Sort the items into two groups, holding each one up for inspection before you place it. (It is often very helpful if the items being sorted are placed on sheets of dark and light construction paper or looped with a jumprope so the space is clearly defined.) Once

again, after you've gotten two or three items into each pile, motion for the group to point to where they think the next item will go. When you've sorted about half of the items, erase the happy face and ask a few questions: Am I sorting by color? By shape? By how things are used?

Again, draw the happy face and continue the sorting so more children have a chance to figure it out.

When you have finished, ask the children to guess how you sorted and verbally label each group. Because there are so many ways to sort, this procedure can be repeated several times with the same collection of items.

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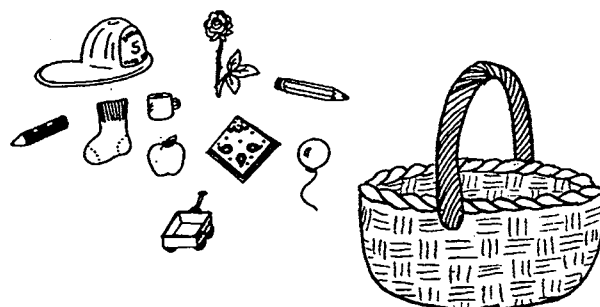
## Sorting "Collections"

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For children to grow in their understandings of a concept, it is important they practice their growing skills in a wide variety of tasks. Dr. Raymond Barsch of Northridge University, Northridge, California speaks of the need for "diversified stimulation and diversified redundancy." We like to think of this as surrounding children with multiple opportunities to explore and understand a big idea and its many parts. So often, you will see children who seem to have a grasp of a particular skill but they are unable to transfer that skill to any other area. Therefore, here are still *more* ways to offer group instruction and practice in sorting.

### COLLECTION SORTING (WHOLE GROUP)

You'll need a collection of 15 to 20 everyday common items. Once again the items the class brings for a large group sharing day work well. Another possibility is a basket of red things (or any other single color) which you've collected around your home: an apple, a bandana hanky, a hat, a cup, a red sock, a pen or pencil, a silk rose, a toy fire engine, a radish, etc. As the children sit in a circle around you, take the items out one by one. (Kids love seeing things from *your* house.)



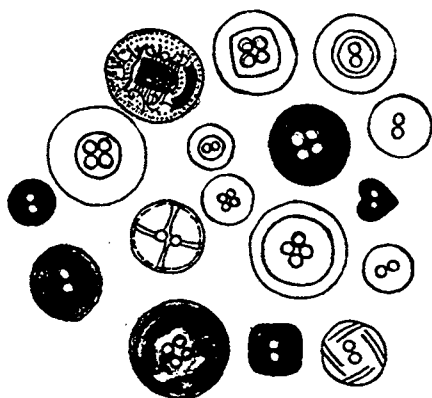
Then ask them to tell you which items could be grouped together. Someone might tell you to sort by shape or size but more than likely they will have you group the toys together, the round things and perhaps the red and white. Push the items back together and ask the kids to help you sort them in a different way. If you do this several different times, you're likely to begin getting opposing category kind of sorting, that is, toys/not toys, red/red and white, round/not round, containers/not containers, and so on.

What you're *not* likely to see in most primary classrooms (unless the structure has already been tightly set by the teacher) is sorting into related categories: shapes (round, rectangular, square, etc.), size (large, medium, and small), function (to play with, to eat, to decorate, etc.).

You can guide them in this direction as the year progresses. Suppose a child suggests you put the washcloth with the envelope because they are both square. Do so and ask if there is anything else that could go in the square pile. When all the squares have been sorted, hold up something that's *not* square. Have the children name the new shape and then find all the things that will fit that pile. Continue with new shapes until everything has been sorted. Have the children name each group: squares, rectangles, ovals, circles, etc. Tell them they've done a wonderful job of sorting by *shape* and push the items back together. Repeat several times sorting by a different attribute each time. Your children will eventually be comfortable sorting even tiny objects into many related categories as well as opposing categories.

As children become proficient at sorting, you'll want to try some sorting with the collections in your junk boxes, for instance, small shells, bottle caps, nuts and bolts, buttons, etc. This activity needs to be modeled well with several children in front of the group before you send them out to work in small teams independently.

**Teacher:** *Let's see if we can sort these buttons. I'll take a small handful out of the box. What can you tell me about them?*



**Children:** *They are different colors.*

**Teacher:** *Anything else?*

**Children:** *Some are big...some are little and some are medium.*

**Children:** *Some have four holes and some have two holes, some even have little things on the back.*

**Children:** *Most of them are plastic but these are metal.*

**Teacher:** *Let's try sorting them. How shall we do it first?*

**Children:** *By colors!*

Work together with your little group to sort the buttons by color as everyone watches. When you're finished have the children help verbally label each pile as you point it out. Push the buttons back together and sort several more times using other attributes the children initially volunteered.

If you think your class understands, tell them they will be working in small groups. Think about whether twos, threes or fours will work best. It may vary according to different children who will be working together to sort other collections from the class junk boxes. Assign teams to classroom areas where junkboxes have been set out and ask them to work together with a *handful* of junk from their own box to begin sorting.



Each time a team sorts their collection, have them raise their hands. When you see their hands up, go to them quickly and ask them to name each pile and tell you how they sorted: "Gray, white, and gray and white shells—we sorted by color." Then they will push their items back together and sort them still a different way, once again raising their hands as soon as they finish the sorting.

It is often helpful to leave a unifix cube with each group for each new way they've sorted. It gets the group to speed up and stay focused on their purpose. Be very careful at the end not to compare numbers of cubes between tables but

rather to celebrate the many ways the class found to sort junk.

Children who understand sorting often like to move after a few minutes to another box and try

sorting it also. This can be done on a given signal so that every team moves at the same time. Many classes will enjoy several opportunities to move.

## Chapter 11

# GRAPHING

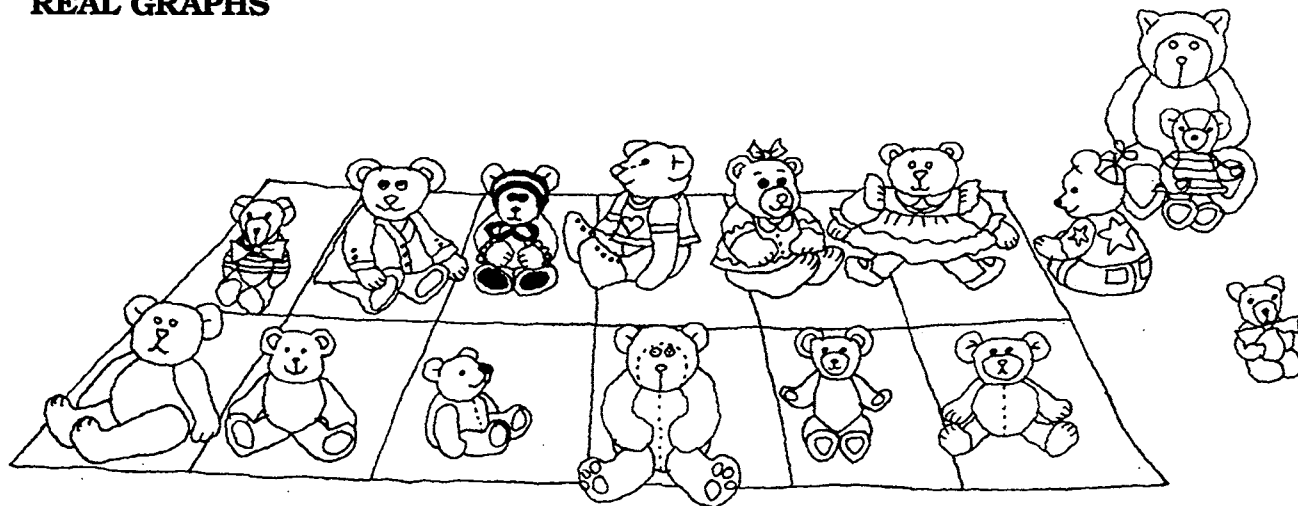
*Graphing is an extension of children's natural interest in comparing and sorting things. Along with counting, graphing is one of the most powerful tools young children have for arranging information and establishing order. It brings them such delight that we've included many graphing experiences in the Seasonal Mathematics portion of this book.*

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## Types of Graphs

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### REAL GRAPHS



Children arrange real objects, such as bears, shoes, toys, mittens, on the floor, or on a graphing mat (see Materials Index). The “mini mat” insures one to one correspondence, but also requires children to extend order beyond the mat.

Here's an example of a real graph lesson:

**Teacher:** *Boys and girls, today we are going to graph our snack. Please write your name on the napkin that was given to you and bring it to the circle as fast as you can.*

*(Children quickly label their napkins and sit in circle.)*

**Teacher:** We have two kinds of crackers today...round and square. When I come around, please choose one off the tray. You'll need to take the one you touch so think very carefully about which you'll choose. Please be very quiet as the tray goes around so each person can make his or her own choice. Let's predict what might happen. Raise your hand if you think more people will choose Saltines. Raise your hand if you think more people will choose Ritz. (Let each child choose one cracker from the tray.)

**Teacher:** Look around! Do you think your prediction was correct? Let's find out. I have the graphing mat to help us organize the crackers. I'll put a round orange circle beside the row for Ritz crackers and a white square beside the Saltine row.

**Teacher:** I'd like the people with black hair who chose a Ritz cracker to bring their napkin and cracker to the graph. Let's put just one napkin in each space on the mat. I'd like anyone else who chose Ritz to add their napkin now.

**Teacher:** Will all the people with brown hair who chose Saltines bring their cracker now...and now everyone else, please.

**Teacher:** Did all the crackers fit on the mat?

**Children:** No, lots went off the end.

**Teacher:** How did you know where to put yours when there wasn't any more room?

**Children:** We could just see they should keep going in a straight line and the Ritz crackers should be across from the others.

**Teacher:** Which row has more?

**Children:** Ritz.

**Teacher:** Why do you suppose that happened?

**Children:** More people like Ritz. Yeah...you can have Saltines any time.

**Teacher:** Which row has fewer?

**Children:** Saltines.

**Teacher:** How many more people picked Ritz than Saltines?

**Children:** Five.

**Teacher:** How do you know?

**Children:** Because we can see extra ones sticking out.

**Teacher:** How many fewer people picked Saltines than Ritz?

**Children:** Five again!

**Teacher:** How do you know?

**Children:** There are empty spaces on the Saltines side.

**Teacher:** How many people put a cracker on our graph?

**Children:** Twenty-five.

**Teacher:** How did you figure it out?

**Child:** Easy! There were ten on the Saltines side and I just kept counting...10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25.

**Teacher:** How did you figure it out, Tera?

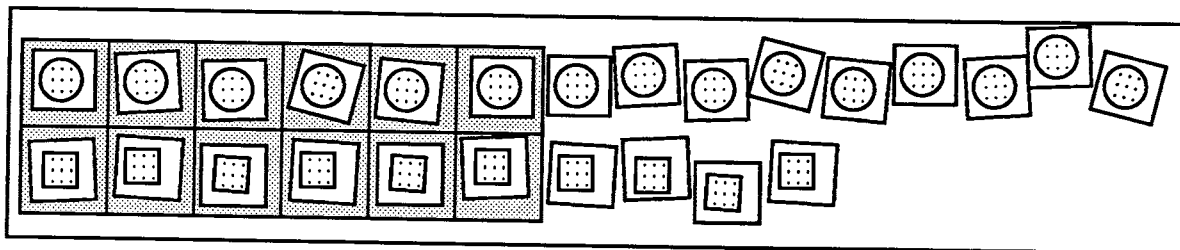
**Tera:** I counted them all.

**Teacher:** How about you, Robby?

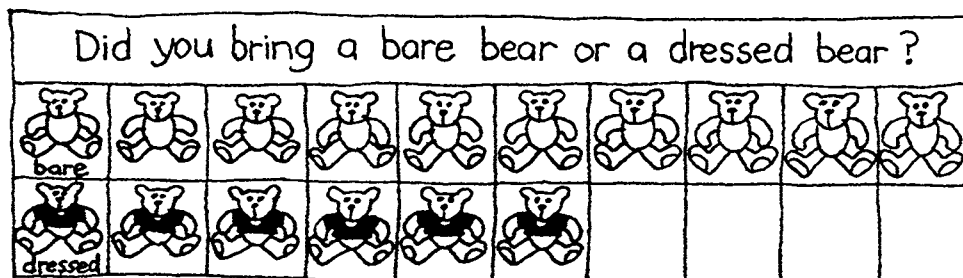
**Robby:** I counted from the fifteen on the Ritz side.

**Teacher:** In a minute, I'd like all the people with buckle and tie shoes to get their cracker. You may sit down in the circle and eat as soon as you get it. Go now.

**Teacher:** Now I'd like everyone with velcro or slip-on shoes to get their cracker. (Keep going till the graph is empty.)



## PICTURE GRAPHS



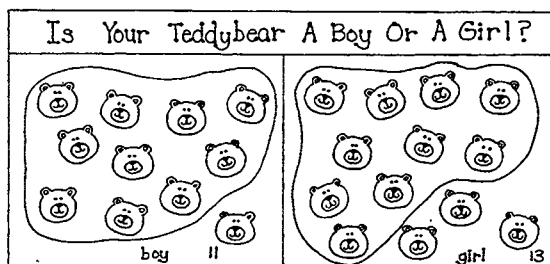
Children draw or cut out pictures to represent real objects. They paste them on paper charts that have been folded or marked to create columns.

Picture graph lessons are conducted very much like real graph lessons. Some teachers post graphs on the board and have children come up, a table at time, to paste on their pictures. Some

teachers like to lay their charts on the floor and have students paste on their pictures. When they finish, they sit down in the circle to wait for others. If you have a large or very wiggly class, it's helpful to have children prepare their pictures, paste them on the graph and return to their desks to do some pre-assigned task. Save the discussion for later.

## SCATTER GRAPHS

Objects or pictures are scattered randomly over a display area that has been divided in half or in thirds instead of being arranged in columns. Children must create order to discuss



the graph. If it's a real graph, they often choose to rearrange the objects, matching them one to one to form columns. If it's a picture graph and

the pictures have been pasted, they are content to count and compare the numbers. If the numbers are large, children can be encouraged to loop the pictures in groups of ten so they are easier to count.

Although most of the graphs in Seasonal Mathematics could be real or picture, we feel it's important, especially for kindergarten teachers, to start the year with real graphs and return to them periodically throughout the year. They set a foundation for other graphing experiences. Most of the graphs could be done in columns but be sure to include some scatter graphing. Children need many opportunities to organize their world.

## Conducting Graphing Lessons

## HOW MANY COLUMNS?

Two, three and four column graphs offer children terrific opportunities to compare quantity. We find these opportunities diminish if our graphs extend beyond four columns. Young children don't seem to make "visual

leaps" effectively enough over more than one or two columns to draw good comparisons. We like to start with two column graphs in September and work up slowly as the year progresses.



## GRAPHING QUESTIONS

Standard questions to ask your class after a graph is complete include:

- Which column (or side) has the most?
- Which column (or side) has the least?
- Are there more \_\_\_\_ or \_\_\_\_?
- How many more? How do you know?
- How many fewer? How do you know?
- How many people participated in our graph?

Why do you think fewer people chose \_\_\_\_?

What do you think would happen if we asked Mrs. Boulland's class to do the same graph?

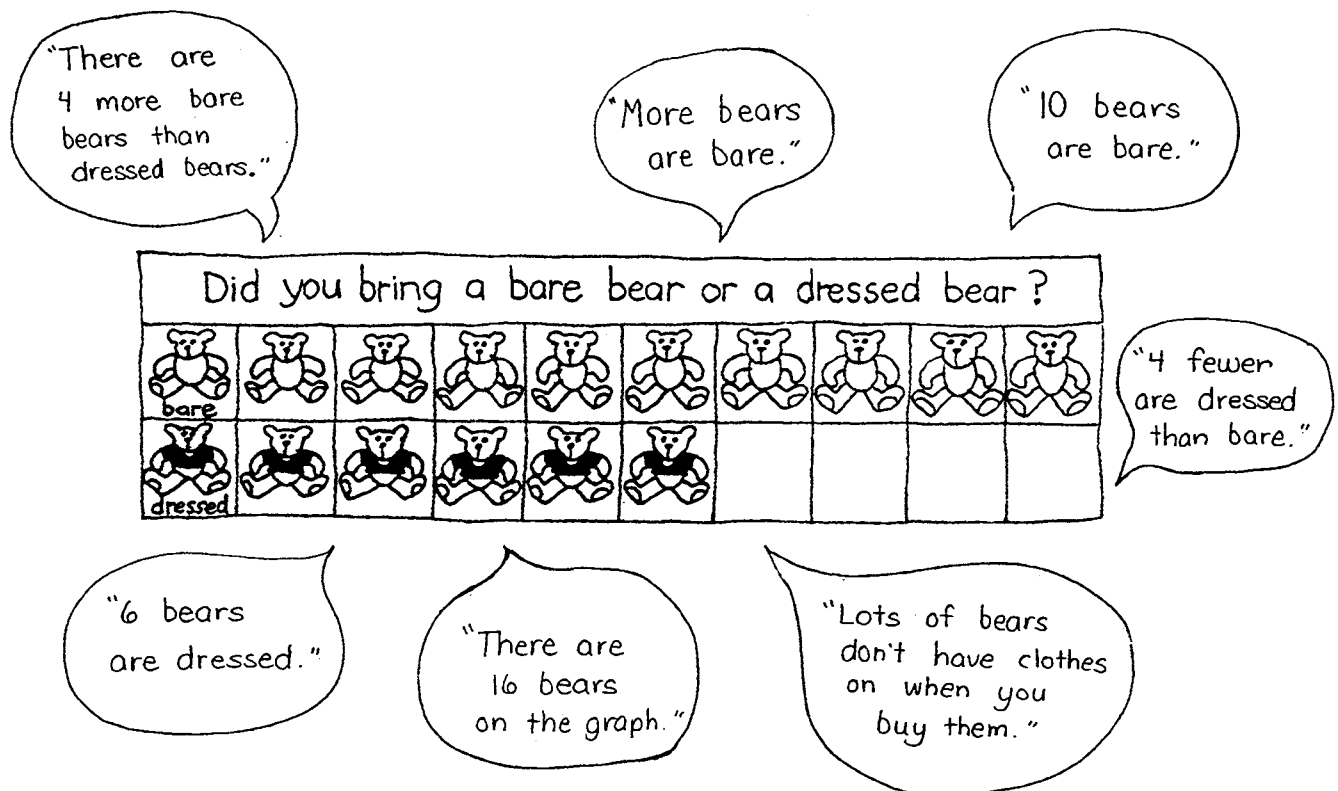
Would adults feel the same way? How could we find out? Let's have that be our homework today...be sure to check with two or more adults.

At some point, we hope you'll want to extend graphing to higher level activities such as the ones suggested below.

## THE TALKING GRAPH

Ask children to tell you as many things as they can about a picture or symbolic graph you've made together. Record their observations on

paper "bubbles" and post them with the graph. This is an excellent display for Open House.



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## Notes

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# The Calendar

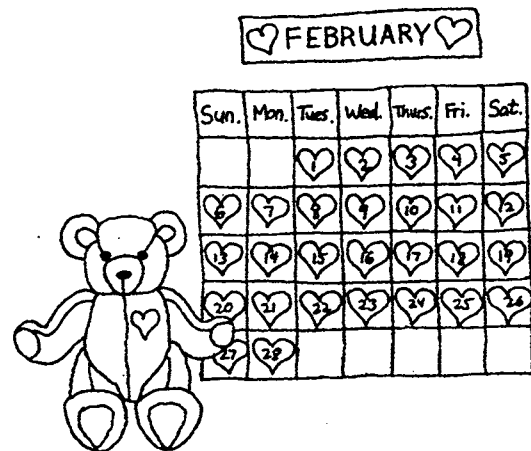
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# THE CALENDAR

*The calendar affords incredible opportunities to teach, reinforce and extend primary math skills. It is exciting to the children and holds their interest day after day. It helps teach the following skills:*

- *counting (ones, fives, tens)*
- *visual and number patterns*
- *names of days and months*
- *the year*
- *time and duration*
- *number combinations (a vast variety)*
- *weather observations*
- *graphing*
- *daily schedule*
- *children's growth and changes*
- *experiencing tens and ones*



*Your classroom calendar needs to be hung in the largest space available close to your group instructional area.*

*The calendar instruction usually requires ten to twenty minutes per day (depending upon your group). Your instructional emphasis will change somewhat with each month as your group matures and understands the concepts you've been practicing. Even though it is a big job to get all the calendar parts ready, most of it can stay up all year with just a few monthly changes. New things can be added as your group matures and grows in understandings. Teaching the calendar can be loads of fun—we hope you'll enjoy it as much as your children do.*

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## Component: Numberline Strip

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### HOW MANY DAYS HAVE WE BEEN IN SCHOOL?

#### Skills Taught

Numeral recognition

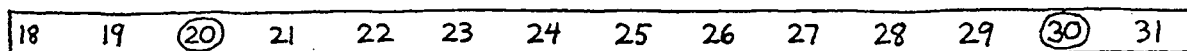
Counting by ones, twos, fives, and tens

Counting on

Counting backwards

Duration (How long is a week? How long is a month? How long is a school year?)

Time line of special events



#### Instructional Ideas

Record a number on the strip for each day of the year you're in school. All the numbers except tens are written in black. The tens should be written in red and circled. You may also wish to note the fives in between by drawing a triangle around them. Some teachers also draw a line under the twos.

**Teacher:** How many days have we been in school so far this year?

**Children:** 32!

**Teacher:** How do I write 32?

**Children:** Three for the thirty and two for the ones.

**Teacher:** Let's count up to 32 starting at 20.

**Children:** 20, 21, 22, 23, 24, 25, etc.

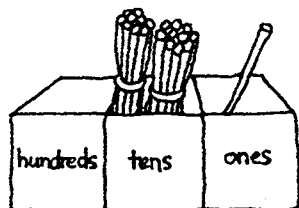
**Teacher:** Let's start at the beginning and count to 32 by tens and ones. Ready?

**Children:** 10, 20, 30, 31, 32...

(Have your kids clap on 31 and 32 so they notice they are changing counting patterns from tens to ones, a critical skill in counting money.)

### THE NUMBERLINE STRAW BOXES

Children seem to understand the numberline numbers better when strawboxes are posted nearby.



A straw is placed in the appropriate box for each day of school recorded on the numberline. Each

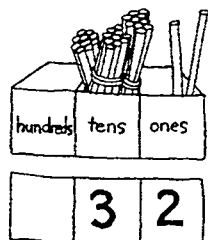
time the tenth straw is placed in the ones box, the ten straws are rubber banded together and moved to the tens box. When ten groups of ten are reached, they are banded together and moved to the hundreds box. What a celebration that is!

#### Making Instructions

Cut down three half gallon milk cartons and staple them together side by side. Spray paint or cover with contact paper and use a permanent marking pen to label them hundreds, tens and ones.

## THE NUMBERLINE RECORD

Many teachers like their children to count the straws each day and record the appropriate numeral under the straw box as well as on the Numberline.



**Teacher:** Let's find out how many straws are in our straw box from yesterday. How will we need to start counting?

**Children:** By tens!

**Teacher:** Good for you. Let's count the tens.

**Children:** Ten, twenty, thirty!

**Teacher:** We have one more straw in this ones box. Do we count that by tens?

**Children:** No! That's not ten straws. You just say thirty-one!

**Teacher:** You really figured that out! Whisper to a friend how many we'll have when we add today's straw. (Children whisper.)

**Teacher:** Does anyone want to tell your guess?

**Children:** We think there will be thirty-two 'cause when you count, it goes thirty, thirty-one, thirty-two...

**Teacher:** Let's put in today's straw and count.

**Children:** Ten, twenty, thirty...

**Teacher:** Don't forget, we have to change counting patterns!

**Children:** Thirty-one, thirty-two!

**Teacher:** Great! Now let's figure out how many bundles of ten we have.

**Children:** Three, there are three.

**Teacher:** I'll write a three under the tens box on our record card. How many ones do we have?

**Children:** Two, there are two straws in that box. You need to write a two.

**Teacher:** That's correct. I'll write a two under the ones box. How do we read this number?

**Children:** Thirty-two...it means three tens and two straws in the ones box!

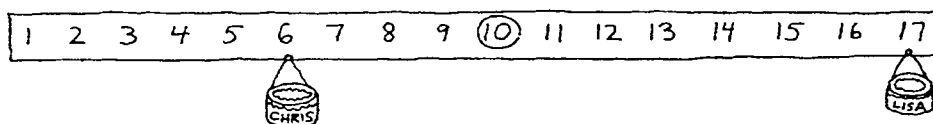
## Making Instructions

Use colored paper and construction paper to create a three part card to fit directly under your straw box. Be sure to laminate this card so you can write on it with any wipe-off pen.

## THE NUMBERLINE AS A TIMELINE

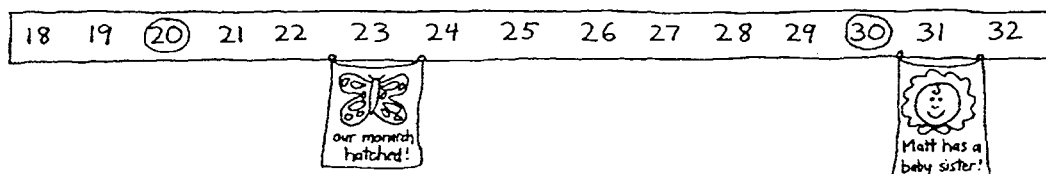
Many teachers like to make the numberline into a timeline of special class events. It's a wonderful way to set foundations for understanding historical timelines. Some possibilities for the timeline include:

1. Hang a small birthday cake with the child's name under the appropriate number to remember birthday celebrations.

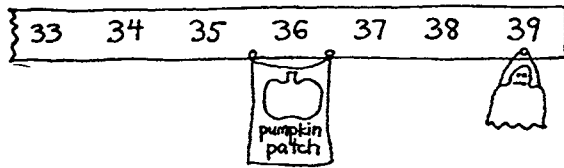


2. Have a child make a special picture to note very important class events such as the day the Monarch butterfly emerged from the chrysalis or the

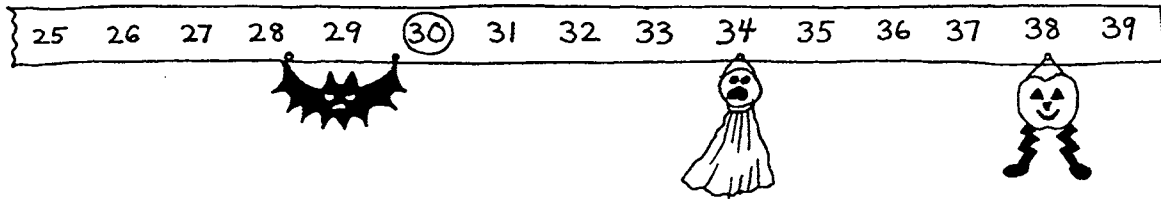
day someone announced a new baby brother or sister, etc. Once again, hang these under the appropriate numbers.



3. Have a child make a symbol for each special holiday to hang under the appropriate day's number.



4. Nancy Goldsmith of San Jose asks her kindergartners if someone would volunteer



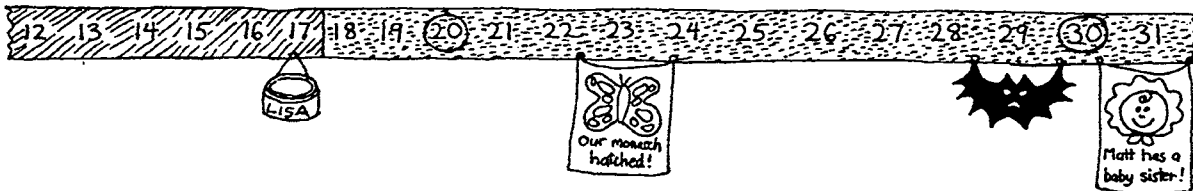
Note: Since you'll probably be moving your monthly sections of the numberline to another place, glue, staple or tie the timeline items to the numberline each time so it will be easier to move.

### Making Instructions

Make ten strips, 4" wide by 6-1/2' long, in ten different colors, one for each month. In September, post the first strip

a completed art project each week to place under the day the class worked on that project. Those samples are placed under the appropriate number for the day on which they were constructed. Nancy says it generates such happy memories as the class looks back. She asks questions such as: Which day did we make the flying bats? What did we make on the 34th day of school? How many days after that did we make the pumpkin puppets?

above your calendar board. Record a number for each day of school. When the month is over, post the strip somewhere else and put up the October strip. Continue the sequence of numbers until October is over, then post the October strip beside the September strip. You'll end up with a long multi-colored strip at the end of the year.



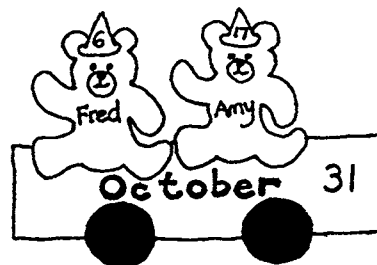
## Component: Birthday Train

### Skills Taught

- Counting
- Comparing
- Month Names
- Number of days in each month

### Instructional Ideas

As a month is completed, and before the pattern grid is emptied, it is nice to notice how many



days the month had and to write that number on the appropriate train car for the month. As the



school year progresses, children are able to see how many days each month had.

For counting, have the children count how many birthdays are in the current month.

For comparing, ask them to find a month that has fewer birthdays than October or the months with one more birthday. You can also determine whether more boys or more girls have their birthday in any given month.

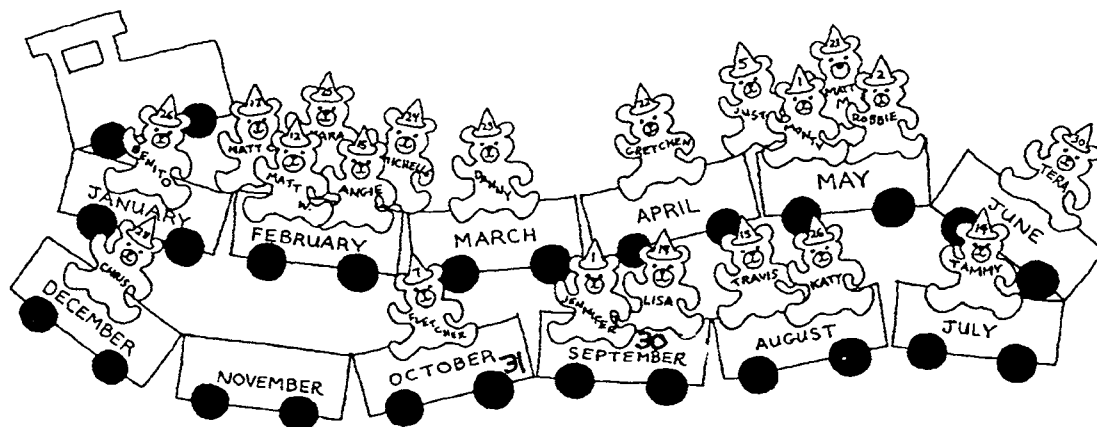
The birthday train is a great way for children to learn the names of their months. It's also a good

way to help them know which month came just before December, just after March, etc.

Use the birthday train to discuss and reinforce ordinal numbers with your class. What is the fifth month? Or, what month is August? This questioning strategy is an easy way to work this math concept into your calendar time.

### Making Instructions

Locate the Calendar Patterns in the blacklines. You'll need the birthday train engine and cars (cut at dashed lines on engine pattern for the cars) and the birthday bears. Each set of patterns has specific construction details.



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## Component: Tooth Beary

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### Skills Taught

Counting

Honoring children's growth and change

Gathering information over a long period of time

Graphing (See "Changes" in January Seasonal Math)



### Instructional Ideas

Did anyone lose a tooth yesterday? Come and show us which tooth is gone. Did the tooth fairy come? Let's write your name on one of our paper teeth and add it to this month's Tooth Beary bag.

How many teeth have been lost so far this month? Are there any Tooth Beary Bags already completed

that have an equal number of lost teeth? Are there any with less?

Note: The Tooth Beary stays up on your calendar all year. You'll change her bag each month and move the previous month's tooth bag to a nearby wall. By the end of the year, you'll have ten bags of teeth, a complete record of lost teeth for the year.

Locate the Calendar Patterns in the blacklines section. You will need the large bear pattern. We like to make our Tooth Beary from a shade of brown that is different than our Day Bears so each activity seems very special. Each set of

patterns has construction details included. These are a lot of work but they stay up all year and add a magic touch to your classroom. Children are so proud of lost teeth at this age, it's a natural to use as a mathematical experience.

## Skills Taught

## Graphing

Gathering information over a long period of time.





















Have a weatherperson mark the weather each day by slipping a unifix cube over a pin in each column appropriate to the weather of the day. (A day might be overcast, rainy and windy.)

black for rainy, white for snow, etc.) Cubes can be kept in clear plastic tumblers below each column.

**At the end of the month, remove all the cubes and snap together by color groups. Compare the stacks of cubes. Which kind of weather was most prevalent? Which least? Were there more rainy days or more sunny days? See the graphing chapter for more questions and extensions. You'll also run into extending ideas in the Seasonal Mathematics section.**

You'll need a piece of white poster board 21" by 28". Mark off the 21" side into six columns each 3 1/2" wide using a fine tip marking pen. Mark a line across the chart, 4" from the bottom. Draw a picture in each resulting box and label with weather conditions appropriate to your geographical area. Draw the rest of the horizontal lines 1" apart to the top of the chart. Post the chart on a pinning board. In each section, hammer straight pins for the unifix cubes to fit over as weather is recorded each day.

# Weather Report

•	•	•	•	•	•
•	•	•	•	•	•
•	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
	•	•	•	•	•
		•	•	•	•
			•	•	•
				•	•
 sunny	 rainy	 cloudy	 windy	 foggy	 snowy

Have your class help you select a color to represent each weather condition and make a key so the same colors will always be used. (Perhaps they will choose yellow for sunny.

# Component: Pattern Grid

## Skills Taught

Counting  
 Numeral recognition  
 Names of the days  
 Visual patterns  
 Number patterns  
 Prediction

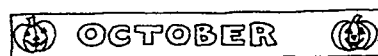
## Instructional Ideas

The pattern grid provides one of the most elegant transitions from visual patterns to number patterns you're likely to see in a primary classroom, but you have to guide the discussion in that direction consistently.

Midway through the month, after the pattern sequence is clear to everyone, you might ask if anyone sees any other patterns forming on the grid.

OCTOBER						
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	

In October, children are likely to notice the pumpkins and ghosts are running in diagonal lines and the vertical pattern for Thursday is "pumpkin, pumpkin, ghost." They might speculate that Sunday and Wednesday have the same vertical pattern and perhaps Monday and Thursday do too.



Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
			1	2	3	4
5	6	7	8	9	10	11
12	13					

You can push their understanding of pattern along by asking them to use it as a predicting tool.

**Teacher:** Halloween comes on October thirty-first. Any ideas on whether it will be a pumpkin or a ghost?

**Children:** Pumpkin, pumpkin, it's going to be a pumpkin. No, a ghost!

**Teacher:** Raise your hand if you think it will be a ghost.

**Teacher:** OK. Raise your hand if you're pretty sure it will be a pumpkin.

**Teacher:** Sherry, why do you think it will be a pumpkin?

**Sherry:** I just said the pattern and that's how it turned out.

**Teacher:** Let's try that and see what happens. Let's see...today is a ghost, the 15th. What comes next?

**Children:** Pumpkin!

**Teacher:** And then?

**Children:** Pumpkin, ghost, pumpkin, pumpkin, ghost... (They keep chanting as you point to each square on the grid.)

**Teacher:** It should turn out to be a pumpkin. Let's look at our calendar pieces and see if that's what it really is. Here it is... you're absolutely right!

**Teacher:** Did anyone have a different way of figuring out what it was going to be besides saying the pattern?

**Randy:** Well, every third one had a ghost and 31 wasn't a third one! It had to be a pumpkin!

**Teacher:** Let's check Randy's idea. We'll count by threes and see if we land on a ghost each time. Ready? I'll point to the shapes and you say the number each time. Ready?

**Children:** 3, 6, 9, 12, 15, 18...they are all ghosts!

And so it goes. They probably won't start picking out number patterns until spring unless you have an unusually bright class but stick with it. At the end of every month it's nice to ask the class what multiple they'd like to examine—twos, threes, fours, fives, sixes? Once they have chosen the multiple, take off all the shapes except the number they have chosen. For instance, they've chosen fours.

♥♥ FEBRUARY ♥♥						
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
		°	°	°	♥	°
°	°	♥8	°	°	°	♥3
°	°	°	♥16	°	°	°
♥2	°	°	°	♥24	°	°
°	♥					



**Teacher:** OK. Fours. Help me out. What's the first shape we want to leave up?

**Children:** Four, the red heart!

**Teacher:** Here we go. One off, two off, three off, four stay! Which number will be next to stay?

**Children:** Eight, the pink heart?

**Teacher:** Let's check it. Off, off, off, stay. Yes, an eight. What will be next?

**Children:** Twelve! Yes, twelve!

Proceed until only the fours are left up. Discuss the pattern that has magically emerged. The children will have lots of observations. Later in the year in second grade, you might want to use this activity to generate a multiplication counting pattern.

### Making Instructions

**The Grid:** You can buy a commercially prepared blank calendar grid or make your own. If your bulletin board affords the space,

it's nice to have a grid that has 4" or 5" squares so that children can create the pattern markers each month. They are *overjoyed* when they come in on the first day of each month and find their new calendar markers ready to go. It gives them so much investment in the calendar and makes your room look so magically childlike.

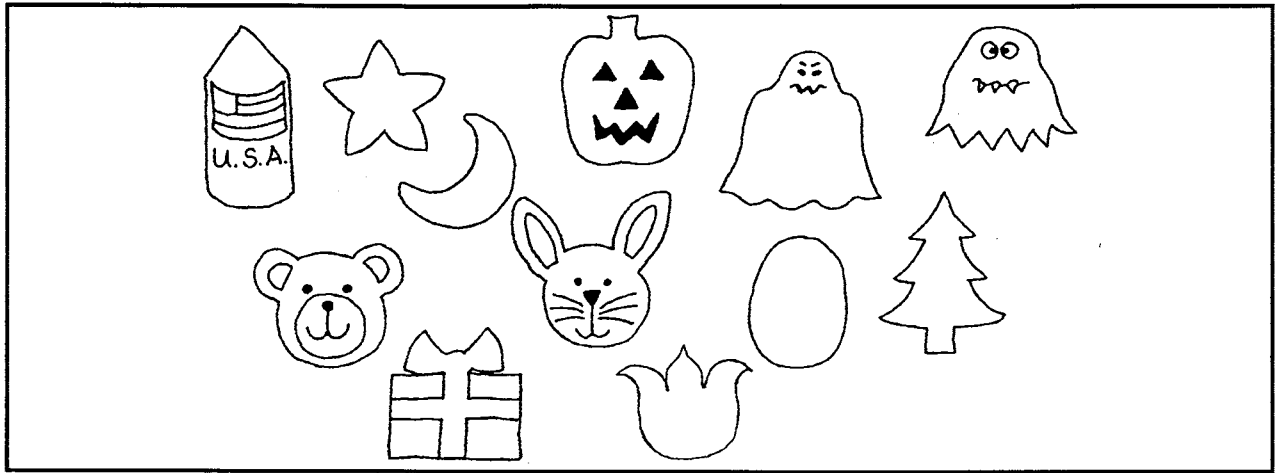
**The Markers:** Teachers usually do the September markers themselves so the calendar will be ready when the children arrive and so they get a chance to see what the markers are used for. We have included a bear pattern in the Calendar blacklines to help you get started with a beary cute September.

As October nears, it's exciting to let the children make the new markers as a special art project. We like to plan with the children things they think would be nice for the new calendar and then we premake simple samples of the possibilities and hang them. We provide cut paper from which the children choose appropriate colors for the marker each will want to make. If your class is small, ask several children to make more than one. Encourage the children to carry their marker to the calendar grid as they begin cutting to be sure it will be large enough for everyone to see but small enough to fit the grid (spatial math).

Once the markers are completed (perhaps the next day), lay them out with the class and sort them by kind. Problem solve together what kind of a pattern can be constructed with the available pieces. Try out the different ideas until you find one that will work. (Often you'll need to ask for a couple volunteers to make a few missing pieces. If there are extras of one kind or another, use them to decorate other areas).

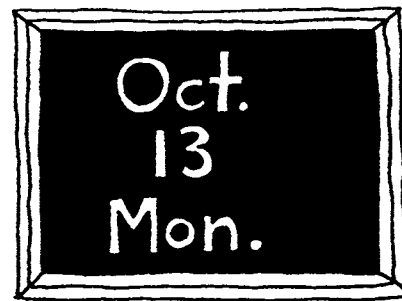
Once the pattern has been determined, take your black marking pen and have the children tell you which number to write on each piece of the pattern. The calendar pieces are now ready to be hung when the new month begins.

Some of the pattern pieces that have been popular in our classes are sketched below to give you ideas.



## THE CHALKBOARD DATE

Many teachers find it very helpful to their children to write the day, date and month on a student chalkboard after the Pattern Grid is completed each day. It is a good way to look at abbreviations and to even show the shortest notation and give it meaning by counting the birthday train cars (10/13/87) so children can see the relationships of each of those numbers.



### Making Instructions

Pin a student chalkboard into your calendar area. Keep chalk and an eraser nearby.

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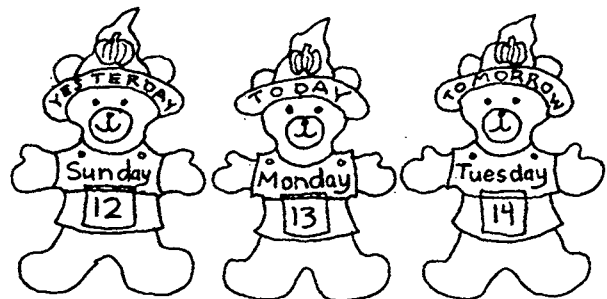
## Component: Day Bears

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*First grade teachers will want to focus on the Day Bears and teach the described lesson for several months. After that, a calendar helper can change the bears' shirts and dates each day without class participation. Second grade teachers may focus on the bears during the first month of school and then turn it over to the calendar helper. Even though they are not a primary focus, they are so cheery in the room as their hats change each month.*

### Skills Taught

- Names of days
- Concepts of yesterday, today and tomorrow
- Prediction
- Counting
- Numeral recognition to 31



### Instructional Ideas

**Teacher:** When we said the days of the week we decided today was...

**Children:** Wednesday!

**Teacher:** But what shirt is the Today Bear wearing?

**Children:** Tuesday...

**Teacher:** Oh, oh, how can we fix it?

**Children:** Change his shirt. Put on his Wednesday shirt.

**Teacher:** Jennifer, would you come and change his shirt. What should Jennifer do with the Tuesday shirt? Where does it belong?

**Children:** On our Yesterday Bear.

**Teacher:** And what about the Tomorrow Bear. Poor thing must be freezing with no shirt on.

**Children:** He needs the Thursday shirt.

**Teacher:** OK. But the Thursday shirt doesn't have a number. What number should Jennifer put on the Tomorrow Bear's new shirt?

**Children:** Let's see...12, 13, 14. Put a 14 on his shirt.

### Making Instructions

Locate the Calendar section of the blacklines for the patterns to construct and dress the bears.

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## Component: Tally Pad

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### Skills Taught

Counting by ones, fives and tens

Tallying

Exploring addition combinations: (12 is  $5 + 5 + 2$ , or  $10 + 2$ , or  $4 + 1 + 4 + 1 + 2$ )



### Instructional Ideas

**Teacher:** How many days have gone by so far in October?

**Children:** Thirteen.

**Teacher:** How can I fix our tally so it has thirteen marks?

**Children:** Add one mark.

**Teacher:** Will it be a straight or diagonal mark?

**Children:** Umm...straight,

**Teacher:** Why?

**Children:** Because you only have three marks now in the new group. You need five before you make a diagonal mark.

The tally sheet can also be used to introduce the language of multiplication, even in first grade.

**Teacher:** Today's the fifteenth. How many marks do I need to add to the tally sheet?

**Children:** One.

**Teacher:** How many groups or sets of five do we have now?

**Children:** Three fives.

**Teacher:** I'm going to write a multiplication sentence showing what we have on our tally pad. (Write  $3 \times 5$ .) Three fives, three sets of five...three times five is...?

**Children:** Fifteen!

**Teacher:** Let's count to be sure.

**Children:** Five, ten, fifteen!

**Teacher:** Let's read our multiplication sentence together.

**Children:** Three fives make fifteen. Three sets of five make fifteen. Three times five equals fifteen.

### Making Instructions

Cut ten pieces of 8 X 8 newsprint. Write the name of one month at the top of each sheet from September through June. Staple the sheets to a piece of 9 X 9 poster board.

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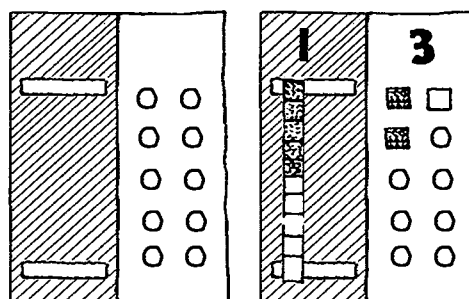
## Component: The Date in Tens and Ones

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*Kindergarten teachers may want to save this until spring. First grade teachers may wish to postpone beginning this until November. Second grade teachers may only focus on this lesson until February and increase the students' attention by representing the date in money as well as Incredible Equations. If there are children who need lots of continuing work in tens and ones, choose them to be the calendar helpers to change the date in tens and ones so it will be correct after the group has completed the other parts of the calendar.*

### Skills Taught

- Counting by ones, fives and tens
- Numeral recognition
- Understanding tens and ones
- Teaching even and odd numbers
- Teaching addition strategies of tens and ones, doubles and neighbors



### Instructional Ideas

**Teacher:** *Today is the thirteenth. How many cubes should I add under the place value board?*

**Children:** *One more.*

**Teacher:** *What number should I write on the blue side?*

**Children:** *One!*

**Teacher:** *Why?*

**Children:** *Because there is one ten.*

**Teacher:** *What number needs to go on the white side?*

**Children:** *Three?*

**Teacher:** *Why?*

**Children:** *There are three cubes on that side.*

**Teacher:** *What do we call the number I've written on the place value board?*

**Children:** *Thirteen!*

**Teacher:** *Let's check to see if we really have thirteen cubes up here. Help me count by starting with the stack of ten. Ready?*

**Children:** *10, 11, 12, 13!*

You can also use the unifix cubes to introduce and reinforce the ideas of even and odd, doubles and neighbors. Children understand that 13 is an odd number because one of the cubes doesn't have a partner, only an empty dot across from it. Fourteen is an even number because all the cubes have partners. Thirteen is the sum of two neighbor numbers—seven blacks and six whites:  $6 + 7 = 13$ ; fourteen is a double, the sum of seven blacks and seven whites (twin numbers),  $7 + 7 = 14$ .

### Making Instructions

Use a piece of white cardstock 9" X 12" and glue a 4 1/2" X 12" piece of lavender construction paper to the left side of the cardstock. Laminate. Center 4" strips of self-adhesive velcro on the lavender side of the board (one strip 4" down from the top and one strip 2" up from the bottom, as shown above). Place ten 1" dots of self-adhesive velcro evenly spaced on the white side (see above). Attach appropriate self-adhesive velcro dots to the back of unifix cubes (sixteen of each of two colors). Record with a vis a vis pen on the top of the card as you build and trade each day.

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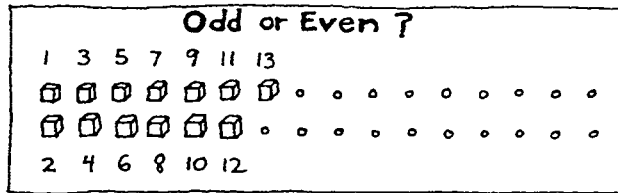
## Component: Even/Odd—Another Way

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### IS TODAY AN EVEN NUMBER OR AN ODD NUMBER?

#### Skills Taught

Numeral recognition  
Counting by twos  
Even and odd numbers



#### Instructional Ideas

Hang a unifix cube for each passing day of the month (including weekends) and write the appropriate numeral above or below.

Add a new cube daily and examine the lines of cubes to decide whether they're in pairs or single. Help children see the partnered cubes are counting by twos patterns (even numbers) and cubes hanging alone are odd numbers. Ask children to help you count by twos and ones to record the appropriate numeral.

#### Making Instructions

Cut a piece of unlined tagboard 6" X 18" inches. Measure off two rows of pin dots at one inch intervals (16 per row) and laminate. Push sturdy straight pins into each dot at an upward slant to hold unifix cubes. Keep a vis a vis pen nearby for writing the numerals each day. At the end of each month the numerals can be cleaned off with a damp cloth. Or make with two strips of self-adhesive velcro on the laminated tagboard. Attach self-adhesive velcro to the unifix cubes as well.

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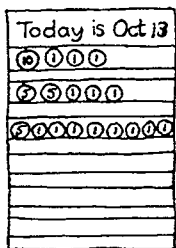
## Component: Money Pockets

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#### Skills Taught

Coin names  
Coin worth  
Counting small sums of money  
Problem solving

#### Instructional Ideas



**Teacher:** Today is the thirteenth day of October. Does anyone have an idea for a way to make 13¢ for our top pocket?

**Children:** That's easy. We can put in one dime and three pennies.

**Teacher:** Let's count it together as I put in the money and see if that works.

**Children:** 10, 11, 12, 13!

**Teacher:** Good! You remembered to

change counting patterns when we got to the pennies. Does anyone know another way?

**Children:** We could do 13 pennies!

**Teacher:** You really love seeing all those pennies in the pocket. OK, help me count them.

**Children:** 1, 2, 3, 4, 5, etc.

**Teacher:** Any other way?

**Children:** Yep! Two nickels and three pennies!

And so it goes as each of the pockets is filled. Be sure to try out even wrong suggestions. Children



learn lots when they try out things that don't work. The group helps fix any errors.

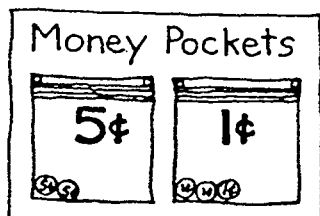
### **Making Instructions**

You'll need a box of real money handy to count into these pockets each day. If you have a very large class, be sure they are close enough to really see. (If having real money in your classroom seems too risky to you, cut colored paper coins and label with appropriate numbers and the cent sign.)

To make the pocket board, cut a piece of poster board 10" X 16" and six pieces of clear acetate 3/4" X 10". Label the top of your board "Today is \_\_\_\_." Laminate. Tape the acetate strips of the board in rows leaving an inch or so between each row. (Or purchase ready-made chart from The Math Learning Center.)

### **MONEY POCKETS (other versions)**

You may want to focus your children on a particular pair of coins for a month or so at a time in addition to using the money pocket above. (Don't leave it out because those children who only think of money as counting each coin one by one will need to see the thirteen pennies set out in a pocket in addition to the step below.)



**Teacher:** *Let's think about today's date again. It is the thirteenth. Let's look at our ziplock bags so we can practice counting our nickels and*

*pennies again. How could we set up the thirteenth in just nickels and pennies?*

**Children:** *Let's try two nickels!*

**Teacher:** *How many pennies is a nickel worth?*

**Children:** *Five.*

**Teacher:** *Good. How could we find out if two nickels will be thirteen?*

**Children:** *Do you still have all those pennies in your box?*

**Teacher:** *Yes, there are quite a few of them here.*

**Children:** *Let's put our nickels in a row and then put five pennies under each one.*

**Teacher:** *That way we could count all the pennies to find out if two nickels make today's date.*

And so it goes, problem solving with the class finding ways to figure out how many nickels and how many pennies the bags will need to make the thirteen for the day's date. Your bags could also be dimes and pennies at another time if your children need practice building the date in dimes and pennies.

Note: You may want to leave the coins in the pockets at the end of the day and merely build and trade from the prior day's total.

These are particularly valuable activities to focus children on changing counting patterns for different coins.

### **Making Instructions**

Staple two sturdy ziplock bags onto your pinning area. Label them and keep a box of appropriate money nearby.

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## **Component: Incredible Equations**

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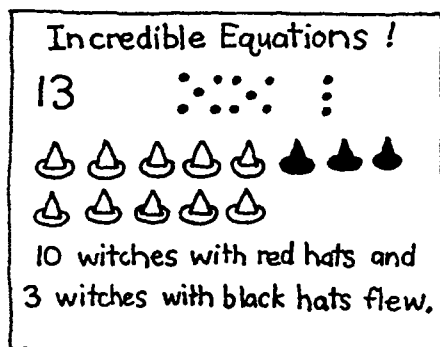
### **Skills Taught**

Problem solving

Equations

Inventing and reading story problems

## Instructional Ideas



Ask the children to tell you anything they know about the number that represents today's date. You'll get a combination of words and numbers in response. Children may give you word problems or facts about the number. They may look

at the tally, the calendar pattern grid, the place value card, or the money pockets to create the number sentences or they may dream up their equations in an abstract manner.

The Incredible Equations time is a very exciting time for the children once they get the idea. Trust the struggles in the beginning as worth the effort, you'll be happy you stuck it out! If a child gives you an incorrect number sentence, go ahead and write it on your chalkboard and have the children help you fix it.

## Making Instructions

Use large sheets of paper taped to the chalkboard for recording the equations. Let the youngsters take turns taking these home through the year; it's great public relations!

## Component: Whose Turn?

Once your children are gaining confidence with the calendar, it is very exciting to have them become Calendar Teachers or Calendar Helpers (depending upon their maturity). You'll need a fair way to select those helpers. If your children have cubbies, number each cubby. If they have assigned seats, have their name tags numbered. If they have special coat hooks, number those. (Each child keeps the same number, no matter how many things you can find to number.)

Make up a grid, it could be 3 X 9, 3 X 10, or 3 X 11 depending upon the number of children in your class. (Future grids could be different, 4 X 7 or 5 X 5, for example.)

Number the grid with as many numbers as children in your group. Decide which pattern you'd like to explore first, for instance, even numbers. Once all the even numbers have been colored, go back and color the odd numbers in a different color. On another occasion, you might choose to do fives. Once all the fives have

Whose Turn?			
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32

been colored, you might go back and color two, skip three (including the fives) until you finish coloring the entire grid. The possibilities are endless and the children may enjoy suggesting various ideas if you repeat this all year.

The appropriate number in your pattern is colored and that child becomes the Calendar Teacher for the day. It is fun for children to anticipate when their number will come up.

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# Component: The Daily Schedule

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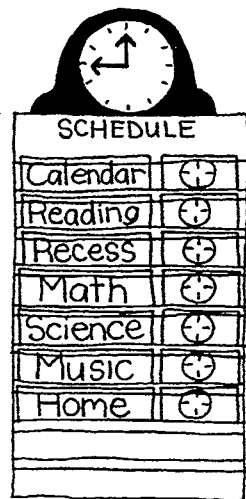
## Skills Taught

Reading

Time and sequence

Planning

## Instructional Ideas



As your day begins it is often very reassuring to point out the daily schedule so children know what to anticipate and begin to get some feeling for the passing of various amounts of time. It seems to make best sense to start this activity by just showing the activity sequence without clocks for the first month or so. Once the children are comfortable with that format, it is a good place to help children become aware of time.

Questions to help children become aware of the daily sequence of events could include:

1. What will we be doing first this morning?
2. What happens right before lunch?
3. What are the second and third things planned for the morning?
4. What is the final activity for this day?

Questions to help your children relate the daily schedule to time could include:

1. Who knows what time we'll go to P.E. today?
2. What will our class be doing at 10:45?
3. How much time have we saved for science today?
4. What is the second thing that will happen after lunch today?

If you work on a flexible schedule, you may wish to have a child draw the hands on a blank clock face when you begin a new activity. They

would look at the wall clock, set the hands on a class teaching clock to look the same as the wall clock and then guide the helper to draw it on the blank clock. As you are introducing the addition of time to your daily schedule take some time to teach the children things about the clock, the fact that the minutes can be counted by ones or fives—practice it; the fact that that clock hands go clockwise, the fact that the hour hand is shorter, etc.

As you focus on the daily schedule, take time occasionally to do some teaching of telling time. Include the children's chalkboards so they are responding by drawing clocks and sketching in the hands in response to your lessons (it gives you instant assessment and keeps them focused). Be sure to focus often on digital time, the clock hands then make better sense to many children. Telling time with confidence and accuracy requires many years of practice. These lessons help children develop an awareness of time.

## Making Instructions

You will need: one 18 X 35 piece of tag, fourteen 1-1/2 by 18 strips of acetate, or fourteen 1-1/2 by 7, plus fourteen 1-1/2 X 11 strips taped together, sixteen 2 X 7 tag strips (time), twenty 2 X 10 tag strips (activities), clear tape, felt tip pen.

Mark off your 18 x 35 piece of tag with lines spaced at 2-1/2" intervals. Tape your acetate strips (on the bottom) to each line. Once all your strips are taped in place, tape the sides of your tagboard to hold the strips on the sides.

Create time cards and activity cards appropriate to your classroom.

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## Component: Fantastic Fractions

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### **Skills Taught**

Inventing and recording fractions

### **Instructional Ideas**

Take a look at the Tooth Beary for the month. Ask the children to read the names of the people who lost teeth that month. Have those youngsters stand together in a group. Count how many people have lost teeth. Separate the lost teeth children into male and female. Write the information up first as a story problem: "Five people have lost teeth so far this month. Three out of those five people are girls and two of those five people are boys." Show the class how to record that problem as a fraction.

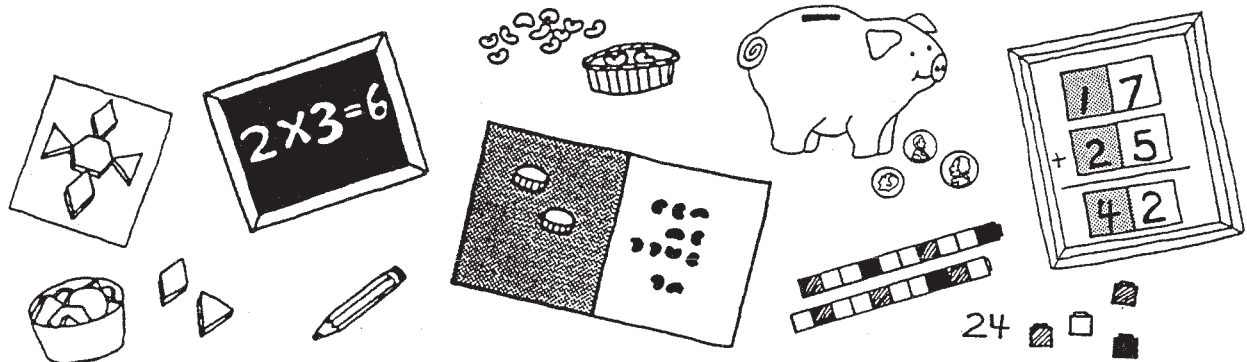
Study the calendar pattern grid. If you have an AAB pattern on the grid ask the children to determine how many days have gone by this month. How many of those were Easter bunnies? Write this again as a word problem

and then record the number as a fraction of the total. "Fifteen number markers have been added to our calendar so far this month. Ten of those fifteen are Easter eggs. Five of those fifteen are Easter bunnies." If your children seem interested and ready, build the fraction in unifix cubes, that is, ten blue unifix cubes and five white cubes. Study the stack and see if they can find any way to rename it besides  $10/15$  and  $5/15$ .

### **Making Instructions**

A large piece of paper works just fine on this job. You may only want to do this activity once a week but it's nice to leave the record sheet somewhere on the wall so they begin to notice fractional possibilities in their daily activities.

# Concept Instruction





# DISCOVERY TIME

*An activity-centered math program cannot exist without manipulatives. In the first stages of learning a new concept, children use concrete materials under the teacher's direction (Concept Instruction). In later stages, children extend and consolidate their understandings through independent activities involving manipulatives (Independent Practice Time). In each case, the use of manipulatives is not random, but carefully structured. Unifix cubes, pattern blocks, geoboards, ceramic tiles, coin stamps, scales, and the like are seen not as toys but as tools through which to investigate both simple and complex mathematical concepts. There is one caveat, however: Primary children respond best to structured use of materials when given the opportunity to play with them first.*

*Youngsters don't initially see mathematics in the various manipulatives we use. They see, instead, houses and train stations, bridges and staircases, castles and fortresses, faces and trees. They may examine, count, sort, and pattern as they build, but their initial impulses are probably more creative than mathematical. If children aren't allowed to pursue their own ends during the first few weeks of school, they will do so during structured lessons throughout the year. The cubes which you intend them to use for turkeys in a story problem will be snapped together and held up for telescopes. The pattern blocks which are to be counted into groups of six will grow into fantastic designs of eight, ten, or twenty. The bread tags which are to be sorted will be used for earrings when you turn your back. Young children simply cannot attend to **our** purposes until they've been allowed to attend to their own.*

*Discovery Time provides a legitimate opportunity to explore. During this two to seven week introduction to Independent Practice Time, children play with the "general materials" that will help them learn math all year. They snap unifix cubes into long, long trains. They build endlessly beautiful flowers, snowflakes, rocket ships and designs with pattern blocks. Discovery Time also allows the teacher to establish rules and procedures children will need to follow all year during Independent Practice Times. Whether*

*the materials in use are ten tubs of general manipulatives in September, twelve activities from the Pattern Practice and Enrichment Boxes in October, or eleven activities from the Money Boxes later in the year, children need to know how to function in the classroom, make a choice, complete a task, share with others, work cooperatively, and clean up properly.*

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## How Do I Get Started?

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### ORGANIZE YOUR MATERIALS

Collect the materials listed below. (See the Materials Index for purchasing information and for making instructions.) These “general materials” are the backbone of Box It or Bag It Mathematics. They are used with every set of boxes and many times over during Seasonal Math and Concept Instruction lessons.

- unifix cubes
- ceramic tiles
- geoboards and rubberbands
- pattern blocks
- junk boxes
- wooden cubes

Other frequently used manipulatives you may want to introduce during Discovery Time include:

- playdough and cookie cutters
- coin stamps and stamp pads
- rubber stamps of other sorts
- templates cut to match the shape of pattern blocks and crayons
- student clocks
- small mirrors and letter or number cards (ten 3 X 3 squares of tagboard, with a letter or numeral written on each card)

Find sturdy containers such as dishtubs or heavy cardboard boxes for the loose materials that come in large quantities—unifix cubes, wooden cubes, pattern blocks, ceramic tiles, geoboards, and objects to weigh. The other items can be boxed in junk boxes, half boxes, or standard boxes available from MLC. Establish a shelf for these manipulatives as described in the introduction.

You’ll use materials from this shelf for Discovery Time as well as many other times during the year.

Once your Discovery Time is going smoothly, you may wish to add the following materials which will be used in many measuring and comparing activities throughout the year. These will be very popular and work best if you have class lists posted so every child knows you play fair and everyone will get equal turns.

- balance scales
- milk box scales
- spring scale
- rice and jars



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## Introduce your general materials and routine slowly and carefully over a period of several weeks

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You can think of your September math as three-fold. About a third (20-30 minutes) of your math time will be spent in whole group instructional activities—setting a positive environment and routine for your class, counting and estimating activities, group lessons to set foundations for patterning activities, story problems—concepts you’ll be addressing in the next few months. Another third (20-30 minutes of your math time) will be Discovery Time (exploring and playing with your general materials) and the last third (hopefully at a different time of the day) will be spent on The Calendar (see Part Three). This

suggested schedule is charted on the following page. Be careful to acknowledge and celebrate the value of play. Discovery Time can be the very *best* time of your year. It allows the children experimentation, repetition, practice at building good work habits, and opportunities to increase attention spans. It helps children learn to make responsible choices, to work side by side with peers—sharing, listening and planning, and even resolving differences. Discovery Time encourages imagination and removes some of the fear of taking risks at school since there isn’t a clear right or wrong.

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## How many weeks should Discovery Time last?

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Time decisions ultimately depend upon you and your group. What are the needs of your group? Have they ever used these materials before? Do they seem to work well together from the beginning or are you having to build toward those skills? Do they respect one another’s working space and offer to repair things they accidentally damage or will you need to teach all of those skills?

We find it best to allow kindergartners four to seven weeks of Discovery Time. Remember, you’ll be using more than half of your math time for group lessons (Introduction to Pattern, Counting, Seasonal Math and the Calendar).

First Week:

Monday	Tuesday	Wednesday	Thursday	Friday
Introduction to "Hands On" Math, Why and What... Ground Rules	Review Monday "Good News"  Review Ground Rules, Why...	Introduction to Pattern group lesson  Counting Games  Review Ground Rules	Introduction to Pattern  Counting Games  Review Ground Rules	Seasonal   Math
<b>Exploring:</b> Unifix Cubes Pattern Blocks	<b>Exploring:</b> Unifix Cubes Pattern Blocks	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles	Seasonal  Math
Calendar				➔

Second Week:

Monday	Tuesday	Wednesday	Thursday	Friday
Counting  Counting Games  Discovery Ground Rules	Introduction to Pattern	Seasonal Math a sorting activity	Counting  Introduction to Pattern  Discovery "Copy Cat"	Seasonal   Math
<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes	Seasonal  Math
Calendar				➔

Third Week:

Monday	Tuesday	Wednesday	Thursday	Friday
Introduction to Sorting and Classifying  Discovery "Copy Cat"	Introduction to Story Problems (see September Seasonal Math)	Seasonal Math (see September)	Counting Games  Introduction to Story Problems	Seasonal   Math
<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes Junk Boxes	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes Junk Boxes	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes Junk Boxes Play Dough	<b>Exploring:</b> Unifix Cubes Pattern Blocks Tiles Wooden Cubes Junk Boxes Play Dough Geoboards	Seasonal  Math
Calendar				➔

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## What is my role during Discovery Time?

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Don't forget you'll be using part of your math time to teach group lessons (Concept chapters and Seasonal Math). More importantly you'll be given a golden opportunity to get involved with your children, to get to know them individually and as group members.

For the Discovery portion of your math time, you will no longer be the focus of every lesson. The children at work and play will be the focus.

Ask your helpers to set out the appropriate materials in their designated places—you may wish to have hanging labels or table and rug markers to match container labels so children can easily deliver items to the same place each day. (Pour out unifix cubes and pattern blocks in four to six foot lines for easy access.) Excuse a few youngsters at a time to find an area to begin their work. (Remind them if they get tired of working there, it's OK to move to another area if it isn't already crowded.)

Once everyone is involved, you'll circulate continuously nestling in here and there to talk with individuals about their creations, to listen, to observe, to encourage, to redirect. It is helpful to carry a class list with open spaces in which to write so you can keep a few notes that may help you to know your children better—who gets started quickly and stays involved, who needs help to find a job, which children converse easily and work together well, who seems shy and needs to be invited to try new things, who hasn't yet learned social behaviors necessary to function in a group, etc. If you want to give yourself a test in terms of how well you are observing, take a blank class list after your children have gone home and write down one or two special things you know about each child's work in math. If you find you can't write anything for several of your children, make a special point of observing those youngsters the next few days.

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## What do I do with the notes I make about Discovery Time work and behaviors?

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You'll use that information to help establish a positive, cooperative learning climate. After clean-up, comment on the many positive things you've observed that day. (Those comments can be addressed to the children's work instead of praising individuals: "The pattern blocks were used in incredible ways today. I saw patterned walls, there were robots, there were magnificent designs, what a sight! There must have been a lot of working together to make those unifix cubes into such a long train." When you compliment work, you're not quite so likely to have someone feel hurt because you didn't mention his or her name. Try to stay global in your compliments so everyone can in some way identify with the success of the group's efforts.)

You may also want to generate a Good News Chart. One of the nice things about this is you

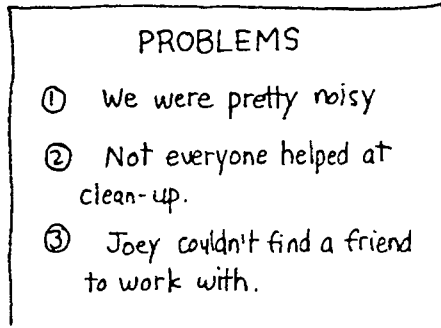
### Good News !

- ① Everyone worked SO hard today.  
The pattern blocks were built into patterns, designs, forts, stars, and flowers.
- ② The unifix cube train was 13 people long.
- ③ There was a GREAT pyramid.
- ④ The Polar bears and the jungle birds became beautiful patterns.

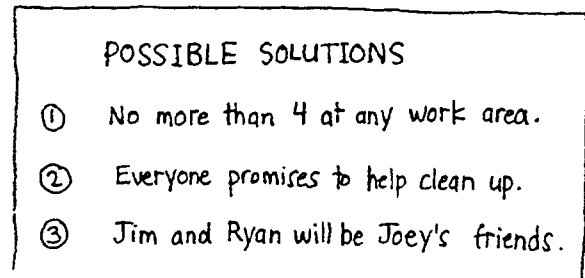
can make sure the children understand that with all the hard work and creativity going on in your classroom, there is *no* way you can see it all. You can increase their awareness of great happenings by calling them over to see areas that have outstanding work. This will

help them to describe a few marvelous happenings for the Good News Chart each day.

If you or the class saw some problems, class members may be able to help solve them. Make a list on your chalkboard of two or three of the difficulties experienced that day.



Brainstorm solutions until some consensus has been reached and then write those solutions on chart paper. Be sure to review the solutions the next day before your children are sent out to work.



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## After my children seem to work well together in Discovery Time, what is my role?

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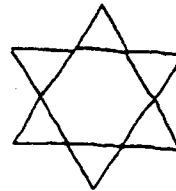
Don't deprive yourself of the great luxury of watching and listening often. You really can get to know your class during these weeks. You never stop circulating; in fact, in an activity-centered math program—you will be circulating the entire year; observing, assessing, instructing, redirecting.

Three instructional strategies that can be used as you circulate are 1) describe to children what you're seeing, 2) encourage children to express their ideas verbally, 3) play copy cat. These strategies will enrich Discovery Time once the children are comfortable with the materials.

### DESCRIBE TO CHILDREN WHAT YOU'RE SEEING AS YOU CIRCULATE:

**Teacher:** *I see you have a yellow hexagon in the middle of your design. It looks like you've surrounded it with some green triangles. How many triangles have you used?*

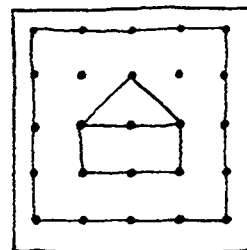
**Children:** *1, 2, 3, 4, 5, 6...six triangles. It's a flower!*



**Teacher:** *I wonder if you'll be adding a stem. I'll come back later to see.*

**Teacher:** *Look at this geoboard. You have rubber bands all around the edge in a square. There's a rectangle in the middle and a triangle above the rectangle.*

**Children:** *That's the house and this is the fence!*

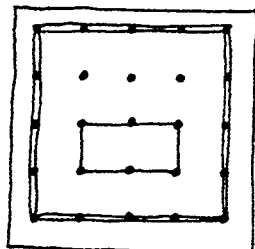


You can tailor your descriptions to individual needs. Some children will need to hear color

and number words. Others will benefit from geometric and spatial words and phrases.

**Teacher:** Look at this!

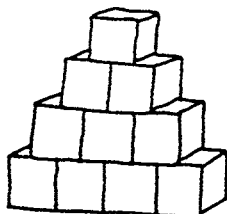
There are rubber bands all around the perimeter of your board and a rectangle in the middle. How many nails are inside the rectangle?



**Children:** Six since I used only one rubber band and stretched it to make my rectangle.

**Teacher:** I see you've made a triangle with the wooden cubes today.

**Children:** Yeah, it's like a staircase!



Don't overlook the rich language children can ascribe to their work. Stop often and ask them to tell you about their creations. When other youngsters hear those descriptions, they often chime in with comments of their own and everyone gains.

Here's a list of words you may want to post as a reminder to you of the language potential of Discovery Time.

### COLOR WORDS

red	green	yellow
blue	purple	magenta
black	brown	orange
white		

### GEOMETRY WORDS

rectangle	circle	square
hexagon	diamond	rhombus
trapezoid	horizontal	vertical
perimeter	line	corner
side	open	closed
triangle	area	balanced
circumference		symmetrical

### POSITION WORDS

over	above	under
on	off	on top

bottom	beneath	underneath
high	inside	upside down
outside	within	without
in	beside	adjacent to
before	middle	enter
halfway	sideways	beyond
after	front	

## ENCOURAGE CHILDREN TO EXPRESS THEIR IDEAS VERBALLY

Because children are creating their own designs or buildings rather than performing a more structured task, there's as much expressive language in Discovery Time as the stories you might hear in a story writing time. Take a minute to admire the Cooky Jars of cookies and you might hear a wonderful bakery story or a story about the Cooky Monster. Stop by the Nightmare Story Box and you may hear about vanquished Nightmares.

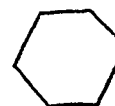
### PLAY COPYCAT

Become the great imitator. Stop by a group that's working with pattern blocks, for instance, and solicit help from the children so that you can copy one of the wonderful designs you see.

**Teacher:** I like your design. Do you think I could copy it?

**Children:** Sure!

**Teacher:** What should I do first?



**Children:** Put this one here!

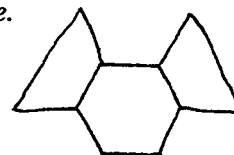
**Teacher:** Do you mean I should put the yellow hexagon down first?

**Children:** Yeah!

**Teacher:** Now what?

**Children:** Put the red ones here.

**Teacher:** I see. You want me to put a red trapezoid on either side of the hexagon.



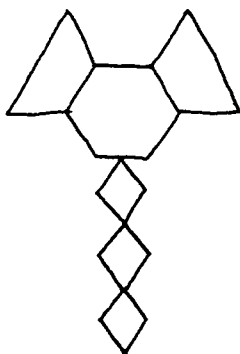
**Children:** Yeah, on the top.

**Teacher:** What's next?

**Children:** You need some blue ones.

**Teacher:** I need some blue diamonds end to end below the hexagon. How many did you use?

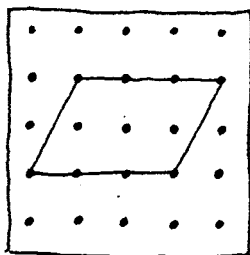
**Children:** One, two, three!



And so it goes until you've copied the design. In the process you've had children thinking about sequence as you've provided lots of mathematical language.

Sometimes you'll want to make a mistake as you're copying a design or structure.

**Teacher:** *I see you've made a parallelogram on your geoboard.*



**Children:** *Yes. It's a square that got pushed down!*

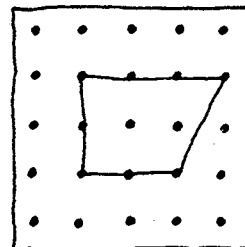
**Teacher:** *Do you mind if I copy it on another geoboard?*

**Children:** *Sure, you can copy it!*

**Teacher:** *What should I do first?*

**Children:** *Well, take a rubber band and put it on that nail, then stretch it till it looks right.*

**Teacher:** *All right. I put my rubber band on the second nail in the middle row and then stretch it like this. Does it look like yours?*

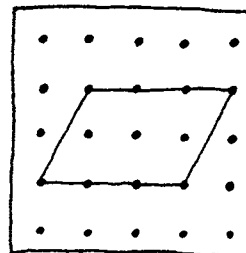


**Children:** *No! That's pretty funny.*

**Teacher:** *How can I fix it?*

**Children:** *Move your rubber band to that nail.*

**Teacher:** *I see. If I move this corner one nail to the left, I'll have it.*



You'll notice a ripple effect as you circulate during Discovery Time. When you stop to talk with one child, several other children get involved and often begin to play their own versions of Copy Cat.

You are the key to much of the language enrichment that's possible during Discovery Time.

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## Will children need to explore all the Boxes we'll be using for concept instruction?

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No. Once you begin leaving Discovery Time with your general materials (the things that will recycle all year), you will start

introducing tasks to go with these materials. Those tasks will be boxed. Every boxed activity has specific goals.

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## What if the activity level and noise is more than I can stand?

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There are groups of children that seem to push every one of the teacher's "buttons" in trying to work together. First of all, really take a good look at the actual problems. Could the chaos have to do with the number of children using any particular material? Have you had your class brainstorm solutions including how many should be at any area? Have you posted class lists for very popular

areas so everyone can count on turns? Have you role played problems and solutions so children know you have high expectations? Have you removed children from the work areas if they cannot be cooperative? Have you made sure they understand why they're not being allowed to participate?

### **SOME QUIETING ACTIVITIES**

Sometimes there is lots of noise because every offering for work in the room involves construction with something noisy. If you have a large, active

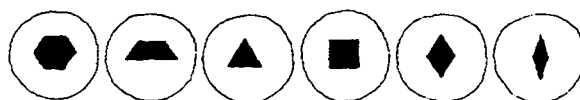
group you'll want to consider adding "recording" to some areas. This creates quieter pockets in your room.

### **Pattern Block Design Records: Templates**

**You will need→** pattern block shape templates  
small containers of pattern blocks  
6 X 9 white construction paper  
pencils, crayons

Children use a limited number of pattern blocks to create a small design. They copy their designs on to white paper using templates, pencils, and crayons.

Note: To make pattern block templates, trace the shapes on to translucent margarine tub lids and cut out with small scissors.



### **Pattern Block Design Records: Cut Paper Shapes**

**You will need→** paper pattern block shapes (see blacklines; instructions below)  
small containers of pattern blocks  
6 X 9 black construction paper  
paste or gluesticks

Find the pattern block sheets in the blacklines. Run a supply of each on the appropriate color

of construction paper. Have parent volunteers cut them for you.

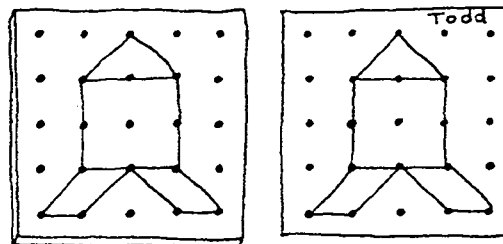
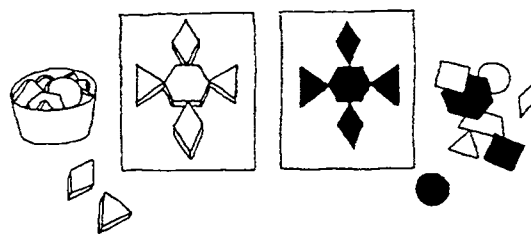
Children use a limited number of pattern blocks to create a small design. They make a copy of their design by pasting cut pattern block shapes on black construction paper.

### Template Designs

Make some simple templates cut from margarine lids available for children to draw patterns and designs on paper. (See Calendar Patterns and Template Patterns in the Pattern Packet for ideas.)

### Geoboard Records

Run copies of Geoboard Dot Paper (see blacklines) so children can copy some of their favorite geoboard designs onto paper.



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## Suppose even those solutions don't solve all my problems?

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Begin moving into the Boxed activities for Patterning. Some classes have been so conditioned to think that math is only done on paper that they need the structure of the Boxed activities to convince them this is math. Don't forget, however, you'll need to keep trying to get things smoothed out. Be sure to define each work time as math and to evaluate each work session in terms of the learning goals for the day and the progress made toward those goals. Also, be sure the children know how much you value this way of working. If you are inadver-

tently giving them the message that these materials are for messing around after they finish their "real math" papers, they won't ascribe great value to these activity-centered learning opportunities either. Help them see that when they learn math concepts in ways they can understand, there are *no* learning ceilings—the sky is the limit! If you are using workbooks, try using them another time of the day so children see they have a different function—drill and practice.

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## What about children who need more time to play?

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There are children who would love to play all year and probably need that. However, most of us are faced with accountability through curriculum guides, self-imposed pressure, parent pressure, administrative pressure and/or standardized testing. We insist children begin to work on our goal-directed tasks (the Boxes) during math time as we leave Discovery Time.

It's often very helpful to tell the children you'll let them use the general materials during their "choosing time", or on rainy days if they're stuck in your room at lunch, or every other Friday, or whatever will work for you. It is important for all young children to have opportunities to use these materials in their own way many times throughout the year.



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# How can I communicate to parents why I'm not sending home workbook sheets every week?

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You *will* want to communicate. This is a grand opportunity to put out some newsletters bragging about your classroom, especially the mathematical happenings! (Be careful to discuss current happenings so that you don't make promises you can't keep if you begin to run low on resources—this way of teaching and growing is a long-term goal, it doesn't all happen in one year.)

We have several favorite ways of letting parents know how terrific our classrooms are. Here are some possibilities:

## File Folder News

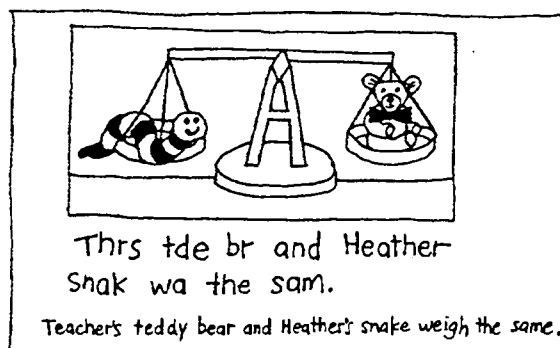
Take photographs of great happenings in your room, glue them to a manila file folder and write brief descriptions under each picture making sure your comments relate to mathematics and cooperative work. Laminate them along with a class list and begin sending them home overnight with each child. (If you have a very large class, make sure you've made up several different folders so that every child will get one within a week or two.)

## Newsletters

Shoot a roll of either black and white film or colored film of great happenings in your classroom. Trim the finished photographs on a paper cutter (that gets rid of the things you didn't mean to have in the picture) and mount them on 8 1/2 by 14 paper. Write descriptions under each picture and copy them at school or at your favorite copy shop. (The classier the copier, the better the quality of newsletter.) Run copies for every child and send them home periodically. They will be real family treasures! (Some families have let Donna know they have all of her class newsletters from years back when their children were young.)

## Single Photo News

Have the children write comments (Best Guess spelling is fun) about particular pictures. Write the comments again in grown-up spelling and copy those on your school copier or at a favorite copy shop.



## Weekly Letters

Write a few paragraphs about the current happenings in your room including suggestions for follow-up activities at home and run copies of those for every child.

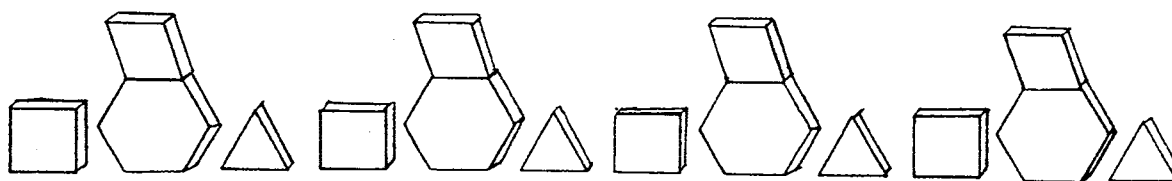
## Parents' Nights

Invite the parents to spend an hour at school with the children. Put out some of the Practice and Enrichment Boxes, or a guess and check activity and, most importantly, share your philosophy about how children learn. It's always easier to be proactive instead of reactive.

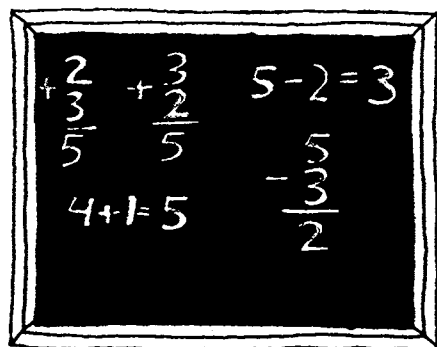
The point is—*communicate!* Most parents want the very best for their children. They want maximum learning opportunities provided. So many of them will say they were never this lucky when they were in school.

## Chapter 13

# PATTERN



A group of kindergartners had been telling and acting out addition and subtraction story problems one spring. The teacher decided it was time to include number sentences for each of the stories as they were completed. He began writing those on his chalkboard.



Mark suddenly jumped to his feet, arms waving in the air and raced to the chalkboard. "Look, it's a pattern. It's just a backwards pattern—it goes over and over!"

He pointed to  $2 + 3$  and  $3 + 2$ . Then his arms waved even faster as he pointed out  $5 - 2$  and  $5 - 3$ . He was discovering relationships through his understanding of pattern. The whole class seemed to share his excitement even though many didn't yet understand what

Mark was able to see. We've seen beginning readers pick up repetitive stories with ease as they delightfully exclaim, "It's just a pattern."

A teacher who had assigned her second graders a page of difficult addition told us that as she walked around the room, she heard some of the usual murmurs as children worked the problems:

" $6 + 7 \dots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 \dots$ yeah, it's 13."

" $6 + 7 \dots 7, 8, 9, 10, 11, 12, 13 \dots$ that makes 13."

Then she listened to Andrew. " $6 + 7 \dots$ that's easy 'cause  $6 + 6$  is 12 and one more makes 13.  $8 + 8 \dots$ all right, that's 16!  $7 + 8$ , mmmm... $7 + 7$  is 14 so one more makes that 15!"

" $9 + 6 \dots$ OK. That's the same as  $10 + 5 \dots 15$ ."

Needless to say she was astonished and Andrew finished very quickly.

We know that children who comprehend patterns get things more quickly—in math, in reading, in spelling, in music, in everything we teach. There are children who don't see

patterns, who have to reinvent the wheel every time, who never realize that words ending in silent “e” frequently have a long vowel sound. Often it takes them a very long time at any learning task. The question is, how do we help every child recognize and use pattern?

It’s not as if we have to start from ground zero. Every child comes to school with five or more years of training in pattern, training that started at birth. Mother smiles or she frowns. The light is on or it’s off. It’s day and night and then day again. If I drop my spoon, it always falls to the ground. Children learn to function in the world as they recognize patterns and predict what will happen next. Just learning to talk requires an amazing grasp of pattern.

Children come to us with some real, but usually unstated, understandings about pattern. Our job is to help them put these understandings into words; to help them name what they know. We start with simple visual, auditory and kinesthetic patterns—green, red, green, red; up, down, up, down. We help children to recognize those as patterns, and to predict what will happen next. We move along to more complex patterns—ABAB becomes AABB, ABC or ABBC. Children learn to copy, extend, translate and create patterns. Children in first and second grade make the transition to number patterns—5, 10, 15, 20...what comes next? Anyone who has devoted much time to pattern instruction knows the joy of hearing children exclaim, “It’s a pattern!” in reading, art, science, and music lessons, as well as math. Children know the universe has symmetry and order—patterning gives them a way to re-create that order and describe it to us.

The lessons and activities in this chapter are designed to help children develop the following understandings:

1. A pattern is something that repeats over and over.
2. I can copy and extend someone else’s pattern.
3. I can create my own patterns.
4. I can translate patterns from one medium to another; if someone claps a pattern I can show it with unifix cubes and many other materials.
5. I can copy or create simple patterns, ABAB, AABAAB, ABBABB, or more complex patterns, ABCABC, ABBCABBC, ABACABAC, etc.
6. I can sort things so I can pattern.
7. I can pattern by color, shape, size, type, texture and many other attributes.
8. I can pattern objects by position and quantity also.

Because pattern is so central to mathematics it’s a good way to begin formal instruction. We set beginning foundations by giving children opportunities to experience pattern in many, many ways. Our children hear, see, touch, taste, act, sing and dance patterns. Teachers should involve children in many group pattern lessons before they begin gradually replacing Discovery Time materials with Pattern Boxes during Independent Practice Time.

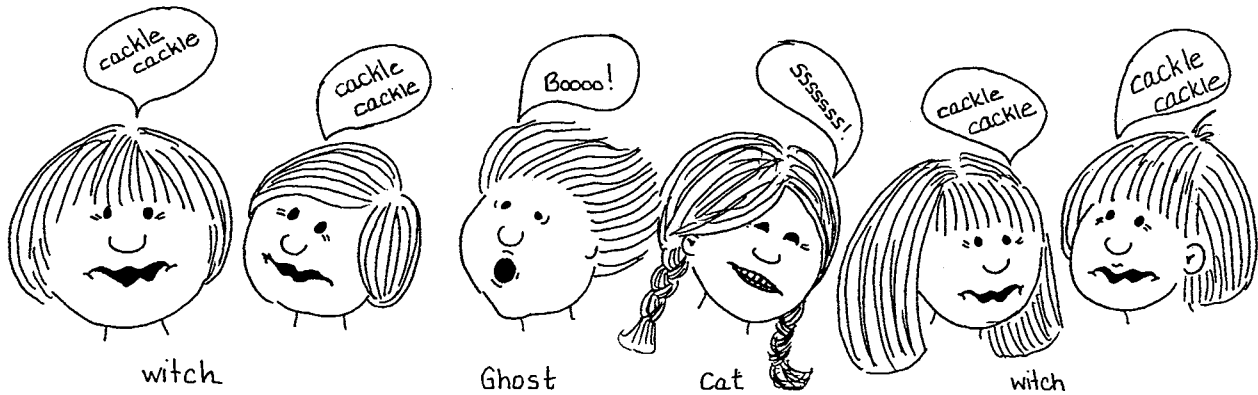
Pattern isn’t dropped after children have completed their work with the Pattern Boxes, but revisited every month in Seasonal Mathematics and many times over in the daily Calendar activities.

# Group Lessons

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## Theater Patterns

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Have children generate a list of things they associate with Halloween; vampires, ghosts, witches, etc. Then have the class select two or three and develop actions and sound effects for each. Finally, have eight to ten children come up and act out a pattern as the others watch. Halloween is only one category from which to

pull characters—how about the zoo, the farm, winter weather, insects, vehicles, things to do in summer, etc. See Seasonal Math for more detail on Theater Patterns.

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## People Patterns

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Most children love to perform. They feel lots of personal investment in group lessons when they are actually part of the teaching. Begin creating People Patterns by sorting the children in your classroom by one attribute or another (see People Sorting in Chapter 10). Once the children have been sorted, brainstorm possible patterns and then have the class tell each People Pattern actor what to do as the pattern is being created.

If your group enjoys a good challenge, do secret patterns. Line up eight children in front of the group and have the others try to figure out your

pattern. Once they think they know what the pattern is, get another child up and ask the class whether he or she would fit the next part of your pattern.

This helps children think through what attributes are really represented in the pattern and extend that knowledge. Finally, ask them to choose two to three more children who will fit the next parts. When children are good at this, some will volunteer to create a Secret People Pattern for the class to figure out.

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# Magazine Picture Patterns

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**You will need→** 50-70 magazine pictures of children  
glue  
long strip of butcher or shelving paper

Lay out the pictures you have previously cut. Have the children help you sort them in various ways.

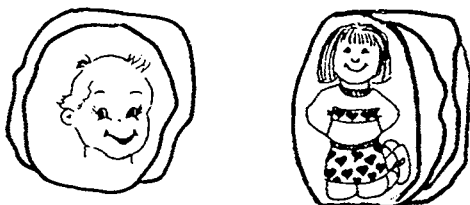
**Teacher:** *Here are pictures of children I cut out. Tell me which ones belong together.*

**Children:** *Put all the girl pictures in one pile and all the boy pictures in another pile.*

**Teacher:** *OK. Angela, Barry, and Sharon...why don't you help me.*

Once the pictures have been sorted, discuss how they've been sorted. Push the pictures back together and say, "How else could we put these pictures together?"

"How about if we put all the babies in one pile."  
"Yeah, and all the big kids in another pile."



Sort and label categories verbally. Continue sorting the same pile of pictures several more times. (Children will begin to notice how the children in

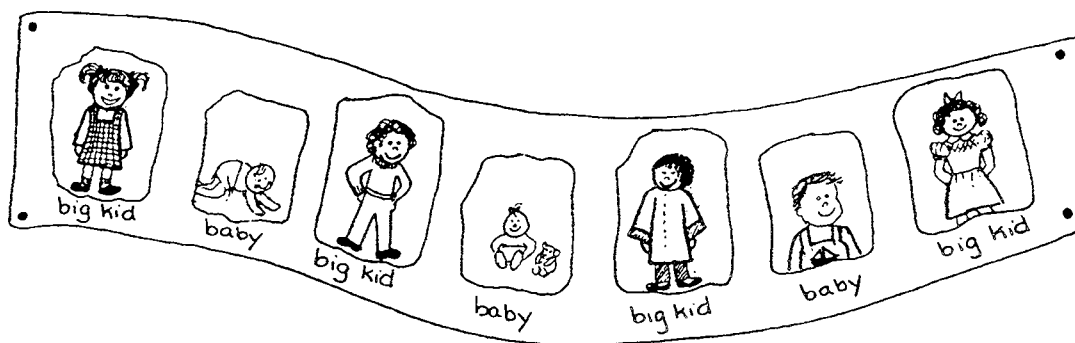
the pictures are dressed, hair colors, happy/sad, ages, etc.)

The last time pictures are sorted, ask the group if they think a pattern could be created using the sorted groups they've just generated.

Once the group has agreed on a pattern, ask every child to take turns gluing a picture onto the long strip of paper to form a permanent record of this sorting and patterning activity. Write labels under the first several parts of the pattern. Here's a good chance to ask children to spell in their Best Guess spelling. (You write their suggested letters on the chalkboard and then make any needed corrections to show them the grown-up way of spelling those words. Children have amazing skills at getting some of the letters, even in kindergarten! It's important to let them know that you'll be able to read much of their Best Guess spelling in things they're writing and that you'll always be able to help them fix things up for the whole class to read.)

It is often helpful to a class to choose one of their Magazine People Pattern strips to copy by acting it out with children in the class. It takes them full circle by asking them to take information from the printed page and once again make it real.

You can adapt this to other themes by using pictures of animals, vegetables, foods, etc.



# Hand and Feet Patterns (clapping, snapping, tapping)

Clap, clap, snap, clap, clap, snap...begin a hand pattern. Children join you as soon as they figure it out. You can do this many times over. It only takes a minute and it gets their attention or helps you focus them for the task at hand.

Once the children are proficient at copying a simple snap and clap pattern, ask them to invent other motions.

**Teacher:** What could we do for the clap?

**Children:** Let's jump.

**Teacher:** What shall we do in place of the snap?

**Children:** We could bend down and touch the floor.

**Teacher:** OK. Here we go

(The kids join you in jumping and bending down, jumping and bending down...)

**Teacher:** Let's think of things we like to eat.

**Children:** Spaghetti!

**Teacher:** Great! I like spaghetti too. What sounds do you make when you eat spaghetti?

**Children:** Slooooooop!

**Teacher:** OK. What is something that's good with spaghetti?

**Children:** Salad!

**Teacher:** Salad, oh yum! What's a sound we make when we eat salad?

**Children:** Crunch...crunch...

**Teacher:** Let's make a pattern with those sounds. How many sloooooops and how many crunches do you want to have?

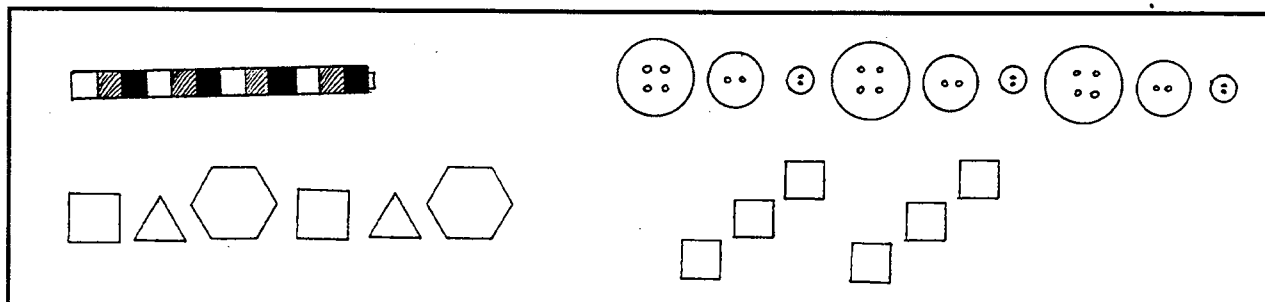
**Children:** Two sloops and three crunches.

And the pattern begins with "sloop, sloop, crunch, crunch, crunch; sloop, sloop, crunch, crunch, crunch..."

Later, as you move children into translating patterns from one form to another, you might tap out a pattern and ask your kids to verbalize your pattern with vehicle words. Snap, snap, tap, tap, clap, snap, snap, tap, tap, clap...might become train, train, car, car, boat, train, train, car, car, boat, with sound effects and/or motions to match. Other categories you might ask them to use over the year are food, farm animals, colors, shapes, weather, flowers, zoo animals—the possibilities are endless.

You might also use a xylophone or piano as a change from hand and feet patterns. Sound the notes C, C, G, G. Kids might verbalize the pattern in some way, move the pattern (hop, hop, shake hands, shake hands), line themselves up in some way (pants, pants, shorts, shorts), or use classroom math materials to reproduce the pattern (red, red, blue, blue).

As your children become proficient at patterning, sound a pattern and ask the children to use any of your math materials to reproduce the pattern. If you sound a C, E, G pattern, you will probably see creations such as these around the room.



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## Feely Box Patterns

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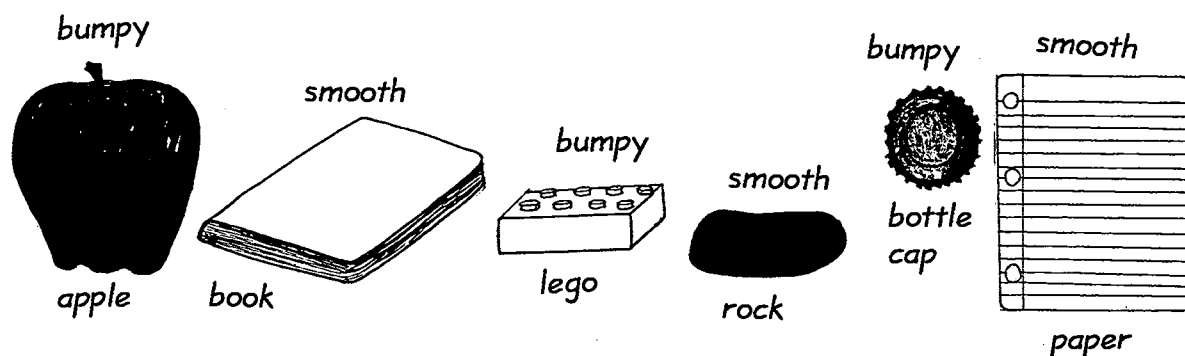
**You will need→** 2 feely boxes (Materials Index)

20-30 small items for each box (buttons, lids, plastic bread tags, dried fruit pits, shells, rocks, etc.)

Brainstorm and list “feely words” with your class. It may help to pass around several objects as you do this (a conch shell, an orange, a plastic dinosaur, etc.). There are lots of things that might elicit words from children. Once you have a list, pick two, perhaps bumpy and smooth. Have each child find something in the classroom to bring back to your circle that matches one description or the other. Then have them pattern their objects across the floor: bumpy, smooth, bumpy, smooth... (see illustration below).

Another day, get out the list of “feely words” they developed and read through them with the group. Pick two—perhaps holes and no holes. Start the feely boxes around the circle in opposite directions taking turns reaching in and finding an item that will fit the pattern.

NOTE: If this is the first time you have used feely boxes in your classroom, you may want to take the can and its contents out of the sock and show them. Children need to know they’re sticking their hands into something safe.



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## Tasty Patterns

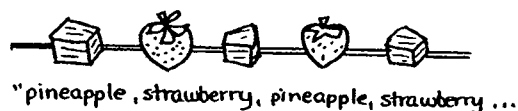
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**You will need→** fruit

If you’re searching for multi-sensory input, here’s a winner! Have each child bring a fruit to school. Be sure to bring extras so everyone can participate. Have children sort and graph their fruits and discuss the outcomes. Set up an area or two where, after careful handscrubbing, children will all get turns to wash and cut the fruits onto large platters. After the fruits are all cut, have each child go to a platter with a

wooden skewers

wooden skewer and create a patterned fruit kabob. Fun to make and fun to eat!



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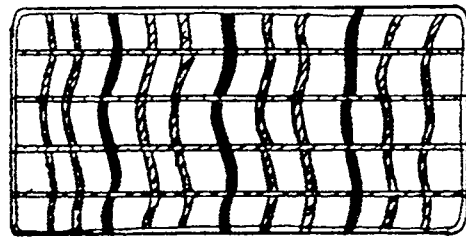
## Nature Weavings

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**You will need→**      styrofoam meat trays  
yarn  
inch-wide strips of fabric  
natural materials collected by children such as leaves  
and grasses

There are so many patterns to be found in nature. If you have a field or natural area near your school, it's fun to take a walk with your class and simply look for different patterns along the way. You can also have children collect grasses and long skinny leaves to go into weaving projects. Back in the classroom add different types of yarn and strips of fabric. Have ready styrofoam meat trays warped with string or durable yarn (use a stitchery needle or notch the ends of the styrofoam tray). Children

weave in their collected materials, the yarn and fabric strips.

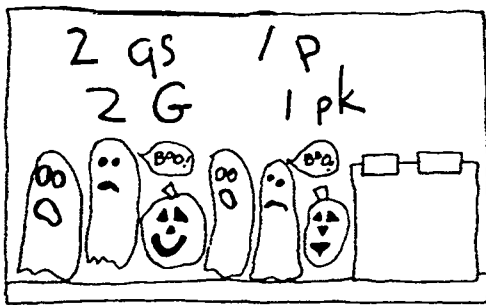


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## Pattern Story Problems

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In an attempt to connect reading, writing and math, we make an effort to have children either dictate or write (in their Best Guess spelling) pattern word problems. They write things like Frank's "I wuz wokn dn the stret. I so 2 gosts and 1 pukn, 2 gosts and 1 pukn. Wat kam nxt?"



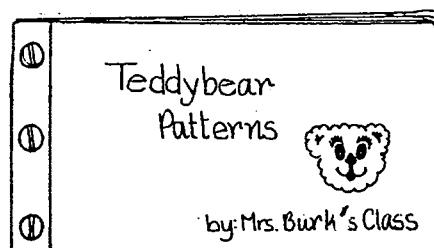
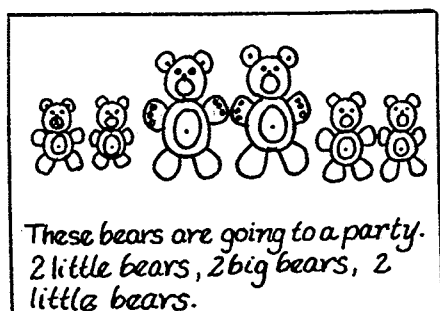
Frank's teacher had shown them some secret door and folding techniques. As the teacher read the children's stories to the class, the class would predict the answer. Then the secret door or magic fold would be opened to reveal the answer.

We always ask our kids to read their finished work to us so we can pencil in any words that we wouldn't possibly be able to decipher later so we

don't embarrass anyone when we are reading finished work to the class. We write those corrections on small Post-It notes so as not to tamper with the children's precious efforts. Don't fix up all the words this time, however, because children need to know you really can figure out most of what they're writing. Many beginners are able to write more than they can read if given the opportunity to use their Best Guess spelling. Remember, squiggles and lines are important beginnings and tell you that the child is becoming aware of the forms letters take.

When your children bring teddy bears or stuffed animals for September math, they'll find many ways to sort and pattern them (old, new; panda, polar, black, brown and koala; fat, skinny; large and small). These activities will also generate Pattern Story Problems and may lend themselves to a Big Book. (When things are going to be read by the class, we help children edit so corrected spelling will go into the Big Book pages.)





## Prediction Patterns

### You will need→

magazine pictures (cut out and mounted on tag) or study prints that show a happening

examples:



a little boy lying in bed with a dog licking his face

a little girl in a bathtub with a band-aid on her arm

a family all wrapped up in towels

a bottle of nail polish next to spilled polish

a little boy sitting on a stool in very muddy clothes

Hold up one card at a time. Ask each time what might have happened before the picture was taken and what might have happened after the picture was taken. Children will have many different ideas.

If your children enjoy this activity, send them off in small groups to create a Big Book page using pictures that have been gathered ahead of time.



## Sorting as a Pattern Tool

The best way to help children learn to pattern objects by size, shape, texture, type and attributes other than color is to do lots of sorting. Every sorting lesson you do contributes to children's understanding of

pattern. Be sure to read Chapters 10 and 11, Sorting and Graphing, and to regard those lessons and all the Seasonal sorting suggestions as Pattern concept instruction.

# Moving To the Practice and Enrichment Boxes

*If you've done lots of the group lessons described so far, many of your children will be getting very excited about Pattern. You'll notice patterns cropping up during Independent Practice Time while your children are using the Discovery Materials, even before you introduce the Pattern Practice and Enrichment Boxes. The ubiquitous unifix cube trains will become colorful pattern trains. Pattern blocks are arranged in stand-up walls that snake around the table edge. The Pattern Boxes are a solid, delightful way to help children extend and consolidate their understandings.*

*When you feel your class is ready, introduce one or two Pattern Boxes at the beginning of each Independent Practice Time. Be sure to model new box activities thoroughly, demonstrating the activities from start to finish including clean-up. Each time you introduce a new box, put one of the Discovery materials away. It will take a week or more to complete the shift to Pattern. Aim to offer eight to twelve Pattern Box activities at varying levels of difficulty. If you have more to offer, that's great. You'll be able to keep children's interest extra high by occasionally exchanging a new Pattern Box for one that's no longer used.*

## Here is a list of the activities in the Pattern Practice and Enrichment Boxes

(Make the ones that will best suit the needs of the children in your class)

Playdough Patterns  
Unifix Cube Patterns  
Alphabet Stamps  
Tile Patterns (1-2)  
Coin Patterns (1-2)  
Pattern Blocks and Mirrors  
Sticker Patterns  
Clock Patterns (1-2)  
Calendar Patterns (1-2)

Pattern Blocks  
Template Patterns  
Rubber Stamp Patterns  
Geoboards, Nuts and Washers  
Mirror Patterns  
Feely Box Patterns  
Pattern Shapes Race (K-1)  
Quilt Patterns (1-2)

## Chapter 14

### Reading, Writing & Understanding

# NUMERALS 0-10

*It is our experience that most young children begin number-numeral relationships with sing-song chants of rote counting. Counting with one-to-one correspondence requires many counting opportunities with real objects. Many children will touch and count accurately but fail to note where they began counting. They end up with an outrageous total but never question its reasonableness. Others will be perfectly confident in performing a variety of counting tasks accurately one day and yet be totally inconsistent another.*

*Most youngsters need years to gain understandings of counting accurately with order, comparing and conserving quantities: I have five small sticks of gum. That is as many as the five large candy bars I have. Each set will still be five whether I set them out in long lines or push them together in tight groups. If I eat one candy bar, I won't have five anymore unless Grandpa gives me another. Etc.*

*Remember that a child who counts rapidly to ten or twenty or even with ease to one hundred still needs to learn a lot more about number-numeral relationships. Often parents see "counting with ease" as readiness for addition and subtraction. They are not aware of how many number experiences children need before they can see numbers in parts (five can be two and three or four and one). The lessons and activities in this chapter along with the activities you'll make from the Numerals 0-10 Practice and Enrichment Boxes will help children begin developing a whole picture of number-numerals relationships. These lessons and activities can be varied and repeated many times over the duration of the kindergarten year, even after the 0-10 Boxes have been stored away.*

# Group Lessons

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## Rote Counting

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The Calendar, Part Three of this Resource Guide, has many daily and weekly activities that involve repeated rote counting. These activities will go on all year and support continuous growth and understanding. Be sure to include many of them in your day to day instruction.

- Numberline Strip (counting by ones, fives, tens)
- The Date in Tens and Ones
- The Numberline Straw Boxes (counting in ones and tens)
- Tally Pad (counting by ones, fives and tens)
- Day Bears (counting forward and backward to determine the dates for Yesterday, Today and Tomorrow)
- Weather Report and Tooth Beary (counting and comparing relevant information)
- Pattern Grid (counting the days of the month, predicting what number the new day will be, counting the days until an upcoming holiday, etc.)
- Money Pockets (counting by ones, fives and tens)

### THE DAILY ATTENDANCE COUNT

**You will need→** a basket of unifix cubes  
wall labels (Monday-Friday)



pins on your wall to hold unifix towers (or velcro strips on a laminated piece of poster board, see page 109; add velcro to the unifix cubes, as well)

After the attendance has been taken and all the children are seated at the rug, distribute a unifix cube to each child. Once everyone has a cube, one child begins by saying “one” and handing her cube to the child beside her. He says “two” as he adds his cube to hers and the train is passed to his neighbor. He links the cubes and says “three” and so on until each child has been counted and every cube has been added. Compare this tower to the permanent tower you’ve already made (equal to the number of children enrolled).

**Teacher:** Are we all here today?

**Children:** No!

**Teacher:** How many are here?

(Children help count the linked cubes.)



**Teacher:** How many are in our class?

(Children count permanent tower.)

**Teacher:** Which is more...the number of children in our class or the number of children here today?

**Children:** The number of kids in our class!

**Teacher:** How many more are in our class than are here today?

**Children:** Three! Three kids are absent today.

Save these trains for each day of the week. On Friday, line up all the trains and again ask some comparative questions.

**Teacher:** Was there a day this week when everyone was here? How can we figure it out?

**Children:** We can see if any of our towers for each day are the same size as your tower.

**Teacher:** Good idea! Let's compare our towers for this week to the one that shows how many children are in the class.

**Children:** Two times everyone was here... Tuesday and Wednesday!

**Teacher:** Super! Which day had the most children absent?

**Children:** Today...Friday. Four are absent.

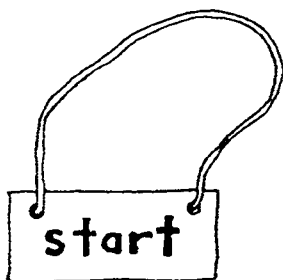
**Teacher:** Which day had only one absent?

**Children:** Thursday!

## A CIRCLE COUNT

**You will need→** a "start" necklace

Have your children stand in a circle. Decide together what number they'd like to practice counting to for this game. Reach into your teacher feely box for a name to be the starting child in the game. Put the start necklace on that child.



Suppose the children decided to practice counting to five. Begin at the "start" child who will say "one" and continue counting by having each neighboring child say the next number aloud, "two," "three," "four," "five." Child number five will sit down in the circle and the counting begins again with the next child: one, two, three, four, five. Continue counting to five until only one person is standing.

Have the group stand again. Pose the question, "If we counted all over again and began with the same person, who would be standing last? Let's try."

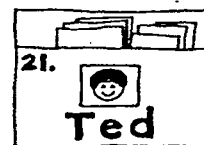
## NUMBERED CHILDREN

**You will need→** a number on each child's name tag for the cubby



a blackline picture of each of your children (Materials Index)

library pockets (one for each child)



Once you know your actual enrollment (warm body count), write numbers in sequential order on every child's cubby.

As soon as you have blackline pictures of your children, make a bulletin board containing library pockets filled with their pictures and labeled on the outside with each child's name and number.

Here are some counting activities you can do once the children are numbered and pictured: Ask one to stand up. Have one find two and hold hands. Have two go to find three and take their hand and so on until a chain is formed. Keep the chain intact as you begin the next activity.

Whisper-count by twos. Have the twos sit down as they are touched. (Whisper one, *loud* two, whisper three, *loud* four and so on.) Each child who has been counted aloud sits down. When all have been counted, go back and count the seated children by twos. This same activity can be used to count by fives and to count by tens.

Have one, two, three, four and five stand up. Give each child a 6" X 9" card with their number on it

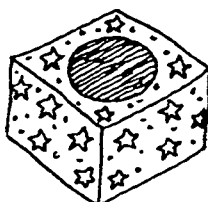
to hold for all to see. Ask them to sit in their line as their numbers are called.

Call out "Five, four, three, two, one." Ask them to stand as their number is called, "One, two, three, four and five...now sit...five, four, three, two, one!" Repeat the activity for other sequences of numbers. It's important to not always start at one.

## THE COUNTING PUPPET

**You will need→** a magician's box (see below), or pop-up puppet  
a hand puppet

Find a box about 10" square. Cut a round hole in the bottom and another round hole in the top. Cover the box to make it look like a magician's prop and decorate it with stars and glitter. (A coffee can with the bottom opened also works and it's easy to cut a hole in the plastic top large enough for your puppet hand to pop through.)



Put a puppet on your hand and poke your hand up inside the box so the puppet can't be seen.

**Teacher:** *I have a little creature in my box who can come out only when you count to the right number between zero and ten.*

**Children:** *Maybe it's six. Let's count to six...one, two, three, four, five, six (nothing happens).*

**Teacher:** *That must not be his number today. What other numbers can your try?*

**Children:** *Let's count to four...one, two, three, four (a little head peeks out but doesn't come all the way out). Maybe we're close.*

**Teacher:** *What numbers are close to four?*

**Children:** *Five!*

**Teacher:** *Is there any other?*

**Children:** *Three!*

**Teacher:** *Which one do you want to try?*

**Children:** *Let's try three...one, two, three (nothing happens). It's five, it's got to be five!*

**Teacher:** *OK, let's try counting to five.*

**Children:** *One, two, three, four, five (out pops the puppet).*

Once again this game format is magical day after day with different numbers and later in the year with different counting patterns (twos, fives, tens).

## HOLIDAY PENDULUM COUNTING

(October—Spider pendulums,  
November—Turkey pendulums,  
December—Santa or snow people pendulums, etc.)



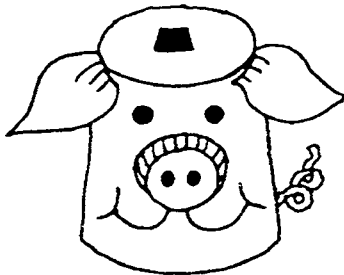
**You will need→** a large paper, plastic or cloth spider hung on a length of string  
art supplies for children to create their own pendulums

Tell the children you're going to practice counting with your spider today. Promise them that you'll have an art table available all week for them to make their own spider pendulum for counting practice at home. (It's important to encourage them to make their own since they'll be swinging the strings across their midlines as they count.)

Hold your spider up in the air and begin swinging it slowly from side to side. Children count aloud together each time the spider reaches its widest point. Practice by whisper-counting all the digits except the last which will then be spoken in a scary voice. Use the puppet to also count multiples: whisper 1, 2, 3, 4, say aloud 5, whisper 6, 7, 8, 9, say aloud 10.

## PIGGY BANK COUNT (Day 1)

**You will need→** a large Piggy Bank  
unifix cubes  
materials for children to make their own Piggy Banks  
(paper cups, felt or paper scraps)



To make a large Piggy Bank, find a quart yogurt or cottage cheese container. Cover the container with fast drying spray paint or contact paper. Use a portion cup or felt circle for the nose and a curled pipe cleaner for the tail. Make felt or paper eyes and ears. Cut a 1" square into the top (originally the carton's bottom) for dropping unifix cubes through.

**Teacher:** *I'm going to drop cubes into my Piggy Bank. Each time I drop a cube, please help me count. (Drop in four cubes one by one.)*

**Children:** *One...two...three...four...*

**Teacher:** *How many have I dropped into my bank?*

**Children:** *Four!*

**Teacher:** *Let's check to be sure. I'll open my bank and dump out the cubes so you can help me count.*

**Children:** *One...two...three...four. Four!*

**Teacher:** *You were right!*

**Teacher:** *I'd like for you to make some Piggy Banks of your own. Here are some cups I bought at the market, some felt scraps, paper scraps and glue for each of you to make your own Piggy Bank and a pipe cleaner for a tail. The parent helpers have already cut the hole on the top for you.*

Have a parent helper cut a 1" square into the bottom of each cup before this lesson. Children make their Piggy Banks helping one another where needed. Names are written on them and they're safely stored until your next Piggy Bank lesson.

## PIGGY BANK COUNT

(Day 2)

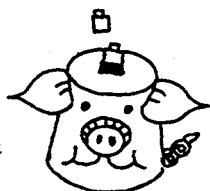
**You will need→** the children's Piggy Banks  
your large Piggy Bank  
a working space paper for each child (see blacklines)  
unifix cubes or pennies for each child

Hand out the children's Piggy Banks along with a working space paper to each child.

**Teacher:** *I'm going to begin dropping cubes into my Piggy Bank. Will you count and drop cubes into yours at the same time? (Drop one cube.) What should you do?*

**Children:** *We put a cube in ours.*

**Teacher:** *...and another. How many cubes do you think are in your banks?*

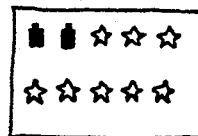
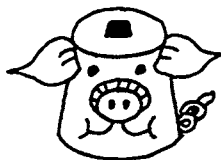


**Children:** *Two!*

**Teacher:** *Lift your banks and we'll check.*

**Teacher:** *Please move your cubes onto your working space papers and then we'll count. Ready?*

**Children:** *One, two...we do have two!*



Repeat over and over with different numbers.

## NUMERAL ORDER GAME

**You will need→** ten large numeral cards (see below)  
ten manila envelopes large enough to hold the numeral cards  
two pieces of colored construction paper to match the numeral cards  
a large paper bag to hold the envelopes

To make the numeral cards: Cut five (6 X 9) pieces each from two colors of railroad (poster) board. On each of your five pieces of board, write the numerals 1-5 and make corresponding dots. (You'll have two sets made from two different colors.) Place each of the finished numeral cards in a manila envelope.

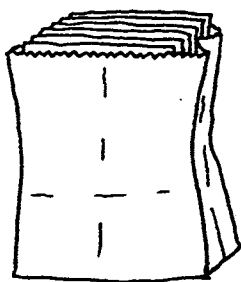
Hang one of your colored pieces of construction paper in the front of your room and the other piece in the back of your room.

**Teacher:** *I'm going to reach into my feely box for names to find the first teams to play our Numeral Order game today. If I call your name, please stand. (Call ten names.)*

**Teacher:** *I have a big bag of large envelopes here. I'm going to let each of you reach in and take an envelope but don't peek inside yet.*

*(Each of the ten children quickly chooses an envelope.)*





**Teacher:** Do you all have an envelope?

**Children:** Yes!

**Teacher:** Let me tell you what you'll do after I let you peek in your envelope.

**Children:** It's hard not to peek!

**Teacher:** When I let you peek, you'll know which color card you have inside. Once you know, you'll take your envelope and hurry to the front of the room or the back of the room. See these colors on the wall.

**Children:** Yeah, blue in the back and red in the front.

**Teacher:** Good. Once you get to your color area, open your envelope, get out your card and arrange yourselves in order from one to five. Do you understand?

(Children repeat directions.)

**Teacher:** One, two, three...peek!

The children peek and then hurry to their designated area where they finally find a way to get in order. (Some children stand in place and call to everyone to come to them, others try to direct everyone and some just bounce around trying to find the place to go.)

Once your children can easily do one through five, add more numeral cards until you are able to involve your entire class in the ordering. (If you have a class that gets into this quickly, try different counting patterns—twos, fives, tens, odd numbers, etc. Remember to not always start at the beginning of the patterns, for instance, begin at twenty when counting by ones.)

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## Number-Numeral Relationships

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### PIGGY BANKS

**You will need→**

*for each child:*

a Piggy Bank

a set of numeral cards—1-5 or greater, if appropriate  
(see blacklines)

unifix cubes or pennies

a working space paper (see blacklines)

Play Piggy Banks as described above with children counting cubes into their banks, peeking and recounting the cubes onto their working space papers. Add another step this time. Each time the cubes have been recounted, the children find the appropriate numeral card in their set and lay it out beside the counted cubes.

If you have highly sophisticated youngsters for whom you'd like an extra challenge, play the game with nickels or dimes and corresponding numeral cards, but be very careful to value every level of play in your class. All children are special and each child grows in their own way depending upon opportunities provided. You can ask children to work in partners when providing these extra challenges so their talents get shared.

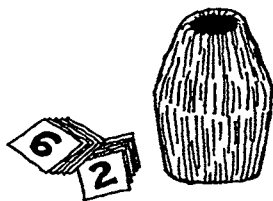
## FEELY BOX NUMERAL COUNTING

### You will need→

a large feely box (Materials Index)

unifix cubes

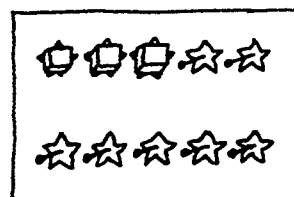
a working space paper (Hang this near your group meeting area and stick straight pins into each star to hold unifix cubes.)



numeral cards—0-9 or more, if appropriate, to fit into your feely box (see blacklines)

a ziplock bag hung by the working space paper to hold the day's numeral card

Place your numeral cards into the feely box and each day, ask a child to pull out a card and the group will help count out the appropriate number of cubes to hang on the working space paper pins.



## DICE TOSS COUNTING

### You will need→

a large milk carton die marked 1-6 (Materials Index)

*For each child:*

a working space paper

6 unifix cubes

Roll the die. The children read the numeral rolled and build it with cubes. Everyone touches their cubes and counts together to check.

child has a packet of numeral cards to match the dots. After the roll of the die, they count the cubes onto their sheets and then mark it with the appropriate numeral before rechecking by counting together.

The game may be varied by using a die marked with dots instead of numerals. Each

## SPINNER COUNTING

### You will need→

a copy of the Spinner Counting playing board for each child (see blacklines)

unifix cubes, tiles, or junk boxes for every child (25 counters per child; these could be in margarine tubs if you're using tiles or unifix cubes)

a large milk carton die (marked 1-6)

**Teacher:** Great! I'm going to roll my large die and ask you to read the numeral.

**Children:** Six...you rolled a six.

**Teacher:** Can you count out six cubes onto the rug?

(Children set out six counters on rug.)

**Teacher:** Move them onto your board now. How many do you have on your board?

**Children:** Six!

**Teacher:** How did you count them?

**Children:** I counted 1, 2, 3, 4, 5, 6.

**Teacher:** Good, any other ways of counting.

**Children:** I picked up five and then said 5, 6.

**Teacher:** Good, any other ways?

**Children:** I counted 2, 4, 6.

**Teacher:** Terrific ways. Let's roll again.

**Children:** Five...you rolled a five.

**Teacher:** Count five onto the rug.

(Children lay out five on rug.)

**Teacher:** Move them onto your board. How many do you have on your board now?

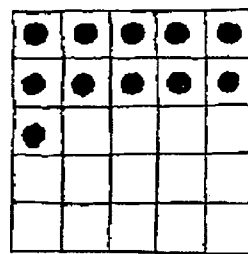
**Children:** Eleven.

**Teacher:** How did you count them?

**Child:** I counted 1, 2, 3, 4, 5, 6...to 11.

**Child:** I counted 2, 4, 6, 8, 10, 11.

**Child:** I counted 5, 10, 11.



**Teacher:** Wow! Some people counted by ones, some people counted by twos and ones and some counted by fives and ones. That's how we have to change counting patterns when we count money and tell time. Let's practice counting by ones, then we'll try the twos and ones way and finally the fives and ones.

(Children count.)

Keep on rolling and counting, trying out different counting patterns. If you will play this game many, many times over the course of a year, children will get better and better at counting with a variety of patterns.

## THE TOOTHPICK VERSION

**You will need→**

unifix cubes

a xylophone

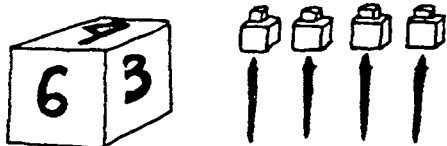
toothpicks, popsicle sticks or coffee stirrers

a large milk carton die (1-6)

a Spinner Counting gameboard for each child (see blacklines)

In January, it is fun to add in toothpicks for a tallying version.

Roll the die. The children read the numeral and count out that many cubes onto the rug.



Ask them then to pick up an equal number of toothpicks so they can match each cube with a toothpick.

After the appropriate number of toothpicks has been set out, the children move their cubes onto their counting boards.

The die is rolled again, cubes are set out and then matched with additional toothpicks. The cubes are moved onto the board.

**Teacher:** Let's count our toothpicks in a special way. When I play a tone on the xylophone, we'll count. Listen and I'll demonstrate: ding—one, ding—two, ding—three, ding—four, (then the mallet is run all the way across the xylophone)—five.



**Child:** I think I've got it! That's like we do the calendar on the tally pad. We're going to turn the last toothpick.



**Teacher:** You've got it! We'll pick up toothpick number five and lay it across the other four crosswise. Here we go.

(Children count toothpicks as xylophone dings and lift toothpick number five to cross the other four. They continue counting

this way until all toothpicks are counted.)

**Teacher:** Let's try counting by fives to begin and then we'll count by ones. It will be so easy to see with our toothpicks grouped in tally fashion.



**Children:** Five, six, seven, eight!

The activity continues in this way until the board is filled, rolling the die, counting cubes onto the rug, matching them with toothpicks, moving the cubes onto the Spinner Counting board and setting the toothpicks into groups of five whenever another five is reached. Be sure to use this counting game often enough that children become confident with these changing patterns.

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## Seeing Number Relationships

### (Applied Counting and Language Arts)

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#### FOLK TALE STORY PROBLEMS

**You will need→** copies of some of the following stories

1. *The Three Little Pigs*
2. *The Three Billy Goats Gruff*
3. *The Three Bears*
4. *The Seven Silly Fishermen*
5. *Jack and the Beanstalk*
6. *The Three Little Kittens*
7. *Little Red Riding Hood*

for each child: a container of ten cubes

You'll probably think of other stories that will adapt to this activity after you've tried it out.

Begin by reading one of the stories to your class so they know the storyline, for instance, *The Three Little Pigs*. Discuss the story and chant the repeating patterns. "Then I'll huff and I'll

puff and I'll blow your house down." Brainstorm ways to change those lines: "I'll bang and I'll bang and I'll knock your house down." "I'll pull and I'll pull and I'll pull your house down." Write some of the new versions as well as the old on the bottoms of 12 X 18 construction paper.



Give the children pine needles or straw, tiny twigs or toothpicks, sugar cubes that have been spray painted red or cut rectangles of red paper and ask them to work together to build each pig's house and color in appropriate backgrounds on the papers that have the patterned chants. You may want to ask some children to make a wolf to go on each page or give them precut paper wolves.

These pages can become a Big Book (see Materials Index) for future sharing. Using this book, children (wearing headbands) can act out the story while you develop prediction patterns from the story. (What happened just before that? How many pigs are in this house? Then what happened? And after that?)

Once the children have had ample opportunities to explore and enjoy the story, they are ready for story problems.

Give each child a container of wooden cubes, tiles or unifix cubes. As you tell the story, they will keep track of the characters with their counters.

**Teacher:** Once upon a time there were three pigs.

(Children set out three counters.)

**Teacher:** They decided it was time to go out into the world on their own. The oldest pig was the first to leave home.

**Children:** Should we take away a cube?

**Teacher:** Yes...how many pigs are still at home?

**Children:** Two!

**Teacher:** Then the middle pig decided to leave.

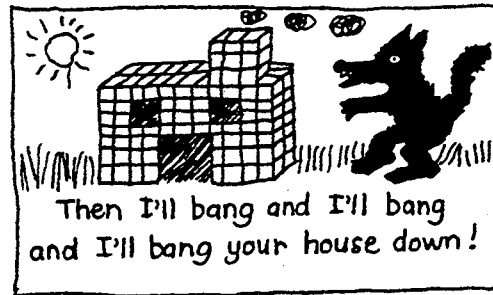
**Children:** We better have him walk away.

**Teacher:** How many pigs are still at home?

**Children:** Just one.

**Teacher:** The youngest pig set out and as he walked down the road he caught up with his middle brother.

**Children:** Oops...that makes two together now.



**Teacher:** The two of them hurried along and they caught up with their oldest brother.

**Children:** Now there are three again!

**Teacher:** As they walk along, the youngest pig finds a perfect place to build a house.

**Children:** Should we take away a cube?

**Teacher:** Yes, move that pig to his special spot where he'll build his house. A little further on down the road, the middle pig finds the perfect spot for his house.

**Children:** There goes another cube to a special spot. Now there's just one pig walking along.

**Teacher:** Finally, the oldest pig finds a perfect spot for his house. How many pigs are walking down the road now?

**Children:** Zero!

**Teacher:** Along comes the wolf! Quick, take out a cube! He comes to the youngest pig's house. How many creatures now?

**Children:** Two!

**Teacher:** He says, "Little Pig, Little Pig, let me come in..." (Go through the whole chant, children love to do it with you.) That littlest pig escaped just in time leaving the wolf behind.

**Children:** Now there's just one!

**Teacher:** He ran to his middle brother's house. How many pigs are at that house now?

**Children:** Two!

**Teacher:** Here comes the wolf!

**Children:** Oops...three animals!

**Teacher:** He says, "Little Pig..."

Continue the story in this fashion until the end. These kinds of activities provide a nice link between language arts and math while setting foundations for addition and subtraction.

Here are some suggestions for Jack and the Beanstalk. Once you've read the story, try some of the follow up activities below to build excitement:

1. Soak alfalfa seeds in water. Drain them by placing them in a one quart jar covered with a fine screen or cheesecloth. Leave them in indirect light and wait for them to grow. Add water to the jar every other day, swish it around and drain it. Once all the seeds have sprouted, make sandwiches or cheese spread crackers or peanut butter crackers topped with sprouts. (Salads are great too if you have children help bring in items for a community salad.)
2. Punch a hole with a heated nail into the bottom of a transparent plastic cup. Provide potting soil and lima beans so each child can plant a bean right at the edge of the inside cup (so it can be seen). Water as needed and watch the beans grow.
3. Discuss the size of a giant. Brainstorm ways their ideas might be measured. (If they think he will be ten children tall, lay out ten children on the rug, head to feet.)
4. Listen to recorded harp music or better yet, find a local harpist.
5. Show a film about dairy cows.

Once you have built the excitement about Jack and the Beanstalk to fever pitch, do some story problem activities with your children.

Begin by retelling the story until you get to the part where the man tells Jack about the magic beans to convince Jack to trade his cow. He says each time he claps his hands one more bean will appear.

Give each child a container of lima or kidney beans. Have each count out three beans. Clap your hands. (One more bean comes so now there are four.) Clap. (Now there are five.) Tell them that if the man tweaks his ear, the beans go back to what he started with. Tweak! What happened? (Now we have just three beans.) Continue to play with the claps and tweaks a few minutes. Then add another motion. The man rubs his nose and two new beans appear. (Rub your nose and they set out two more beans and count to five. Tweak your ear, they make the beans three again. Clap your hands, now there are four. Rub your nose and there are six.)

After lots of practice at this level, add: snap your fingers. When you snap your fingers, each bean gets a partner to double the number. Continue with all four twists as long as interest is high. Most

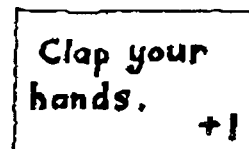
classes love this activity and it can be played many times. Add: slap your knees—add three; stamp your feet—remove one, etc. You can post a chart to help children (and you) remember all the twists.

It's fun to make large cards to read together with each of the Magic Bean actions. Place those cards face down in a pile and have a child select a new one for each turn. After the card is read, predict how many beans there will be when this action is complete.

**Teacher:** *I'd like for each of you to count out two beans for yourself.*

**Children:** *That's easy!*

**Teacher:** *We have our Magic Bean cards all set out. Let me reach into my feely box to find someone to select our first card. Cindy, can you choose a card and we'll read it together.*



**Children:** *Clap your hands. We get one more bean!*

**Teacher:** *Wait. Can anyone guess how many beans that will make?*

**Children:** *Sure. Three, that was easy!*

**Teacher:** *Juan, please select another card.*

**Children:** *Rub your nose...that's two more beans!*

**Teacher:** *How many will we have when we've added two more to our three?*

**Children:** *Five, 'cause three and two make five!*

**Teacher:** *That's great! How could we get to ten?*

**Children:** *We could have five more Clap-your-hands cards.*

**Teacher:** *True! Any other way?*

**Children:** *We could have some Rub-your-nose cards so it wouldn't take so long.*

**Teacher:** *How many would we need?*

And so the questioning, predicting and counting goes with children again building foundations for addition and subtraction in following school years.

These lessons are endless in their possibilities. You can add student chalkboards and have them work with their beans directly on their chalkboards recording each new direction in a

simple number sentence as they work. Be sure you always provide the model for any writing lesson so they can learn without feeling threatened.

## JUNK BOX STORIES

**You will need→** a junk box to share with your small group  
(Materials Index)

*for each child:*

a working space paper (see blacklines)

Begin this with a small group of children.

Choose a junk box you feel the group will enjoy. Each child needs a handful of the junk box counters and a working space paper. As you tell stories, have your students keep track of the action with their counters on their working space papers. Here are two quick story samples; you and your students will be able to think of many more. The first uses keys and the second uses buttons.

### Keys

Once there was a giant who kept a large key ring. He had seven keys on this key ring. (*Children set out seven keys on their working space papers.*) One day his daughter asked if she could have two of his keys to take to school. Being a nice father, he gave them to her. (*Children remove two keys from their papers and may tell you that the giant has five keys left.*) As the giant walked back to the castle, he noticed that his wife had left a key in the front door. He took it out of the door and slipped it onto his key ring. (*Children add a key to their papers and note that the giant now has six keys in all.*) Later that morning, the giant was cleaning out his attic and found two keys in an old trunk. Naturally, he slipped them onto his key ring. (*Children add two more keys to their collections. How many does the giant have now?*)

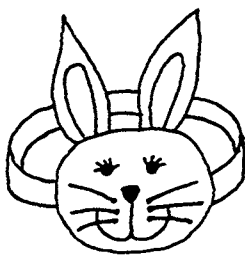
This story continues with the giant finding, losing, receiving and giving away keys for as long as you and the children want to continue. Encourage your students to supply parts of the story line and enhance the details.

### Buttons

Laurie was a girl who loved buttons. She loved them so much that she had a special box to keep them in. One day she looked into her box and discovered that she had four buttons. (*Children set out four buttons on their working space papers.*) She was a bit puzzled, because just the day before she'd had six. (*How many did she lose? Can the children figure it out?*) She decided to look around her room just in case she'd dropped some by accident. She searched and searched and found one button behind her door. (*The children add one button to their papers for a total of five.*) Then she looked some more and found two under the bed. (*The children add two more buttons to their papers and note that Laurie now has seven buttons.*) As long as interest holds, continue the story along these lines. Again, children may be interested in contributing events and details.

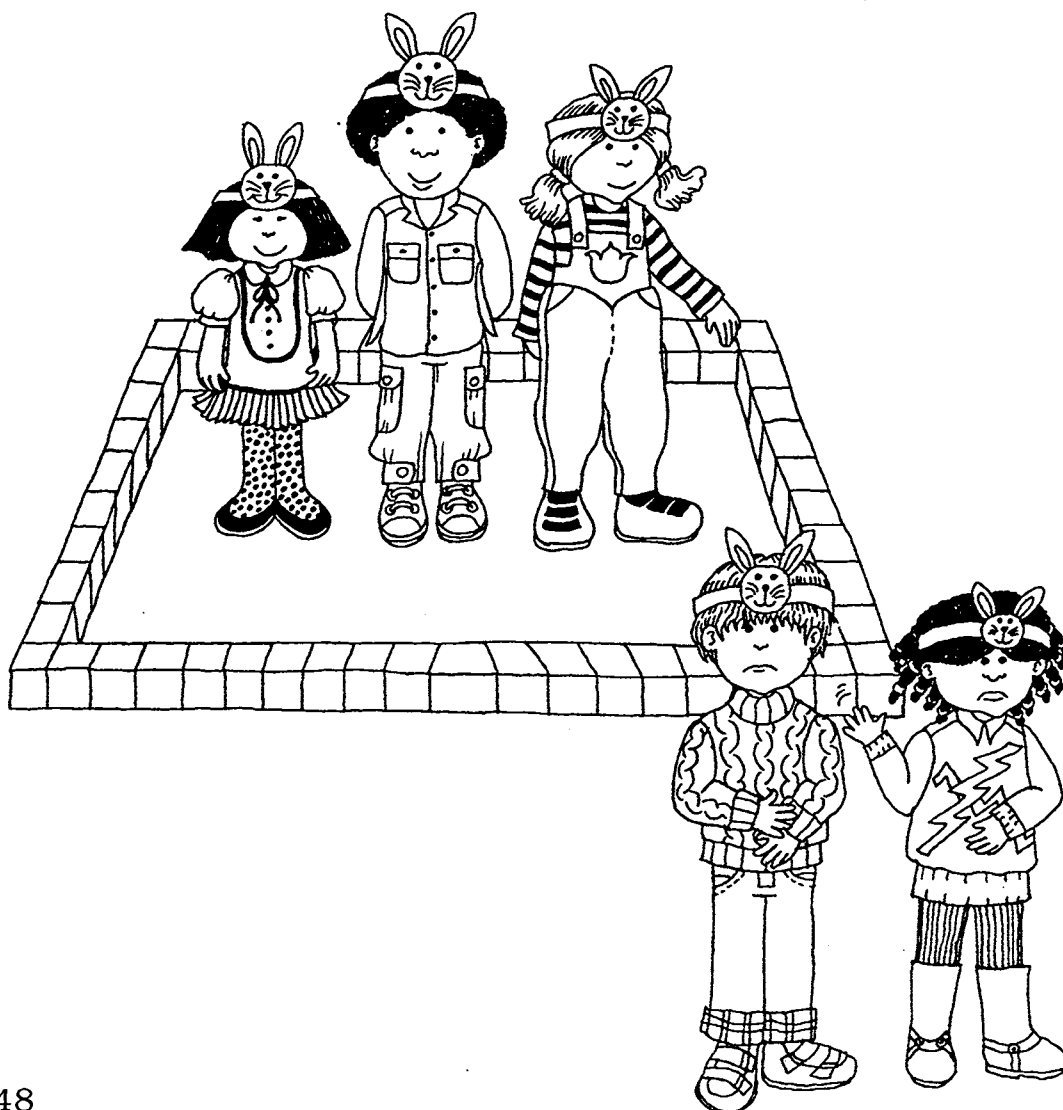
## BUNNY STORY PROBLEMS AND BIG BOOKS

### You will need→:



a sample bunny hat to show children  
brown, pink and white construction paper  
building blocks to create a fence for the "Garden"  
several sheets of light blue construction paper  
student chalkboards  
17 precut bunnies (see blacklines)  
yarn                      staplers  
hole punch              glue, glue stick  
*for each child:*

a bunny hat made the day before from the above materials





During the school year, children can, with your help, dramatize and create Big Books of number stories.

Here is a sample:

**Teacher:** Five adventurous bunnies decided they were hungry. They thought and thought. Where could they find some food?

**Children:** Maybe in their refrigerators!

**Teacher:** These bunnies don't have any refrigerators.

**Children:** Maybe they could go to their garden.

**Teacher:** They don't have a garden of their own but they know about a garden down the road a stretch.

**Children:** It probably would have some carrots.

**Teacher:** Those bunnies, all five of them, decided to walk down the road to the farmer's garden. How do you think they'll look as they go to the garden?

**Children:** They should hop 'cause they're so hungry.

**Teacher:** Let's remember that when we begin to act out our story.

**Teacher:** They hopped along down the road until they saw Farmer John's fence. What do you think they'll do?

**Children:** They'll take a big hop right over that fence.

**Teacher:** We'll need a fence when we act out this story. I better make a list of things we'll need. How could we build a fence?

**Children:** Let's use a few of our building blocks. We would use a jump rope too.

**Teacher:** Those five bunnies did hop right over that fence and they immediately found the lettuce and the carrots. Two of them ate so fast they got tummy aches and had to leave.

**Children:** I get a hurt tummy lots!

**Teacher:** How do you think they'll look when they start home?

**Children:** They'll hop kind of slow and hold their tummies. They'll probably turn around and wave to the other bunnies too.

**Teacher:** This is going to be a great play if we can remember these good ideas. I think we are about ready. Let me reach into

my feely box for two names to build a quick fence for the garden. Junichiro and Salvador, would you make a simple fence for us right here?

**Teacher:** Will the rest of you please get your bunny hats you made yesterday and put them on your heads? Is the fence ready? Does everyone have on a bunny hat?

**Children:** Yeah, this is fun!

**Teacher:** There are so many bunnies from which to choose. I'll reach into my feely box to get some actors and actresses. How many bunnies did that story have?

**Children:** Five!

Five names are pulled from the feely box and the performers stand together while the rest of the "bunnies" watch. The teacher retells the story while the bunny audience helps to direct in any needed ways as the story is acted out.

Once this part of the story has been acted out, quickly add more detail, for instance:

**Teacher:** Once the two bunnies had gone home, the bunnies in the garden felt kind of sad. They were afraid the farmer might be mad at them for taking his lettuce and carrots. They wondered what they could do so he wouldn't be so mad.

**Children:** Maybe they could pull some weeds!

**Teacher:** Good idea but that is awfully hard work. Wouldn't it be nice if some other bunnies joined them.

**Children:** Let's have three more bunnies come help.

**Teacher:** All right! Those three little bunnies, all full of carrots and lettuce, started pulling weeds from Farmer John's garden. They were getting so tired when suddenly three brown bunnies came hopping up over the hill.

**Children:** They could ask them to help!

**Teacher:** Please, bunnies, would you help us pull some weeds? The bunnies started to climb over the fence to help when suddenly Farmer John shouted at all of them.

**Children:** I bet they hopped away!

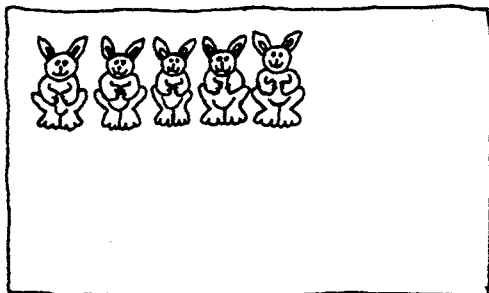
**Teacher:** They jumped that fence and hopped off down the road together...everyone of them.

**Children:** That makes six!

**Teacher:** Let's think about our story. What happened first?

**Children:** Five bunnies went to the garden.

**Teacher:** I have five paper bunnies here that I cut last night. I'll use my glue stick to put them on this piece of paper. What scenery should we draw in so we'll know they were on their way to the garden?

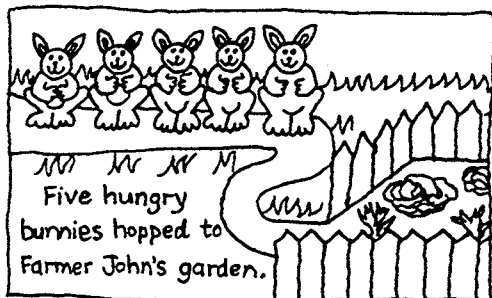


**Children:** Make a road with some grass when they first start hopping.

**Children:** Yeah, and have the garden over on that side of your paper.

**Teacher:** Does this look O.K.?

**Children:** Just right!



**Teacher:** I want to write a quick story to go with this. How could I say it?

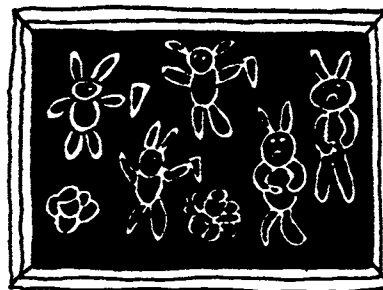
**Children:** You could write that five hungry bunnies hopped to Farmer John's garden.

**Teacher:** Perfect! Let's get out our student chalkboards and you can help me as we go along. Will you draw what happened next?

**Children:** Do you mean after they got to the garden and ate so many carrots and too much lettuce?

**Teacher:** Yes, right after that, what happened?

**Child:** I'm ready. I left three bunnies in the garden and I've got the other two walking away.



**Teacher:** Let's look at everyone's drawings. Wow, so many different ways to picture this part of the story! I'll put up a new page for this part of the book.

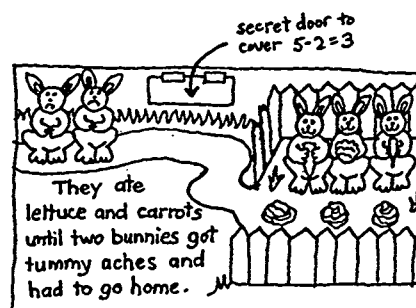
**Child:** Get some more paper rabbits.

**Child:** Yeah, and draw a garden.

**Child:** Put three in the garden and two going down the road. Make sad faces on those two.

**Teacher:** How could I write about this part of our story?

**Children:** You could say they ate lettuce and carrots until two bunnies got tummy aches. And they had to go home!



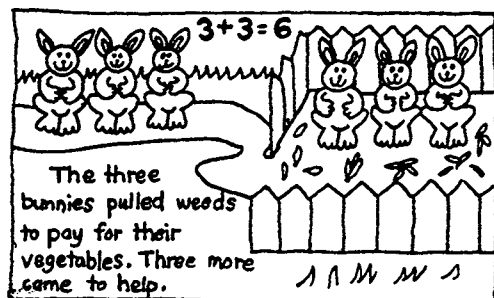
**Teacher:** Good! Let's read both pages together. (Children read with you.)

**Teacher:** There is a short way to tell this story with numbers. Watch how I write this number sentence,  $5 - 2 = 3$ . It means, five bunnies were there but two left and now there are only three.

**Children:** That's like a shortcut, I think!

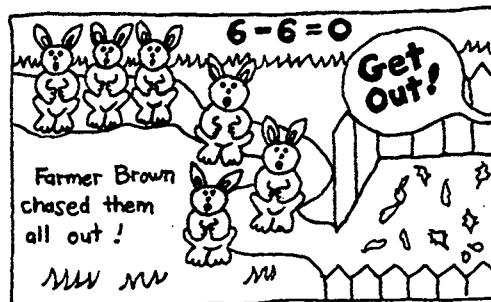
**Teacher:** I'll cover that number sentence with a secret door, here's a piece of paper and some tape. This way, when we read this book later, we can try to guess the shortcut way to write this part of our story.

Continue in this manner acting out the remaining portions of the story and once again creating the parts of it on construction paper pages as below. Involve the children with their chalkboards as the acting goes along, asking them to draw the number of bunnies that came to join the three with weeding. Encourage them to try writing some words even on their chalkboards in their best guess spelling to tell what is happening. Finally, figure out number sentences for the last two events.



Assemble the pages into a Big Book and read it again until the children seem comfortable with the story. Add it to your Big Book collection for shared reading time.

As your children get the idea of acting out more stories, have them work together to illustrate the pages they've performed. They'll feel personal investment in the books and want to explore them often.



## NUMBER ORDER SECRET CODES

Make a large 1-10 chart. Hang the chart within easy view of all of the children.

1	2	3	4	5
6	7	8	9	10

**Teacher:** Today, we're going to play a secret code game. I want you to see if you can figure out my secret code by studying this large number chart and looking at the code I write.

1 →

**Children:** Is it two?

**Teacher:** Great! That was my number. (Write the answer and circle it.)

1 → ②

**Teacher:** Here's another.

2 →

**Children:** It is three?

**Teacher:** You've got it!

Continue in this manner to ten, asking for solutions. Watch your students carefully to see how many seem to figure out the code. If only a few really see the code, end the game and try it again a few days later. Some will try to explain it to others and those explanations may or may not help. Encourage that kind of sharing often.

When most of your children seem to know the code, change to the following code:

2 ←

Once again, the children will volunteer guesses until someone stumbles on one as the answer. Write the answer as before:

2 ← ①

Continue as before, 3 ←, 4 ←, 5 ←, etc.

When most of your children are understanding this code, try mixing codes for your game. Paying attention to the directions of the arrows is difficult and requires concentration.

Finally, add two arrows as below:

**2→→, 3→→, 6→←**

The game can be played as often as once weekly and as the children gain expertise, the game can be tried with the number chart hidden from view and then checked to confirm guesses. You have set foundations for beginning addition and subtraction.

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## Numeral Writing

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*When children are first learning to write numerals it is important to have many easily seen models for them to copy. Try sitting in some of their seats to determine the best placements for your numeral models. Provide many opportunities for your children to explore the form of the numerals such as:*

*people numbers*

*playdough*

*fingerpaint*

*yarn*

*easel paintings*

*clay*

*pipe cleaners*

*rope*

*Frosted numeral cookies formed from your favorite sugar cookie recipe—children roll dough into “snakes” to form numerals, cookies are baked and then frosted.*

*Edible cookie dough (1 part peanut butter, 1 part dry powdered milk, 1 part light Karo syrup, 1 part powdered sugar).*

*Student chalkboards and/or boxes sprayed with black paint on the bottom and covered with a thin layer of salt are excellent practice tools for directed group writing instruction.*

### TACTILE NUMERAL CARDS

**You will need→**

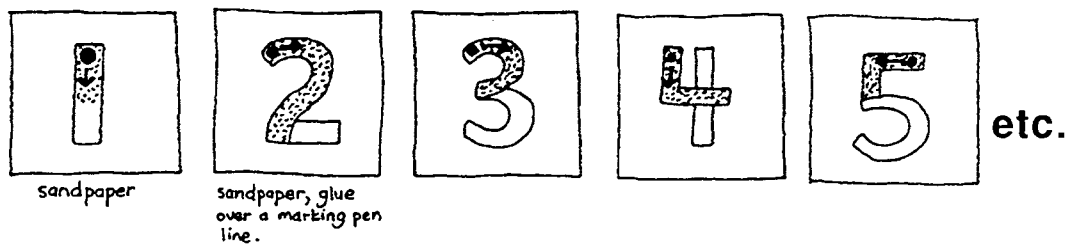
sandpaper for first part of numeral

Tacky glue squeezed out over marking pen line for second part of numeral

9 X 12 tagboard or poster board for each numeral

In addition to the above activities, you may find it helpful to make a set of tactile numeral cards. These cards help many children know

where to begin as they write the numerals. Make your cards as shown below.



## SPECIAL NUMBER DAYS

Stage a special day in honor of each numeral. On “three day” you could make three bean salad, paint threes on the easel, go on a neighborhood walk in search of things that come in threes, search

through magazines for groups of threes, make class books about threes, sing *Three Blind Mice*, read a book such as *The Three Little Pigs*, etc.

## Moving to the Practice and Enrichment Boxes

*Many of the above group lessons are intended to continue in repeated and varying fashion all year. You will want to begin getting out the Reading, Writing and Understanding Numerals 0-10 Boxes as you are ready to begin moving away from the Pattern Boxes. Here are some sample lessons that help in the transition to the new boxes.*

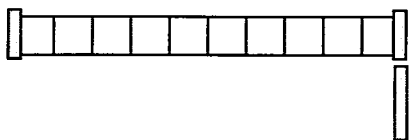
### JUMP AND COUNT (whole group)

#### You will need→

a jumping strip (Cut a piece of butcher paper 40" long and 4" wide. Mark off 4" intervals to create 10 boxes.)

several copies of the small record sheet for each child (blackline supplement)

more/less spinner (blackline supplement)



Anchor the jumping strip to the floor with masking tape. Put a strip of tape beside one end of the strip for the jumping-off line.

Child A stands at the starting edge of the jumping strip while the rest of your group looks on. Child A jumps as far as possible. The rest of the group counts how many sections he/she managed to hurdle and records A's name and the number on their record sheets.

Then Child B jumps and the group records B's name and the appropriate number.

The teacher then spins the more/less spinner and a winner is determined. Children circle the winner on the record sheet. Repeat the activity several times using a new record sheet for each pair of jumpers. Children enjoy stapling their record sheets into little booklets to take home at the conclusion of this activity. Once most of your class seems to understand Jump and Count, make the boxed version available during Independent Practice Time.

## SPIN 50 (whole group)

### You will need→

Spin 50 spinner (blackline supplement)

for each child:

a copy of the Spin 50 record sheet (blackline supplement)

pencils

crayons

**Teacher:** Ready for our first spin?

**Children:** It landed on seven. Do we get to mark off seven?

**Teacher:** Yes, let's count the eggs together as you mark an X on each one.

**Children:** 1, 2, 3, 4, 5, 6...7!

**Teacher:** Did that fill the top row?

**Children:** No, we'd need three more.

**Teacher:** Here's a new spin.

**Children:** Four...that will fill that row up. Yeah, and we even have to mark one on the next row.

**Teacher:** How many do you think we've marked altogether?

**Children:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11!

**Teacher:** Good. Can you think of any other way to count that?

**Children:** We used to have seven marked off. We could have just kept counting.

**Teacher:** Do you all understand what Jenny means? Let's go back to the seventh egg.

**Children:** 1, 2, 3, 4, 5, 6, 7...

**Teacher:** Why don't you quickly color that egg so it will be easy to see where the first turn ended.

(Children color.)

**Teacher:** Which egg was that?

**Children:** The seventh one. We just keep counting...8, 9, 10, 11.

**Teacher:** Is there any other way to find out if we have eleven?

**Child:** I think there are ten in each row. We could say ten and then keep counting.

**Teacher:** You know that ten and one more make eleven. Let's count together from ten, ready?

**Children:** Ten...eleven!

Continue the game in this fashion and figure out together how the game should end. Will they need to spin an exact number to say it's finished?

Once the children understand, the game can be played another day in teams (use yarn necklaces to keep track of the teams).

Make the boxed version of this game available during Independent Practice Time.

## GREEN BEANS

### You will need→

5 large poster board beans (green on one side and white on the other)

for each child:

pencils

a copy of the Green Beans record sheet (blackline supplement)

Toss the large beans into the air. Once they land, children count how many have landed with the green side up. Working from the bottom toward the top, they record that toss by tracing the appropriate numeral on their record sheet. The beans are tossed over and over and the children record the number of green beans showing on each toss until

first, second and third place column winners are determined on the record sheet.

Once children understand Green Beans, make the boxed version available during Independent Practice Time.

## **ADDING MORE BOXES**

Most of the activities from these Practice and Enrichment Boxes lend themselves to group instruction. Modeling by playing the games with the whole class involved in some manner helps make the move into the Boxes go smoothly. If children seem to be having difficulty with a particular box, take time to teach it again until

most youngsters understand. Remove a Pattern Box from the Independent Practice Time selections each time you add in one of these boxes. Gradually you will shift to having only Reading, Writing and Understanding Numerals 0-10 available for practice time.

### **The activities in this set include:**

Spinner Counting	Number Race
Spin, Count and Make a Book	Green Beans
Jump and Count	Toss and Count
Bounce and Count	Crazy Crocodile
Top Draw	Counting Jars
Gift Wrap Counting	Newspaper Numerals
Spin 50	Cookie Cutter Numerals
Spinners and Scissors	Numerals Floor Graph
Rub Over Numerals	Feely Box—Three in a Row
Counting Books (student)	Numerals Floor Mat
Counting Books (commercial)	Grand Prix
Feely Numbers in Order	

## Chapter 15

# SHAPES

*Many kindergarten teachers feel they need to teach children about shapes (beginning Geometry) as soon as school begins. We use large group instruction to set foundations and save the actual Shapes Practice and Enrichment Boxes until at least December or January when children have learned to cooperate more readily and have increased their fine motor skills. By that time, they have the maturity to reap the greatest benefits from independent practice.*

*The lessons included in this chapter will help kindergarten teachers address beginning geometry in varied and exciting ways through group instruction. The lessons can be spread over the entire kindergarten year so children can build upon their growing understandings before, during and after the Independent Practice Time devoted to the Shapes Boxes.*

## Group Lessons

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### Two-Dimensional Shape Activities

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#### **ELASTIC SHAPES (whole group or half group)**

**You will need→** 4-8 elastic loops (firmly sew 2-yard lengths of 1-inch wide elastic into loops)

Have your children work in twos, threes or fours to pursue the following questions:

1. Can you work together and make a square from your elastic?
  - a) How many corners will your square need?
  - b) How many sides?
2. Can you look around the room and find any square that is made the same as yours?
3. Can you change your square so it will be truly different in this roomful of squares?
  - c) Will the sides be different sizes?
  - d) How far can you safely stretch that elastic?



6. Can you make it a walking square? Is it truly unique from other walking squares in this room?
7. Can you perform your walking square for our class? (Class watches to see that the sides stay equal and the four corners remain corners.)
8. Can you change your square into a rolling or revolving square?

The same kinds of questions and activities work well for any shapes you need to teach. We find it

best to study only one shape per day so children can fully explore the possibilities.

The elastic shapes can be very adaptable to some of those wonderful Shapes songs on the Hap Palmer and We All Live Together records. Listen to any of the songs you may have in your collection to get your creative ideas flowing.

## PEANUT BUTTER COOKY SHAPES

### You will need→

a large jar of peanut butter  
 a bottle of light Karo syrup  
 a package of dry powdered milk  
 a package of powdered sugar  
 4 teaspoons to measure out ingredients  
 4 bowls to hold ingredients  
 paper towels for clean-up  
 a recipe chart      a paper graph  
 light brown construction paper  
*for each child:*

Peanut Butter Cookies 1 spoonful peanut butter 1 spoonful powdered milk 1 spoonful Karo syrup 1 spoonful powdered sugar Measure and mix.
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a small paper plate  
 a small piece of wax paper  
 a tongue depressor or popsicle stick for stirring  
 sturdy paper cup for mixing  
 plastic wrap

Hang a recipe chart in your classroom and read together. Tell the children you'll be reaching into your feely box to select names. Each child will get a chance to measure the ingredients, mix the dough and safely cover the delicious mix with plastic wrap until later.

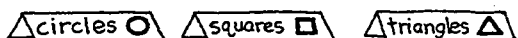
Ask children to wash their hands before they go to work at the Cooky Table. Pull out six names and

get the Cooky Makers started. Meanwhile, the rest of the class is sent to work on other activities.

Later in the day when every child has prepared their cooky mix, perhaps after a recess so everyone could get their hands washed, have them meet on the class rug. Show them today's graphing labels and ask them to tell you how each shape should look.

**Teacher:** Can anyone read this graph column label?

**Children:** It starts with a T. Yeah, it might say triangle.



**Teacher:** That's right. It does say triangle. Can you tell me some things about triangles so everyone can remember how they look. I'll draw some on my chalkboard as you tell me about them.

**Children:** They have just three sides. And three corners too!

**Teacher:** Do all the sides have to be the same size?

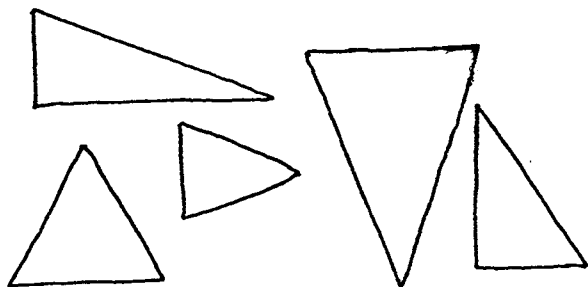


**Child:** No, I have a football pennant on my wall. It's a triangle and it has a short side and two long sides.

**Child:** But our green triangle in the pattern blocks has all the same size on its three sides.

**Child:** But that witch's nose on our poster is a triangle and it has a short side.

**Teacher:** You can see, by looking around plus remembering triangles you've seen, they can have sides the same length or sides that are different lengths. (Draw several kinds of triangles on your chalkboard.)



Continue discussing the Cookie Shapes you'll be graphing today and drawing them on the chalkboard.

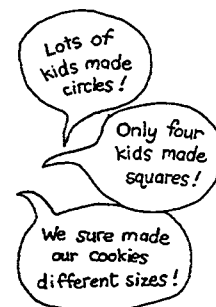
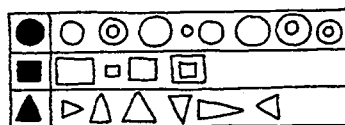


Give each child their cup of cookie mix, a piece of wax paper and a paper plate labeled with their name. Ask them to work quickly (set timer if you wish) to form a triangle, a square or a rectangle cookie. The finished cookie should be set on their paper plate, their hands wiped off and their table area cleaned up before they bring their plate to the class meeting area.

When all the cookies are formed, lay them out on your mini mat graph (see Materials Index).

Discuss and compare the number of cookies in each column and the differences in the cookies for each shape. Write children's observations on talking bubbles (see Graphing, Chapter 11).

If you'd like to create a picture graph for a permanent record of today's graph, give each child a piece of brown construction paper and ask them to cut shapes just like their delicious cookies. Brainstorm ways to make a picture graph that will show the same information your Cookie Graph showed. Glue the paper shapes on the graph and save it to hang in a display area along with their talking bubbles. Eat and enjoy!



## CHALKBOARD SHAPES

**You will need→** for each child: a chalkboard, chalk and eraser

Draw a large shape on your chalkboard. Discuss its attributes with your class. Are the edges straight or curved? Does it have any

corners? How many? How long are the sides? Are the sides the same length or different?

Cover your chalkboard drawing with a large paper. Ask the children if they can help one another to draw the same shape on their chalkboards. (Be sure to give clues based on the information they've told you when they looked at your drawing.) When all drawings are finished, take a peek at the original again and check it a part at a time to see how many of its attributes they were able to draw.

This activity can be very open ended and can progress from simple geometric shapes to a

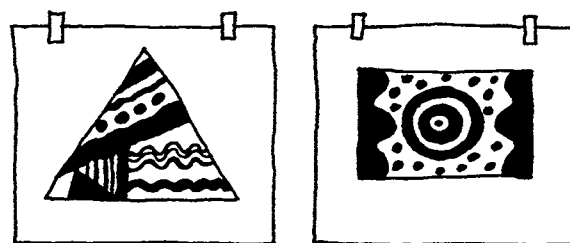
combination of shapes—a pumpkin with triangular eyes and nose, a snowman with square buttons and a square and rectangular hat, etc.

We saw one kindergarten where the teacher had made a large milk carton die with six different shapes drawn on the surfaces. The children enjoyed rolling the die, naming the shape and drawing it on their chalkboards.

## EASEL PAINTINGS

**You will need→** large cardboard template of simple shapes  
paints and brushes  
easel paper

Have each child trace around the cardboard template of their favorite shape onto easel paper and paint it. Encourage the children to help one another as they figure out how to trace around that template.



## COMPARING SHAPES

**You will need→** a container of pattern blocks  
wooden beads  
parquetry blocks  
other classroom blocks

Gather pattern blocks and any other classroom blocks on a tray. Ask each child to hold a particular kind of block, for instance a square. Count the sides. Count the corners. Compare it to a triangle. How are the shapes the same? How are they different?

Pour out all the blocks you've gathered and sort them with the children. How many ways can they find to sort them?

## CIRCLES

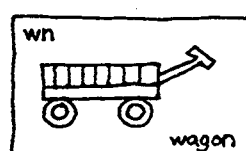
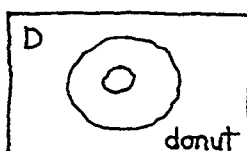
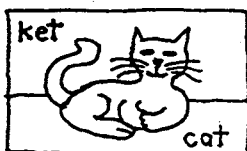
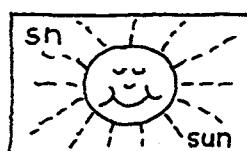
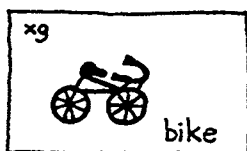
**You will need→** *for each child:* a chalkboard, chalk and eraser

Ask each child to draw a circle on their chalkboard. Ask them to turn it into something. How many different things can the class come up

with (sun, face, ice cream in a cone, button, ball, zero, doughnut, wheel, etc.)?

Search magazines for things that are circles. Have children tear out a picture of something that is a circle. You can make a Big Book with the circles they've cut out. Be sure each page includes a descriptive sentence either written by the children in their best guess spelling (and edited and rewritten by an adult) or dictated to an adult. (It's lots of fun to leave best guess spelling on the page. This reassures children

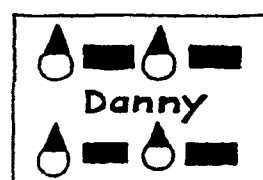
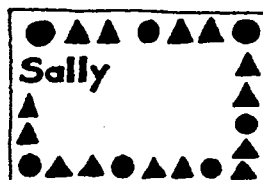
that they can communicate in writing and whatever they are able to do is valued, from squiggles to nearly correct spelling. You rewrite so everyone will be able to see it spelled correctly but reassure them that you've been working for *lots* of years to reach a level of adult spelling and you began right where they are!)



## BORDER PATTERNS

**You will need→** templates for children to trace and cut shapes or  
sheets of xeroxed shapes to cut  
12 X 18 pieces of construction paper for each child  
glue or paste

Children cut their favorite shape(s) until they have a large pile. The shapes are then sorted and a border pattern is laid out. Encourage the children to try to create a pattern that is different from anyone else's at their table.



## CARROT CONSTRUCTIONS

**You will need→** 4 peelers                      4 table knives  
2 boxes round toothpicks  
*for each child:* a sandwich bag and a carrot

Encourage your children to wash their carrots and their hands thoroughly. Set up a preparation area so each child can peel and cut their carrot. (The carrots should be cut into approximately one-third to one-half inch slices.) Store cut carrots in a baggie and refrigerate until the next day.

The next day give out carrots and toothpicks and ask the children to create wonderful structures. After an adequate work time, display the creations and discuss the shapes used in the structures. Eat and enjoy!

## SHARE AND DIVIDE (a high interest problem-solving lesson)

**You will need→** 8 round fresh orange slices for every 4 children  
 a table knife for each group  
 wax paper for each group (for cutting)  
 wax paper for each child (for their share)

Give out the eight orange slices to each small group of children and ask them to figure out a way to cut them so everyone in their group will be happy with their share. When the group

agrees that everyone is happy, they all raise their hands and explain how they have shared. Eat and enjoy!

## PEANUT BUTTER BREAD

**You will need→** *for each child:*  
 a slice of whole wheat bread  
 a plastic or table knife to share  
 peanut butter  
 a small paper plate

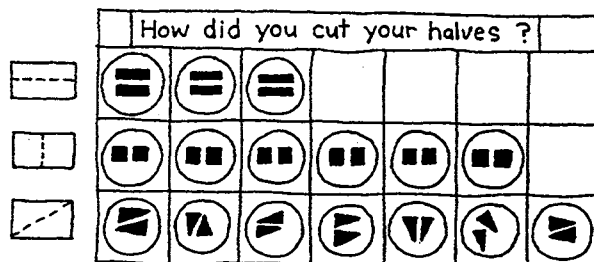
Show the children how to cut their bread into a rectangle. (They may eat the scraps.) Demonstrate how their bread can be cut into halves so both parts are exactly the same.



Children cut their bread into rectangles, spread with peanut butter and then cut it into halves. The halves are placed on small paper plates and carried to the graph.

Graph the results using your mini mat (see Materials Index). Discuss and compare.

Again, talking bubbles are a nice way to record observations and this graph could be reproduced with cut paper to record the results on a picture graph.



## FEELY BOXES

**You will need→** a large feely box with a sealed jar of olives, pickles or cheese spread inside (something the children can enjoy after they've done the lesson)

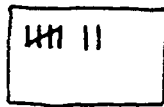
Pass the feely box around. Each child reaches in and tries to give one clue without telling what it is. (You might want to tally how many clues can be given before anyone tries to guess what it really is, to remind the children you are only after clues for now!)

After a few clues have been given, ask the children to recall what they know so far and list the information on a chart.

Continue passing the feely box and gathering clues. When there are no more clues to be

given, read the chart and list the things it *might* be based on the clues gathered. Remove the jar from the feely box and pass it around. Compare what it

is really like to the clues chart. Count the items inside and problem solve how to share or spread the cheese on crackers so everyone can enjoy.



1. It feels hard.
2. It feels smooth.
3. It has some metal on the end.
4. It feels smaller than our paste jar.

5. It's round.
6. It feels like glass on the sides.
7. The bottom feels like glass too.

## FELT SHAPES

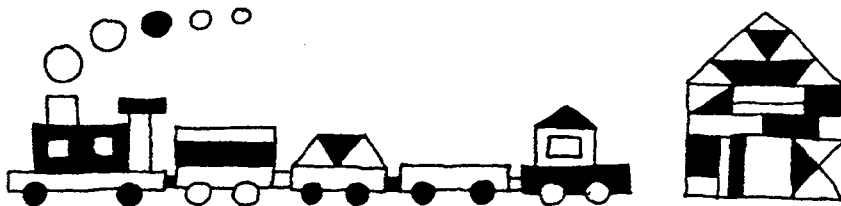
**You will need→** a large assortment of cut felt shapes (blackline supplement). Or use die-cut fun foam shapes.

Ask your children to sit in partners and distribute the felt pieces (partners needs 40 or more different pieces). Give building assignments to each twosome such as:

- |                 |                       |
|-----------------|-----------------------|
| 1. a city       | 8. an imaginary zoo   |
| 2. a train      | 9. a parking lot      |
| 3. a circus     | 10. a space ship      |
| 4. an aquarium  | 11. a flower garden   |
| 5. a park       | 12. a robot           |
| 6. a bedroom    | 13. a Halloween scene |
| 7. a playground | 14. a Christmas tree  |

As the children are finishing their projects, ask them to plan how they will tell the rest of the class about their work. Encourage them to give everyone a portion of the project to describe. Take the class around to see the different creations. The artists describe their work.

This is a particularly valuable activity and it repeats well on several occasions. It makes the point that shapes can interact with one another and in differing combinations, form still other shapes—two triangles make a diamond, etc.



## WHAT SHAPE IS IT?

**You will need→** Shape Sheets (see blackline supplement for shapes and making instructions)

Set out the eight Shape Sheets on a large table or floor area. Ask your children to go out in partners to find an item in the room they could bring back which will in some way match one of the shapes on the sheets.

**Teacher:** Sharon and Jose, can you show us what you brought to the Shape Sheets?

**Children:** We brought a yellow pattern block.

**Teacher:** Class, on which sheet could we place that?

**Children:** It can go on the hexagon!

**Teacher:** Good work! Who else brought something?

**Children:** We brought the globe.

**Teacher:** Wow, that is a big item. Where do you think it should go?

**Children:** We want to put it on the circle.

**Teacher:** Great! What else do we have?

**Children:** We brought the Fisher Price people from the village.

**Teacher:** Where do you think they should go?

**Children:** They have round heads...how about on the circle?

And so it goes, exploring the items the children have brought and discussing where they might best be placed on the Shape Sheets.

This activity can also be reversed by looking at the items on the sheets, describing them in shape, size and color, and asking the children to find the item you're describing and return it to its place in the room.

**Teacher:** I'm looking at an item on our Shape Sheets that has two sides longer than the other two sides.

**Children:** She's looking at the rectangle.

## SHAPE WALKS

If possible, divide your class into smaller groups and assign a parent to each group. Go on a school neighborhood shape walk searching for a particular shape. Each time that shape is discovered, stop and discuss it. If every group will be covering the same route, it's fun to leave a paper shape taped on the sidewalk every time your group discovers the shape of the day. Write the name of what they are seeing on the underside. For instance, if you are searching for rectangles and they've noticed the garage door is that shape, write garage door on the paper rectangle and tape it name-side down. Subsequent groups have a good time seeing if they can figure out what the prior group saw. (Be sure to

**Teacher:** It's larger than the building block and smaller than the book.

**Children:** It can't be that Big Book Gary brought.

**Teacher:** If it were mine, it might have a sandwich and some fruit inside.

**Children:** It's Jennifer's lunch box!

**Teacher:** Can you return it to your cubby, please?

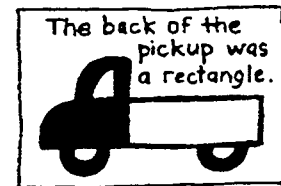
**Teacher:** Who would like to try giving some hints about another item on our sheets?

**Child:** I would and Humberto is going to help me.

Continue in this way unloading the items from your sheets, exploring all kinds of descriptive language. If a child can't give enough hints, have them whisper the item name to a friend or two and they then work together to give two or three hints.

have a clean-up committee gather all papers after the walk.)

Once you are back in the classroom, ask children to draw one of the rectangles they saw on the walk and create a Shapes Book for the class utilizing their drawings and descriptions.



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## Three-Dimensional Shape Activities

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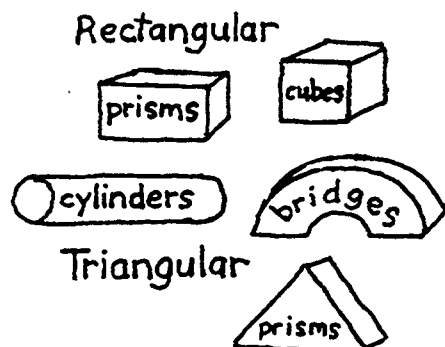
The activities that follow are dedicated to the late Buckminster Fuller who delighted us, excited us, and challenged us with his wondrous approach to the magnificent world of three-dimensional structures and the grand potential of mankind.

Except for the explorations with the classroom Big Blocks, most of these activities would be best done

late in the kindergarten year. They are difficult but very rewarding. They use the children's understandings of flat shapes as a beginning foundation for exploring the three-dimensional world. We explore cubes, cones and cylinders since they are easily recognizable and are part of the children's everyday world.

## CLASSROOM BIG WOODEN BLOCKS (or any classroom building blocks)

Label the storage area for your blocks with the names and outlines of each kind of block.



This gives the children lots of practice matching shapes to pictures and over time helps them learn the names of these three dimensional shapes

The Big Blocks should be available for children to use daily. Much of that time should be for their own exploration and discovery. When you'd like to structure their use, here are some ideas:

Plan your building. (The children draw a simple design of a structure they'd like to

build. They copy their plan just like architects and builders!)

Copy your building. (The children build a structure and then copy the design onto paper.)

3. Copy the teacher's designs. (The teacher draws some pictures of different building designs or uses simple magazine pictures—boats, tree houses, houses, lemonade stands, a doghouse, a brick wall, etc.)

Build a building using only one kind of block. (This lends itself to very interesting discussions comparing the ease and difficulty of building with particular shapes.)

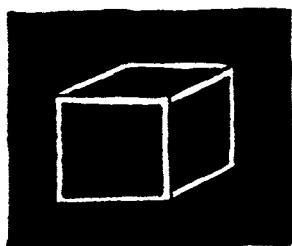
Choose two different kinds of blocks with which to build. (Discuss as before.)

Build a bridge over water (fingerpainted water is even more fun than just blue butcher paper). Which blocks work the best? Which make the sturdiest bridge? Which make the longest?

## CUBE SEARCH

**You will need→** a large piece of chart paper

Tape a large sheet of paper to the chalkboard. Ask the children what they think a cube is. As they describe it to you, draw a picture of it on the chalkboard.



**Teacher:** Can you think of any item in your home or here at school that people call a cube?

**Child:** Yeah...my dad uses a flashcube on his camera.

**Teacher:** What does that look like?

**Children:** We've got some of those. It's sort of like a box.

**Teacher:** Let me draw a square on my paper. Is this what you mean?

**Children:** No, that's just a square. A flashcube has lots of sides.

**Teacher:** How many sides? Can you think of any cubes we have here in the room? If we could find one, we could count the sides.

**Children:** How about our colored cubes in the Choosing Box?

**Teacher:** Great, would you get that basket of cubes and we'll count the sides of a cube.

**Children:** 1, 2, 3, 4, 5, 6,...6!

**Teacher:** Can you think of any other cubes in the room?

**Children:** Yeah! Unifix cubes.

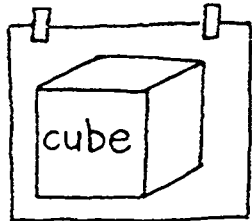


**Teacher:** Let's look at some of those. How would we count them?

**Children:** If you count the hooker side and the open side, there are six again.

**Teacher:** Good. We do need to count all those sides.

**Teacher:** It's hard to draw a cube on flat paper but here's how people usually picture a cube when they draw it.



**Teacher:** Does it look like one of our cubes?

**Children:** Sort of, but you can only see three of its sides.

Lay the paper with the cube drawing on the rug. Ask the children to go out in partners to search the room for a cube to bring back to the rug. (They might find dice, unifix cubes, plain wooden cubes and boxes.)

## BUILD A CUBE

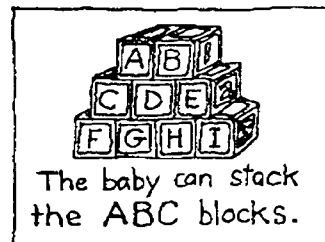
Challenge small groups of children to work together using the plain wooden cubes to build a larger cube. Remind them that all the sides must be the same size. Keep a record of the larger cubes each group manages to build.

As cubes are completed, it helps children who are struggling if you have them look at finished cubes and count how many small cubes were used.

Once there is a good collection of cubes, ask the children how they might be sorted. Sort in as many ways as they suggest, always looking for more ways: large/small, plastic/wood, closed all around/open on some sides, hook together/don't, etc.

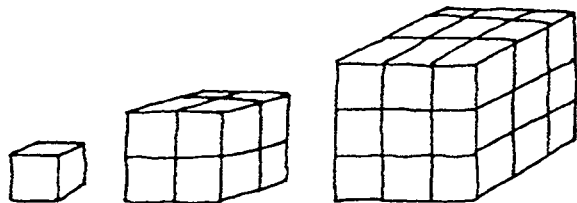
After the cubes have been sorted, write a brief story about the ways the class sorted on the chart paper with the drawing of the cube.

You may want to have children search magazine pictures another day to find cubes. These could be pasted on a chart or on Big Book pages. Be sure to include their descriptions.



Tell the children you've been wondering about butter cubes. Ask them if they think cube is a good name for butter sections. Perhaps they could think of another name.

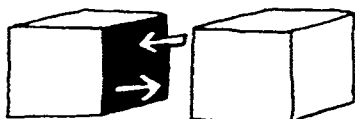
Finished cubes could be copied by other groups if they're unable to build a new cube of their own.



## CUBE CHARACTER ART

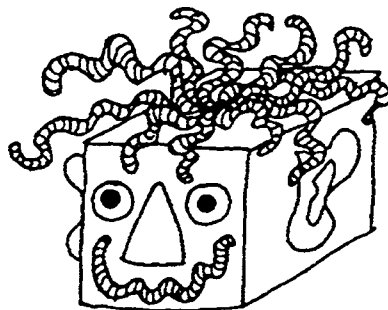
**You will need→** a collection of children's school milk cartons, 2 per child, prepared by parent helpers as instructed below

Ask parent helpers to cut the tops of the milk cartons off to make the sides square. Push one carton (open side) into the other to make a closed sturdy cube. Spray-paint in assorted bright colors.



Have the children select a cube. Have them use colored construction paper, glue, yarn and felt scraps to turn their cubes into characters. Eyes, ears, mouths, noses and hair make charming additions. Some children may try bow ties, hair

ribbons and even hats. Display the finished cubes a few days before they are sent home—they're quite captivating!



## THE CYLINDER

Show your children a cylinder. (A large wooden building block cylinder is good.) Ask them to think of things that are cylinders. Make a list. (They may suggest soup cans, juice cans, paper towel rolls, toilet paper tubes or rolls, towel bars, garden hoses, pipes, etc.)

Draw a large cylinder on a sheet of butcher paper. Send each child home with a note to find a cylinder and bring it to school the next day. (Make sure you give some examples in your note.)

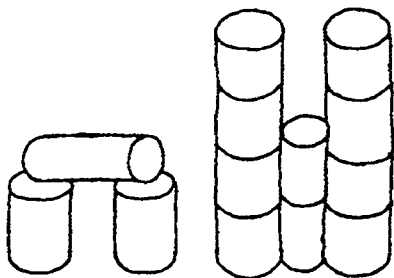
The next day, label each cylinder that is brought to class with the child's name. Display and discuss

the various cylinders and find various ways of sorting them.

Children also enjoy searching magazines for pictures of cylinders. Ask partners to search for appropriate pictures and create a Big Book with their findings.



## CYLINDRICAL STRUCTURES



Ask your children to save cylinders at home. Once they have saved five or more, have them bring them to school.

Challenge the class to work in partners or small groups to build structures. When work is finished, take pictures of the wondrous creations and make Big Book pages describing the efforts. (How did it work? How did you decide what to do? How many cylinders did you use?)

Were there any problems? Did you find ways to solve the problems?) After the cylinders are no longer needed for building, sort them in many ways.

As a final step, children could paint remaining cylinders with tempera paint and create

Cylinder Creatures similar to the Cubes Characters. Display and enjoy.

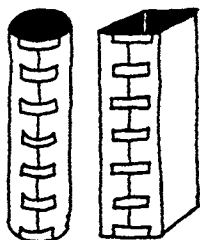


## BONES

**You will need→** two sheets of 9 X 12 tagboard  
 tape  
 many books of the same size  
 for each child: chalkboard, chalk and eraser

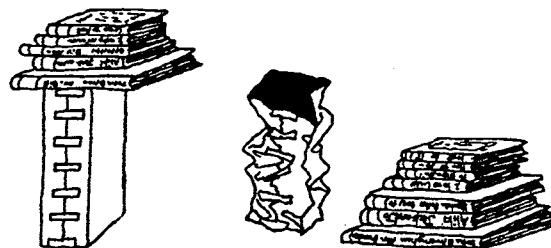
(Adapted from Marilyn Burns' book, *Blood and Guts*)

When you do a science or health unit about bones, it is fun to explore why certain things such as the long bones of our legs are cylindrical in shape.



Curl your two sheets of tag into cylinders and tape. Leave one as a cylinder but crease the other to make it a rectangular prism. Both will have open ends.

Again, ask one child at a time to stack a book. The children count and tally the books on their individual chalkboards as the books are stacked. Continue stacking until the cylinder collapses. Recount the books used. Compare the two stacks.



Begin by asking one child at a time to stack a book on the rectangular prism. Keep adding books until the prism collapses. Count the number of books you were able to stack and place them beside the crumpled prism.

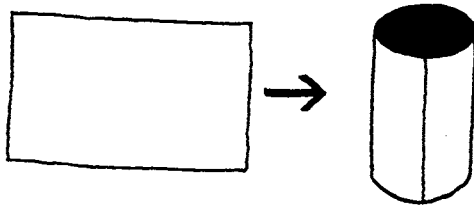
Write a chart story about the graph you have generated. Ask the children why they think we have cylindrical leg bones.

Ask the children to estimate the number of books that can be stacked on the cylinder.

## THE MAGIC RECTANGLE

**You will need→** a 6 X 9 piece of colored construction paper  
 for each child  
 a basket of art scraps (1 basket for every 4 children)

Demonstrate how the magic rectangle can be curled and carefully glued to make a cylinder.



Send your group out in fours or less to help one another curl and glue their cylinders. Provide baskets of decorative materials (felt, cut paper, buttons, sequins, pipe cleaners, etc.) so children can decorate their magic rectangles now turned cylinders. Display and enjoy.

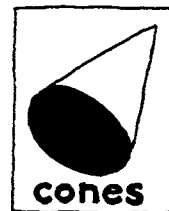
## CONES

**You will need→** a cone-shaped birthday hat  
a 12 X 18 piece of white construction paper per child

Place a birthday party hat on your head. Ask the children what shape the hat is. Brainstorm together things that are cone-shaped. (It often helps to let them look through magazines.) Make a list. (They may suggest: snowcone cups, cotton candy handles, clown hats, ice cream sugar cones, horns, etc.)

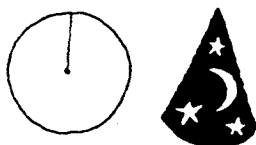
Ask each child to either use a cut out magazine picture or to draw a cone for a Big Book page. Ask them to write a descriptive sentence in best guess spelling on a piece of scratch paper. (Some may write in squiggles and lines, others may get some random letters, others may use beginning and/or ending sounds and a few may even try to include some vowels.) Have

them read their descriptive sentences to you and commend them for their fine efforts. (Every child has a starting point and all will grow in their own ways and own times.) Rewrite their sentences in adult spelling (let them know it takes a long time and a lot of practice to learn to spell well) on their cone pages and assemble the pages into a Big Book of Cones.



## CONE HATS

**You will need→** assorted colors of 12 X 12 construction paper, one per child, each drawn with a large circle and a 6" radius line



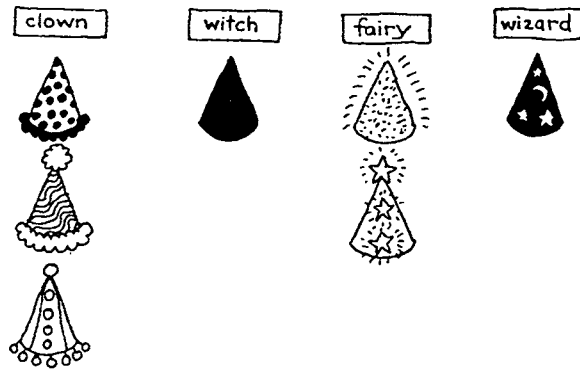
an assortment of cut tissue paper, yarn, cotton, glitter, paper scraps, felt, lace scraps, etc.

In preparation for this activity, it would be nice to select and read several stories in which the characters wear cone-shaped hats, such as *Little Bear's Visit*, *Little Witch*, and *The Clown Arounds Have A Party*.

Make a list of hats that come in cone shapes. The list might include:

clown hats	party hats
court jester hats	goblin hats
wizard hats	fairy hats
dunce caps	witch hats
Santa hats	elf hats

Discuss with your children which cone hat they would like to make. They choose a color and cut out the circle. They cut along the radius line stopping at the line's end. Demonstrate how to curl the circle into a cone and glue. When every hat is finished, lay them out in graph form by kinds of hats.



## Moving To the Practice and Enrichment Boxes

*When you feel your class is ready to spend several weeks in concentrated work with Shapes, plan to begin introducing the Shapes Practice and Enrichment Boxes (the activities you and parent helpers have put together from the Shapes packet.) If you've been working on the Reading, Writing and Understanding Numerals 0-10 Boxes, you'd begin replacing one or two of those activities daily with a Shapes Box or two. Here are two sample lessons that introduce box activities to the entire class:*

### SHAPES FLOOR GRAPH

**You will need→** chart paper graph (Mark off six 5" columns and six 5" rows, as shown below)

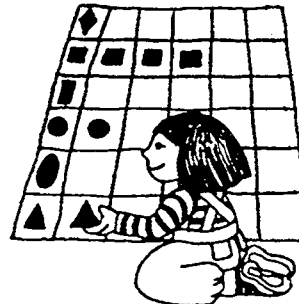
Shapes Die (blackline supplement)

6 copies of each shape on die (blackline supplement)

Ask your class to join you on the class rug. Distribute the shapes to the children until five of each shape have been handed out. (Some children may be holding more than one piece if you have a small class. It is important they have the same shape rather than two different shapes.) Tell the children you'll need them to sit together in Shape groups.

Lay out your chart paper graph and show the children the large die. Name the shapes together and show them how you have saved one of each of those shapes to lay out at the bottom of each column of the mat. Ask helpers from each group to place one of those shapes in the appropriate spots.

Begin sorting the children by placing all the people with curved edge shapes together in the middle. Separate them by circles and ovals and ask them to sit down together on the edges of the rug. Continue calling shape groups until all like shapes have been seated together at the edge of the class rug.



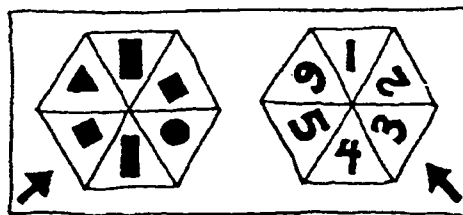
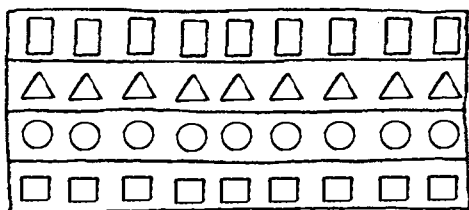
Have Shapes teams take turns sending a child to roll the die and begin building the graph, one shape at a time based on each roll. Be sure everyone helps by naming the shapes with each roll. Work until you have a first, second and third place winning

shape. Discuss how this game could be played with only a few children.

When most of the children seem to understand, put the pieces back into the box and make it available the next day during Independent Practice Time.

## SPIN AND COUNT

**You will need→** the Spin and Count spinner (blackline supplement)  
for each child:  
a crayon  
a copy of the Spin and Count gameboard (see blacklines)



Ask your class to join you in the class meeting area. Distribute chalkboards, crayons and copies of the gameboard but ask them to be very careful to not mark on their papers yet.

Show them your spinner and discuss how it works. Name the shapes on your spinner and have them notice how those are the same as the shapes on their papers.

Decide whether they'd like to play against you or divide into two teams.

**Teacher:** *Since you want to play against me today, I'll let you have the first spin. Let me find a name in my feely box to spin both spinners.*  
*Jackie...*

**Children:** *Oh boy! Here goes. Yeah, four squares.*

**Teacher:** *OK. With your crayons, carefully put an X over four of your squares.*  
*One, two, three, four!*

**Teacher:** *Now, it's my turn. I'll spin.*

**Children:** *You got three squares.*

**Teacher:** *I'll mark off three.*

**Children:** *We have more. How do we win?*

**Teacher:** *The first team to mark off a whole row wins, but we'd better decide on some rules. Do you think we should have to have an exact number on the spinner to be able to finish a row?*

**Children:** *We've got five more squares to mark to finish the square row.*  
*Yeah, let's try it this time by saying it has to be exact or you can't mark.*

And so the spinning and marking goes. Be sure to stop and find out which row has more shapes marked off, count how many remain, notice that if you added the marked shapes in a row to the unmarked shapes, you'd have the total shapes in that row. Once the children have tried out their rules and most seem comfortable with the game, add the Box version to your Independent Practice Time.

Most of the Box activities lend themselves to some kind of group adaptation. Involve the children as much as possible in the modeling of each new Box and be sure they seem to understand what is expected of them when they work there. If confusion seems rampant once you've gotten out several boxes, begin your new day by reviewing the

materials out so far and the expectations you have for each activity. (We find we often get very excited about moving to a new set of Boxes and get them out so quickly, we thoroughly confuse our children.

It's easily remedied, however, through several days of review and even pulling back a few boxes if needed until they really understand the learning behaviors you expect.)

**The Shapes Practice and Enrichment Boxes include:**

Shapes Floor Graph

Feely Box Shapes

Shapes Sorting

Shapes Lotto

Felt Shapes

Shape Templates

Shapes Mat

Shapes Race

What's Missing?

Shapes Search

Rotten Rectangle

Templates and Spinners

Play Dough Shapes

Spin and Count

Elastic Shapes

Shapes, Spinners and Scissors

## Chapter 16

# INTRODUCTION TO MEASURING

*Comparing and measuring are real world skills near and dear to the hearts of children. Well before they enter kindergarten, youngsters are interested in making comparisons between things in the world around them. Which carrot is shorter? Which car goes faster? Which piece of cake is bigger? Who has more blocks—you or me? Long before they understand inches or pounds, they want to know how tall they are and how much they weigh. It is surely the rare child who isn't fascinated by the household tape measure or who doesn't want to help bake cookies.*

We like to capitalize on children's early interest in measurement by offering them many experiences with length, weight, capacity, duration, and quantity. Kindergartners develop beginning understandings by comparing; becoming familiar with such concepts as heavier, lighter, longer, shorter, bigger, smaller, more, less, and the same. We've been astonished and amused to find out how long it takes for such understandings to grow, however. Year after year we watch little ones with the measuring strings—a set of eight color-coded strings that match the length of eight marked items in our classrooms. They pick up the green string, trot over to the marked table, stretch their string out carefully, so carefully. Does it match the length of the table? Nope. Too short. They try the string along the edge of the calendar. Too long. The wastebasket's next. Ah ha! Just right! Back they scamper to color their record sheet. The green string matches the wastebasket! Now for the red string. It looks shorter than the green string. Pick it up, stretch it

out, and head...straight for the wastebasket! We intercept them in mid-flight.

"Honey, didn't you just discover that the green string matched the wastebasket?"

"Uh huh."

"Then why are you taking the red string over there when you know it'll match something else?"

Crushed. But on they push to try the red string against the wastebasket, just to be sure it doesn't match. Many will repeat the entire Measuring Strings activity several times before they begin to develop the understanding that because the red string is shorter than the green string it will not match the wastebasket; before they no longer have the need to confirm their perceptions by checking once more just to be sure.



No amount of teacher demonstration and explanation will foster development of the concepts that lead to understanding measuring. What's needed are direct, hands-on experiences with length, weight, capacity, duration, and quantity. Seasonal math is filled with such opportunities; beginning activities in measurement have been built into every month. These lessons set important foundations all year long. We offer the Introduction to Measuring

Practice and Enrichment Boxes in the spring to help children extend and consolidate their understandings. If you haven't been able to work Seasonal Math in on a regular basis, we suggest you go through chapters 1-9 and choose some introductory measuring activities to do with your class before you introduce the boxes. You may also want to do the following lessons as you bring out the first few activities.

## Group Lessons

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### Comparing Length

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#### SECRET EGGS

**You will need→** 8 plastic hollow Easter eggs or L'eggs eggs  
1-3/4 yards 1" wide grosgrain ribbon, cut into the following lengths: 2", 4", 4", 8", 8", 9", 10", 12"  
an empty egg carton

Curl each ribbon into an egg, put the eggs in the egg carton, and you're set to go.

**Teacher:** Boys and girls, we're going to talk about length today. Does anyone know what length means?

**Children:** No.

**Child:** A ruler?

**Child:** Oh, I know—it's how long stuff is.

**Teacher:** (Show the plastic eggs in the carton.) There's something inside each egg that will help us learn about length.

**Children:** It's candy!

**Teacher:** How could candy help us learn about how long things are?

**Children:** Ummmmmm.... Maybe it's long candy?

**Children:** Yeah, like those long licorice ropes! But they're too big to fit in the eggs.

Allow children to speculate for a minute or two about what might be in the eggs. Then call a child up to be your partner.

**Teacher:** Carly will be my partner. Carly, will you open one of these eggs?

**Carly:** Sure. Oh—it's a ribbon! Look how long it is!

**Teacher:** Now it's my turn. I'll open an egg too. Do you suppose mine will have a ribbon in it?

**Children:** Yes.

**Children:** No! Candy!

**Teacher:** Let's see. It's a ribbon all right, but it's not the same length as Carly's.

**Children:** Yeah! It's little.

**Teacher:** It looks shorter, doesn't it? How could we find out for sure?

**Children:** You can tell just by looking. Put them next to each other.

**Teacher:** You mean like this?



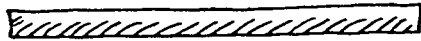
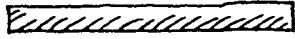
**Children:** See? Carly's is longer!

**Child:** I think you should put the ends even at the bottom.

**Teacher:** Oh, why?

**Children:** So they both start at the same place. That way you can tell better.

**Teacher:** Like this?



**Children:** Yeah. Now Carly's ribbon is even longer!

**Teacher:** Yes. My ribbon is shorter and Carly's is longer. There are more eggs to try. Neil, will you come up and be my next partner?

**Neil:** OK.

**Teacher:** You pick an egg and open it.

**Children:** Look! Neil got a little ribbon. Teacher's will be longer this time.

**Teacher:** I'll open my egg now.

**Children:** Teacher's is little too.

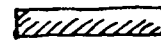
**Teacher:** Whose ribbon do you think is longer this time?

**Children:** Teacher's!

**Children:** Neil's!

**Children:** No, look, they're both the same.

**Teacher:** I'll lay them out so we can see.

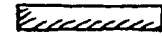
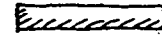


**Children:** No! You laid them out wrong. Put the ends even at the bottom!

**Teacher:** Why?

**Children:** Because it's wrong the other way.

**Teacher:** Oh, you mean I have to lay them side by side like this?



**Children:** Yes. Now we know they're the same.

**Teacher:** Right. The same length—equal in length.

Call two more children to be your partners. By then all the eggs will be opened, and the task will be completed.

Make this activity, described in the Introduction to Measuring packet, available during Independent Practice Time the very next day, putting one of the less-used Shapes Boxes away. Secret Eggs is so popular it's nice to have two sets available so four children can participate.

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## Comparing Weights

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### WEIGHTS IN A BAG

**You will need→** 8 common household or classroom items of varying weights (a block, a tennis ball, a box of crayons, a candle, small plastic toys, etc.) Place in a large feely bag (Materials Index) or a large paper sack with the top scrunched together so children can't see in.

an arm balance scale or two milk box scales (Materials Index)

**Teacher:** Today, we're going to compare the weights of some objects on our balance scale. Does anyone know what the word "weight" means?

**Child:** Is that how heavy something is?

**Child:** My mom's always saying she weighs too much!

**Child:** The scale will show that something's heavier and something's lighter!

**Teacher:** I need a partner for this activity. Let me pull a name out of my feely box. Danny! Come on up and sit beside me. I'll reach into this bag and pull something out. Oh, here's a wooden block! Now it's your turn. You got a toy plastic boat? Which one do you think weighs more?

**Danny:** The block!

**Child:** Yeah! I know it's heavier.



**Teacher:** Here, take my block in one hand and your boat in the other. Which one feels heavier?

**Danny:** The block.

**Teacher:** Hand me the block and the boat, will you? Let's see—the block feels heavier to me too. Let's check it on the scale. Boys and girls, I'm going to put the block into the pan on my side, and Danny's going to put the boat into the pan on his side. Show me with your arms how you think the scale will look when we're done.

(Children demonstrate.)

**Teacher:** Many of you seem to think my side of the scale will go down. What makes you think so?

**Child:** The block's going to be heavier than the boat.

**Child:** Yeah! It'll make your side of the scale so heavy it'll go down to the floor.

**Teacher:** Let's see what happens. Danny, will you put your boat into the pan on your side?

**Children:** Look! His side of the scale went down!

**Teacher:** Now I'll put the block in on my side.

**Children:** Wow! Teacher's side is way down to the floor now. That block is heavy!

**Teacher:** The block is heavier—the boat doesn't weigh as much—it's lighter.

There are six more items to be pulled from the bag, so you can repeat the sequence three more times, calling a different child to be your partner each time.

Set this activity up the way it's described in the Introduction to Measuring Packet and make it available during Independent Practice Time the next day. Children will be anxious to try it for themselves.

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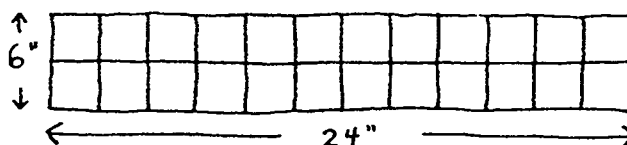
# Comparing Quantity

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## ZIPLOCKS AND GRAPHS

**You will need→** 8 one-quart ziplock bags filled with objects varying in quantity from zero to twelve. Small toys are fun—blocks, dominoes, matchbox cars, etc. You might have 4 dominoes in one ziplock, 5 pattern blocks in one, 7 puzzle pieces in another. Place the 8 filled and closed ziplocks in a sturdy paper sack. Scrunch the top of the bag together so children cannot easily see into it.

4 small graphs made from white paper or tag and laminated (6" wide, 24" long)



**Children:** You've got another one of those bags out today.

**Teacher:** Yes. We're going to compare quantity this time.

**Children:** Quantity? What's that mean?

**Teacher:** Quantity means how many.

**Children:** Hm m m m m...

**Teacher:** Benito, your name just came out of the feely box. Will you come be my first partner?

**Benito:** OK.

**Teacher:** I'm going to reach into the bag and pull out...a ziplock bag.

**Children:** It's got stuff in it.

**Teacher:** Yes. It has some pattern blocks—hexagons.

**Children:** How many?

**Teacher:** Let's count. 1,2,3,4,5—five hexagons. It's your turn, Benito.

**Benito:** I got a bag with legos—six legos.

**Children:** Benito got more things in his bag.

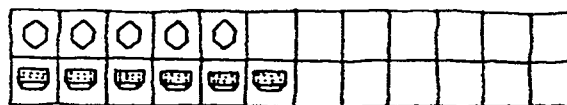
**Teacher:** How do you know?

**Children:** Because six is more than five.

**Teacher:** Is there any way we could show that Benito has more without counting?

**Children:** Ummmm... Put the things out on the floor together—like a graph!

**Teacher:** OK. I have a small graph here to help. I'll put the hexagons down on my side, and Benito can put the legos on his.



**Child:** He got one more than you did.

**Child:** Yeah! 'Cause six is one more than five.

**Teacher:** And I got one less than Benito did, right?

**Children:** Right!

Repeat the comparing sequence with the six other ziplocks and the three remaining graphs, calling up a different child to be your partner each time.

Make this activity available during Independent Practice Time the next day.

# Comparing Capacity

## THE MEASURING JAR

### You will need→

a measuring jar (Run a strip of masking tape from the bottom to the top of a jar with straight sides, such as a 10-oz. pickle or olive jar. Mark the tape at even intervals from 1-10.)

several other wide-necked jars of varying shapes and sizes

a funnel (the top of a plastic quart pop bottle is great)

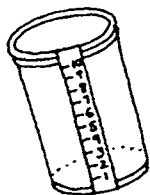
rice in a dishpan or a large cookie tin with a lid (to prevent mice) and a scoop or a spoon

several large sketches of Measuring Jar record sheets on easel paper

for each child:

a crayon

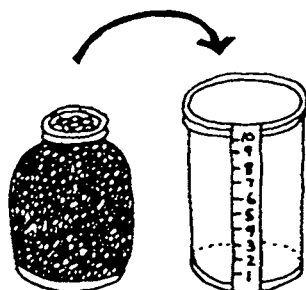
3-4 small Measuring Jar record sheets (blackline supplement)



**Teacher:** Today we're going to compare how much rice these jars will hold. We'll be comparing capacity.

Fill one jar with rice. Tell the children you're planning to pour the rice from the jar you just filled to the Measuring Jar. Ask them to predict the level to which the Measuring Jar will be filled by coloring in the "guess" side of their record sheet. Model the procedure by coloring the "guess" side of your own large record sheet.

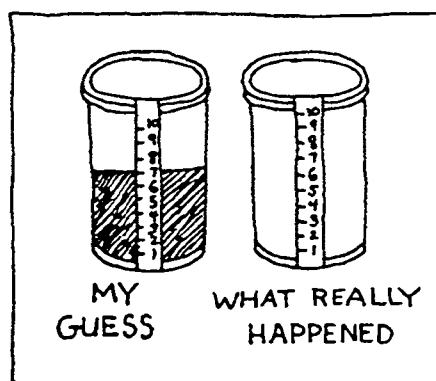
**Teacher:** How high will the measuring jar fill when I pour in the rice from the other jar?



**Child:** I think it'll come up to line number seven. That's how I'm going to color my guess.

**Child:** Me too.

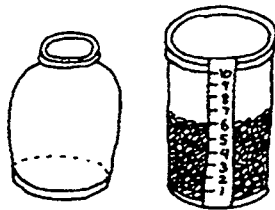
**Child:** I think it'll come clear up to the ten. I'm going to color the whole jar.



When all the children have colored in a guess, pour the rice from the first jar to the Measuring Jar. Have everyone color the right side of their sheet to show what actually happened.

**Teacher:** We were really close. The first jar filled the Measuring Jar to Line 6. Which jar holds more rice?

**Children:** The Measuring Jar must be bigger.



**Teacher:** Why?

**Children:** Because the rice from the first jar didn't fill it up all the way.

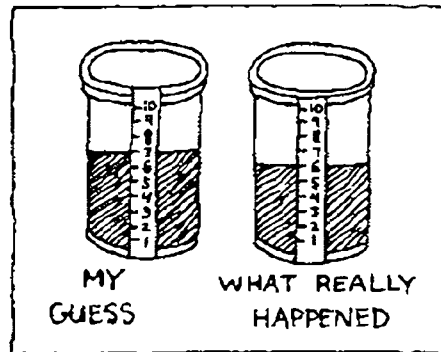
**Teacher:** Let's record what happened.  
(See illustration below.)

**Teacher:** Do you think any of our jars would fill the Measuring Jar to the top?

**Children:** Yeah. Let's try that really big one next. That'll fill it!

**Children:** That'll make the Measuring Jar overflow!

Repeat this activity several times. Have the children record their guesses and what really happens each time. Make The Measuring Jar available during Independent Practice Time right away—many children will want to repeat the experiment with other jars on their own.



## Moving to the Practice and Enrichment Boxes

*Because measuring has to be experienced directly by the learner to be understood, your efforts as you move from the Shapes Boxes to Introduction to Measuring Boxes should be focused on modeling the activities thoroughly, but getting them into the children's hands as quickly as possible. If children seem to be having difficulty with a particular activity, take time to teach it again until most youngsters understand. Remove a Shapes Box each time you add a new Introduction to Measuring activity.*

**The Introduction to Measuring Packet includes:**

### Length

Which String?  
Sticks in a Bag  
Cubes in a Bag  
Secret Eggs

### Weight

Weighing Cards  
Which is Heaviest?  
Weights in a Bag

### Capacity

Fill and Mark  
The Measuring Jar  
Cups to Fill

### Duration

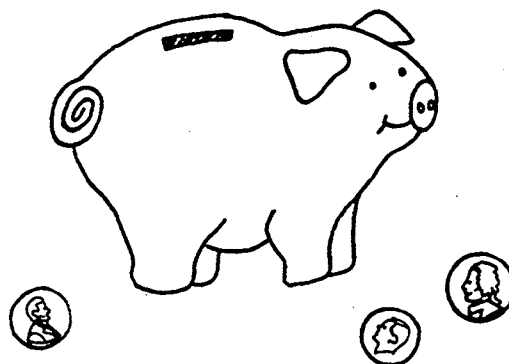
How Much Time?  
Sinkers

### Quantity

How Many?  
Egg Carton Graphs  
Ziplocks and Graphs

## Chapter 17

# MONEY



*Money may be the most complex mathematical concept we teach in the early grades. Coins by their very nature are abstract. Most four year olds are convinced that fifteen pennies is a much greater fortune than four dimes. What a leap of faith we ask our primary children to make when we tell them that a nickel is worth five times as much as a penny and that one skinny little dime is worth twice as much as that nice fat nickel which looks so much like a quarter it's hard to tell the difference! The counting skills necessary to count even small sums of money are formidable: rote counting, one to one correspondence, and all the possible combinations of counting patterns for ones, fives, tens and twenty-fives.*

*It takes children a long time and many, many experiences to gain the skills and understandings to deal with money. The good news is that money is magic to many youngsters. It supplies students with a wonderful real-life reason to learn. By the time you're ready to start teaching Money, many of your students will have started to piece some understandings together, particularly if you've done Seasonal Math and Calendar activities, some of which provide daily practice in the skills necessary to count money. (See Part Three, The Calendar, for The Numberline Strip, The Tally Pad, The Date in Tens and Ones and Money Pockets.) Your large group instruction and provision for independent practice will help children understand many more parts of the puzzle.*

Our money instruction goals aim for the following understandings:

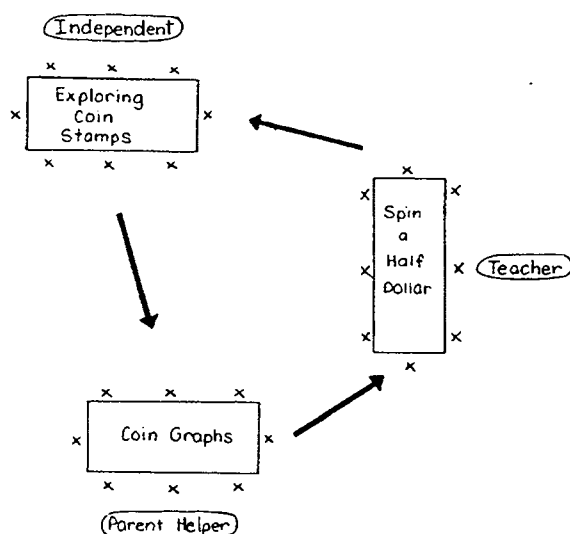
penny, nickel, dime and quarter  
coin recognition  
coin names  
coin values

Plan to offer concept instruction for two to three weeks using the group lessons that follow.

Some of the group lessons are whole-group versions of the Boxes and provide direct instruction as well as introducing the games children will use for practice and reinforcement. As children seem to understand these activities, add them to the set of boxes you are currently using and remove some of the less popular boxes. In this way, Independent Practice Time will gradually change from your previous topic to Money.

A few of the lessons are short—you'll want to do two or three of them in one period. A few of them work best with small groups (one third to one half of your class.) Depending upon your class size, you might want to set up three activities. Supervise one yourself, get a parent helper or older child to supervise another and have children work independently at the third. Divide your class into three groups and rotate them three times allowing about ten minutes per activity.

Another possibility is to have half your children work at the Boxes while you take half for large group instruction. Switch groups mid-way through your math period.

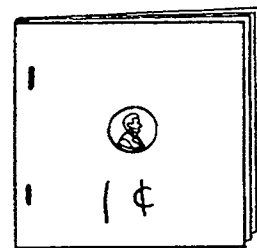


## Group Lessons

### Coin Recognition/Coin Worth

#### EXPLORING COIN STAMPS (Small Group)

**You will need→** coin stamps (Materials Index)  
 paper (3" X 3" sheets)  
 silver and brown crayons  
 (ask children to bring silver crayons)



Children stamp coins and then color them in appropriate colors of silver or brown. When they

finish this activity, they staple their pages into a little booklet.

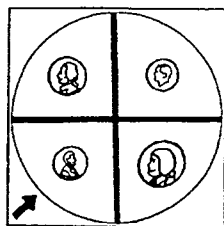
#### COIN GRAPH (Small Group)

**You will need→** real pennies, nickels and dimes  
 coin stamps (Materials Index)  
 Coin Graph spinner (blackline supplement)  
 copies of Coin Graph record sheet (blackline supplement)



There are several ways to use the record sheet:

1. The easiest way is to spin the spinner, call out the coin name and place the coin in the appropriate column. Work continues until a column is filled. (See first graph below.)



2. Another way is to spin the spinner, call out the coin name and color a box in the appropriate column. (See middle graph below.) Work

1¢	5¢	10¢	25¢

1¢	5¢	10¢	25¢

1¢			25¢
1¢		10¢	25¢
1¢	5¢	10¢	25¢
1¢	5¢	10¢	25¢

continues until a column is filled (though many children enjoy trying to fill all the columns).

3. A variation is to have children stamp and color the coin indicated by the spinner. Work continues until at least one column is filled.
4. Another variation is to have children write the coin value in each column after they have had some guided instruction in writing the numerals and cent signs. (See third graph below.)

Once most of your children seem to understand this activity, add the boxed version to the set of activities you are currently using during Independent Practice Time. You'll want to remove a less popular box from the old set.

## SPIN A HALF DOLLAR (Whole Group)

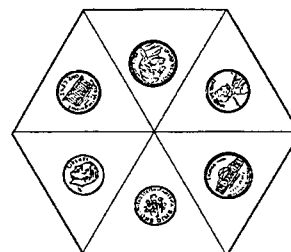
### You will need→

Spin A Half Dollar spinner  
(blackline supplement)

*for each child:*

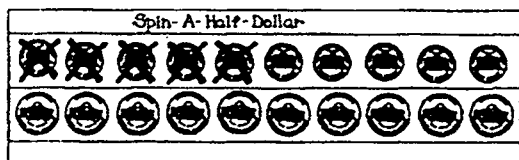
Spin A Half Dollar gameboard  
(see blacklines)

a blue or red yarn necklace



**To Play:**

1. The teacher spins the spinner and calls out "nickel" and the class responds with "five cents" and then marks off five of their pennies.



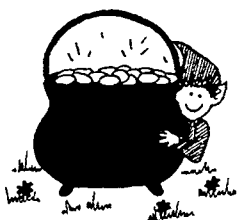
2. Play continues until the gameboard has been completely marked off. (Encourage children to help one another as they work. Stop often to count the money that has been marked off, as well as the remaining money.)

After the children understand the game, it's fun to break into partners and play again. An easy way to manage this is to have two sets of yarn loop necklaces, blue and red, perhaps. That way, you call out "blue spin...a dime" or "red spin...a nickel" as teams take turns responding by calling out the value and marking off the appropriate number of pennies on their game sheets.

Add the boxed version of this game to the set of boxes currently in use. (You may wish to remove one of the older boxes if you don't like having too many materials out at any one time.)

**MONEY MARCH (Small Group)****You will need→**

Money March spinner (blackline supplement)



a copy of the Money March gameboard for every two children in the room (see blacklines)

*for each child:*

unifix cube game marker

a blue or red yarn necklace

**To Play:**

1. Partners put on a red or blue yarn necklace.
2. The teacher spins the spinner and calls out the coin name "dime" for the blue team.
3. The blue partners call out "ten cents" and move their unifix cubes forward ten spaces.
4. The teacher spins and calls out a coin name for the red team.

5. The reds call out the proper value and move their markers forward the appropriate number of spaces.
6. Continue in this manner until one of the teams reaches the pot of gold.

Once most of the children understand how the game is played, add it to your Independent Practice Time collection.

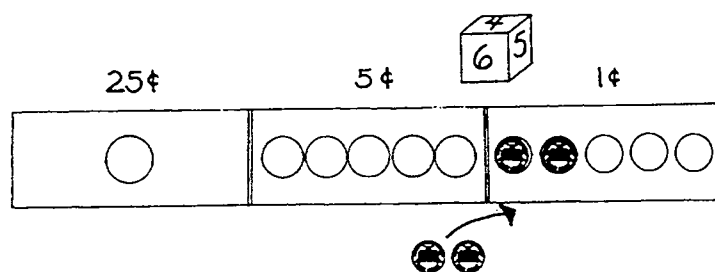
**SPIN TWENTY-FIVE CENTS (Small Group)****You will need→**

copies of Spin Twenty-Five Cents trading boards for each player (see blacklines)

5 pennies and 5 nickels per player

die marked 1-6

yarn necklaces to label partners



### To Play:

1. Roll die. All players call out the amount indicated.
2. The red partner sets out that amount, shows partner and then moves the coins onto their trading board (see illustration above).
3. Play continues in turn with partners setting out appropriate amounts and making coin trades

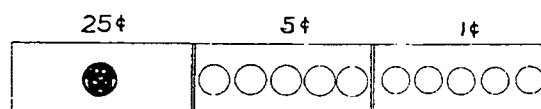
when needed until one of the partners reaches 25¢ (see illustration below).

4. It's fun to reverse the game at this point and race back to zero. To go backwards, play begins exactly as the boards were when one child won. (This keeps the spirits high for the loser!)

As soon as most everyone understands the game, add it to your Independent Practice Time collection.

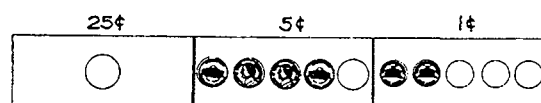
Red Partner:

This child won and now has a quarter!



Blue Partner:

This child won and now has 22¢!



## Counting Sums of Money

### PEOPLE COINS WARM-UP (Whole Group)

**You will need→**

30 large paper "coins" cut from gray and brown paper labeled 1¢, 5¢, 10¢ (10 pennies, 10 nickels, 10 dimes) or commercially-made large coins

individual chalkboards



Hand out the pennies to five children. Have them form a line in front of the group and hold their coins in front of them. Ask the audience to silently figure out how much money is up front. Call on

someone to report the total. (We pull a name from our feely box. If that child is unable to respond, he or she is free to ask another child to help.) After the total has been reported, have everyone count the sum together, 1,2,3,4,5...five cents!

Repeat using five nickels, then five dimes. Discuss which counting pattern will need to be used in each case.

## PEOPLE COINS

### Counting Mixed Sums (Whole Group)

Hand out two kinds of paper coins, nickels and pennies for example, to 5-7 children in random order. Have each child go up to the front of the group with the coin as they are chosen so you wind up with the coins in random order.



**Teacher:** Sometimes people move coins around to make them easier to count. I'm going to pull a name out of the feely box. That person may move one coin-holder. Coin-holders if you're asked to move, please do so. Here comes a name! Mark!

**Mark:** I'm going to move Jane next to Marisa.

**Teacher:** Why?

**Mark:** Cause she's holding a nickel and I think the nickels should be together.



**Teacher:** Here's the next name, Tera!

**Tera:** I want Michelle to go stand by Jane now.



**Teacher:** Here comes another name, Daven!

**Daven:** OK. Terry, move up close to Benito so all the pennies are beside each other.

**Teacher:** Do we need to move anyone else?

**Children:** No!

**Teacher:** Let's try counting together. Ready? (Point to coin-holders as everyone counts.)

**Children:** 5, 10, 15...

**Teacher:** Oh, oh! Now what? Should we keep counting by fives?

**Children:** No...

**Teacher:** Why not?

**Children:** 'Cause we're counting pennies and they're only one cent!

**Teacher:** OK. What does come after 15?

**Children:** 16, 17, 18....18 cents!

Repeat several times, using different combinations of coins. Continue to hand them out in random order and have children in the audience figure out how to group them for easiest counting.

## FEELY BOX MONEY AND MAGNIFYING GLASSES (Whole Group)

**You will need→**

- 40 pennies
- 10 nickels
- enough tiny magnifying glasses for partners to share
- two large feely boxes (Materials Index)

This activity can be used for pennies and nickels. Here's a beginning version you may adapt for later lessons:

1. Place half of your pennies and half of your nickels in each feely box.
2. Have children sit on the class rug in partners sharing a magnifying glass.



3. Pass the feely boxes (in two directions) asking each child to find a penny inside.
4. Once all the children have their pennies, ask them to explore them with their magnifying glasses.

Guide the exploration with some of the following questions:

Can you find any of the letters in your name?

Who is that person on the penny? Is he wearing a tie? Does he have a beard? Can you see both eyes? Is he wearing a hat? How about a jacket? How many buttons are on his coat or shirt?



Turn your penny over. Look at the building. How many pillars are holding up the roof? If you look very hard, you can see the statue of a man sitting inside. Does anyone know who that is? Do you know the name of the building?

Can you find any numbers on the penny? Do you know what they stand for?



Is the penny older or younger than you are? How could we find out?

There are some words on the penny—*E pluribus unum*. What do you think those words mean? How could we find out? Make a chart of what the children think the words might mean and ask them to try to find someone who knows before tomorrow.



After everyone has had ample opportunity to explore their penny with a magnifying glass, ask partners to join other classmates sitting in a circle.

Reach into the feely box for a name and have that child pass his penny to the person on his right. That child then passes her pennies (now 2) to the right. That child hands his pennies (3) to the right and that child hands her 4 pennies to the person at her right.

Ask the children to guess how many pennies Joey (child number five) might be holding. Count to check. Ask if there is any other coin that Joey could trade his pennies for. Joey trades his pennies for a nickel from the feely box. Joey hangs onto his nickel for now and the penny passing resumes again until five more are gathered. Continue in this fashion making trades until no more nickels can be gathered. Once all the coins have been gathered and all possible trades made, count the total amount of money by fives and ones. Ask the children if the amount of money gives any clues as to how many children participated in the activity. How can they be sure?

## ART SUPPLY STORE

### Counting Sums Of Money And Problem Solving (Small Group)

#### You will need→

six or seven containers of art supplies

colored paper	ribbons
toilet paper tubes	sequins
cotton balls	old greeting cards
string and yarn	wallpaper samples
fabric scraps	pipe cleaners
glitter	

six or seven small margarine tubs to set beside the above containers of art supplies

price tags to put on each of the margarine tubs

tape, glue, scissors, hole punches, staplers, etc.

a “bank” with enough coins for six to eight children to work at once—Be sure to have a variety of coins appropriate to the amount the children need to count out.

Prices for art items should be under five cents. Begin with ten cents to spend.



(This is a good activity to repeat often in your room. It's a meaningful way for children to handle money and it's lots of fun.)

Show your class the art supply bowls and money bowls in a line on your counter. Tell them for the next few days they will use the class Art Supply Store for a special art project and at the same time get to practice counting money. Tell them each day you'll reach into your Feely Box to get names of people that will get their turn until everyone has participated.

(The first few times you try this activity it is wise to decide what the project could be. You can try things like: make a flower, a dog, a cat, a teddy bear, or, if it is a special time of the year, the project might be a Santa, an Easter bunny, a valentine, a ghost or witch. Do not give the children a model. Instead discuss the materials available and some potential uses.) Be sure to provide free of charge such items as tape, glue, scissors, hole punches and staplers.

Once the children know what to do, choose names from the feely box so children can begin counting out their allotted money from the bank and go to

the Art Supply Store to begin purchasing the materials they would like to use for the project. They may not spend more money than their allotment but it isn't necessary for them to spend it all. If they have some left, they can save it in case they decide they need to buy more supplies or they can give it

back to the bank. (If the bank runs low, return money from the money tubs to the bank.)

The finished products are displayed and admired by all. Price tags can be attached to show the creators' names and the cost of the materials.

## POST OFFICE

### You will need→

a small part of your room to be the "Post Office"

pennies, nickels, dimes

address cards for each student

a chart of helpful words

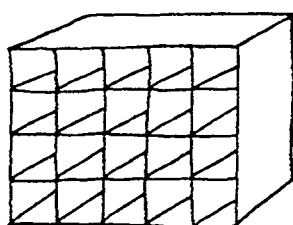
colored pens, pencils

stationery and envelopes

class mail box

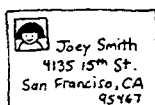
a mail box for each child

stamps (either the kind you gather from Christmas seals, junk mail at school, etc.; stickers, rubber stamps, or kid-made)

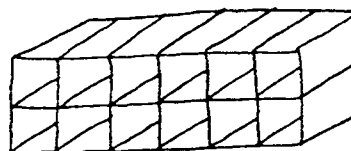


### Address Cards:

Prepare address cards for each child using 4 X 6 pieces of tag. Write each youngster's complete address and paste his/her xeroxed picture on the address card. Laminate the cards if you plan to use this activity for several months.

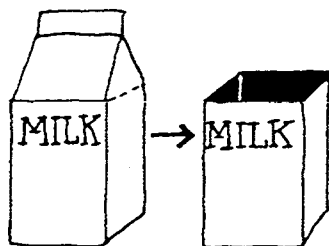


extra row on top of the large rectangle and staple in place.



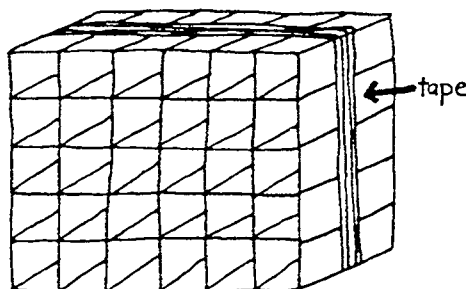
### Individual Mailboxes:

Make mailboxes for every child by collecting one quart milk cartons and trimming off the tops.

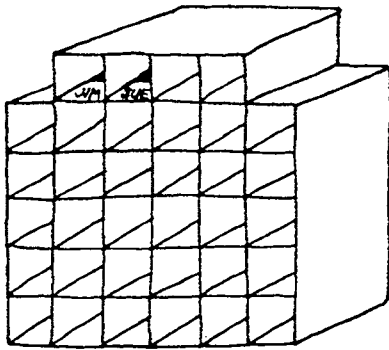


Line them up six in a row—four, five, or six rows, and staple them together. If you have an odd number of children, place the few boxes for that

Run strapping tape around the large rectangle of compartments. You may want to cover the outside of your rectangle with contact paper.



Label the floor of each compartment with the child's name and picture. (Clear Contact paper is a nice way to hold labels in place.)



### Stamps:



You can use free stamps (like Christmas seals), stickers or rubber stamps, or have the children make stamps using 4 X 4 squares of paper and black pens. (You'll reduce these

on a copier and set them up on sheets to run. Be sure each stamp is priced with money amounts appropriate to your classroom needs at the time.)

Store the stamps by price in margarine tubs or film canisters with prices written on the tops.

### Class Mailbox:

Find a rectangular box similar in shape to the large corner mailboxes.



Cut a mail slot in the side and ask your children to paint and label the mailbox.

### Stationery:

Set up an art table with rubber stamps, marking pens, stickers, and sheets of ditto paper or newsprint. Show them different samples of stationery and ask them to decorate only around the edges so there will be room to write in the center.

### Getting Started:

The class preparation for the Post Office will have generated a lot of excitement and anticipation. Show the children all their finished Post Office supplies along with the address cards and envelopes. Brainstorm together to create a chart of helpful words when writing letters.

Discuss some of the reasons people write letters. Select a sheet of stationery from the children's stationery supply and draw a name from the Feely Box to demonstrate how to write a letter to someone special. Fold the letter and place it in an envelope. Use the child's address card to write the address on the envelope.

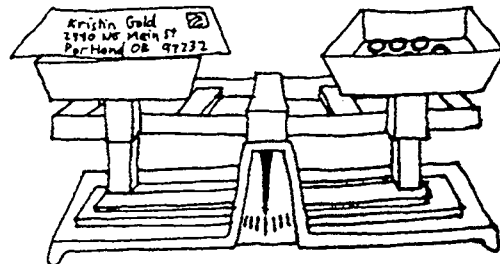
Important Words	
I	can
love	♥ come
you	my
to	Dear
house	
like	

### The Class Bank:

Set up a bank of real money—a junk box with sections for each denomination of coin, labeled with how many of each, or provide coins in coin tubes marked with permanent ink lines for accountability. The bank should have enough coins so four to eight children can work at once.

### Mailing Prices:

If you want to increase the mathematics involved in this lesson, generate with your class a chart of mailing costs based on the weight of the letters. The children will use your most sensitive balance scales to weigh their letter with small washers or paper clips to determine the appropriate stamp to buy.



Once the letter has been weighed and the mailing price determined, a stamp is purchased using money from the class bank. (You may want to have a list to determine the post office clerks for each math period.) The difficulty of this activity can be minimized by having only pennies in the class bank, or maximized by having only nickels, dimes and/or quarters in the bank. The postal clerks will need pennies if change is to be made.



# Moving To The Practice and Enrichment Boxes

*The concept instruction you've offered has set some important foundations. Children will need many weeks of experience to pull some understandings together. Money boxes work nicely at the end of the kindergarten year.*

*Some of the boxes your children are using already deal with money if you've made boxed versions of the group games available one by one. You may already have phased in Coin Graphing, Spin a Half Dollar, Money March, and Spin Twenty-Five Cents. (Introduce the rest of your money boxes over the next week or two, modeling each thoroughly.) Aim for eight to twelve boxes at varying levels of difficulty. If you have more, that's great, just be sure to remove a box from the collection in use each time a new one is added so the total doesn't exceed 12-14.*

**Here is a list of the boxes in the Money Packet appropriate to kindergarten, and the skills they explore.** Choose the ones that will best meet the needs of your children.

Box Name	Skills Explored
Coin Graphs	Coin recognition, coin worth
Spin a Half Dollar	Coin recognition, coin worth
Money March	Coin recognition, coin worth
Spin Twenty-Five Cents	Coin recognition, coin worth
Money Sock Boxes	Coin recognition by sense of touch
Money Puzzles	Coin recognition, counting sums to 10 cents
Count, Tell, Spin & Win	Coin recognition, counting sums to 10 cents, determining more or less
Earn a Nickel	Coin recognition, coin worth, counting to 5, learning combinations to five
The Store	Counting sums of money, figuring out what one can buy with one's money
Top Draw	Coin recognition, counting sums to 10 cents, comparing sums
Dig For Buried Treasure	Counting sums of money, co-ordinate graphing
Penny Push	Reading sums of money, counting sums of money
Shopping Spree	Counting sums of money, figuring out what one can buy with one's money

## **SPECIAL CONSIDERATIONS**

### **Why do you use real money in the Boxes instead of plastic or paper coins?**

Money is so abstract that we want to give children every chance to understand. The change Mom gives them to use at the store is real; the coins that they find between the couch pillows aren't paper. The money they buy their school lunch with worries them if it's not exactly the denominations they're used to carrying.

The fact that the money in our boxes is real creates some of the magic that leads children to make sense of very difficult concepts.

### **What if real money won't work for me?**

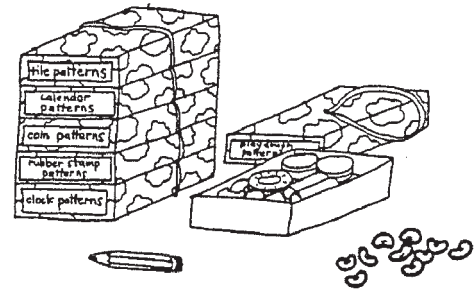
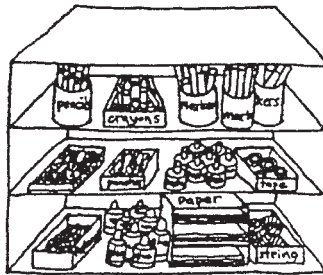
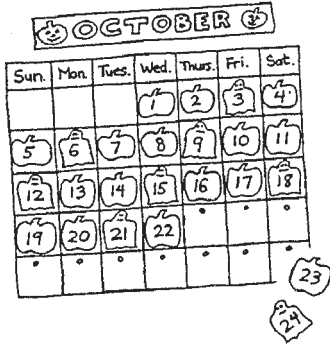
Some teachers report they have such constant turnover in classroom populations that it's impossible to establish respect for learning materials. Other teachers tell us their children just haven't learned respect for other people's property. These can be very difficult situations, especially in classrooms with changing populations. Of course, our ideal dream would be that we could help those children learn more respect for things not their own. The reality is, most teachers spend many,

many personal dollars per year on their classrooms and feel hurt and angry when things are taken. We feel that way also.

Be sure to help your class understand the money is there to help them learn, that it came from your personal funds, or perhaps from the P.T.A. budget. Let them know that you, along with some parent volunteers, have worked very hard to assemble these spinners, etc., so learning can be fun for them. (If children think classroom supplies just magically appear, they're not likely to worry much about them disappearing.)

A Kansas City, Missouri, teacher sent a note to her families asking that they send in a few pennies, nickels and dimes if they could spare the change so she could make up games to help their children learn about money. Over the next few weeks, children brought small amounts until the class money box was quite full. Games were constructed with the money and some was even left over. Jean reported her children often voted to dip into the classroom money pot to pay for milk if someone forgot money that day. To her knowledge, no money was ever stolen from the games or the money box.

# Planning





# PLANNING

*The Box It or Bag It Mathematics Teachers Resource Guide covers standard kindergarten math objectives: counting, numeral recognition, numeral writing, shapes, patterning, beginning measuring, beginning money, story problems/ beginning arithmetic, sorting, graphing and estimation. This part of the guide will help you think about using these resources to plan an appropriate program for your children.*

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## How do I plan instruction for each topic?

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When we introduce a new topic, we like to offer children many whole group teacher-guided lessons over a relatively long period of time—a month or even more. These experiences set the stage for more extensive exploration of the topic during Independent Practice Time. As children work with Boxed activities, we assess their understandings by observing and questioning.

Use the ideas in Chapters 13-17 to plan concept instruction for each topic. Make the corresponding activities for each topic you teach using the Box It or Bag It Mathematics Practice and Enrichment Boxes instruction and blackline packets. Many teachers find the Concept Planning Sheet pictured here helpful as they plan for their children. (See blacklines for a larger copy.)

Box It or Bag It Mathematics Concept Planning Guide	
Concept Instruction—Group Lessons How are you going to introduce this concept?	
Independent Practice Time—What do you already have?	
What Boxes will you try to make? Easy	Challenging
What could you ask your class parents to make?	
Is there anything you will include for additional practice (workbook pages, copied sheets, computer programs)?	

## How do I sequence my instruction?

### How long do I teach each topic?

Think of the timeline below as a rough approximation. Ultimately, the needs of the children in your class each year should determine your pacing and sequencing. As you become more familiar with the ideas in this book and more comfortable with the activities, you'll be increasingly able to balance their needs against your resources. Remember the Practice and Enrichment Boxes should be phased in following your whole group instruction.

Discovery Time Chapter 12) 5-7 weeks

Pattern (Chapter 13) 6-8 weeks

Numerals 0-10 (Chapter 14) 4-6 weeks

Shapes (Chapter 15) 4-5 weeks

Introduction to Measuring (Chapter 16)  
3-4 weeks

Beginning Arithmetic (See Junkbox Stories and People Story Problems, Chapter 14) 2-4 weeks

Money (Chapter 17) 2-4 weeks

These figures represent the amount of time spent in Boxes only. Considerably more time is needed to set foundation, as pictures in the year plan below.

	Sept.-Oct.	Nov.-Dec.	January-April		May-June	
Concept Instruction (Whole Group Lessons)	Pattern (ch. 13) Counting (ch. 14) Shapes (ch. 15)	Pattern (ch. 13) Counting (ch. 14) Shapes (ch. 15)	Counting (ch. 14) Shapes (ch. 15)	Shapes (ch. 15) Measuring (ch. 16)	Story Problems (ch. 14) Counting (ch. 14) Shapes (ch. 15) Money (ch. 17)	
Practice and Enrichment Boxes	Discovery Materials (ch. 12)	Pattern Boxes	Numerals 0-10 Boxes	Shapes Boxes	Measuring Boxes	Money Boxes

## What about Seasonal Math

*The year plan looks workable, but how do I build in the review my kindergartners need? I can't teach patterning for four months and drop it. My children need work in some areas all year long. And what about sorting, graphing and estimation? They're not mentioned anywhere in this plan.*

That's where Seasonal Math comes in. Seasonal Math, Chapters 1-9, allows us to cover a number of very important math skills every month all year long. Some of them, such as graphing, sorting and estimating, don't lend themselves to being taught as units. Without expecting mastery, we want to offer exposure to these skills as often as possible—once a month or more. Other skills, such as patterning, counting, shapes, beginning measuring and beginning arithmetic, are so central to kindergarten mathematics, we want to set foundations long before they're the main focus of instruction. We also want to provide review and extension opportunities long after they've been the major focus of instruction.

The skills covered each month are:

- counting
- shapes/spatial problem solving
- sorting
- graphing
- patterning
- beginning measuring
- money
- estimation/beginning place value
- story problems

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## How do I structure my teaching to include Concept Instruction, Independent Practice Time and Seasonal Math?

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If you teach full day kindergarten, you may be able to offer a long, double layered math period each day, forty to sixty minutes or more. The first half of the period might be whole group instruction; the second half could be Independent Practice, as pictured below.

If you teach half day kindergarten, you may not be able to devote more than thirty minutes a day to

mathematics and may need to spread out the three types of instruction over a month.

If you need to handle your instruction this way, be aware that even familiar Boxed activities will need to be reviewed and even sometimes introduced all over again after a week and a half of Seasonal Math.

	Monday	Tuesday	Wednesday	Thursday	Friday
20-30 minutes	Concept Instruction	Concept Instruction	Seasonal Mathematics	Seasonal Mathematics	Concept Instruction
20-30 minutes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1 30 min. per day	Practice and Enrichment Boxes →			Concept Instruction	Concept Instruction
Week 2 30 min. per day	Practice and Enrichment Boxes →			Concept Instruction	Concept Instruction
Week 3 30 min. per day	Practice and Enrichment Boxes →			Seasonal Mathematics	
Week 4 30 min. per day	Solving Story Problems →				

## How can I keep track of where I've been and where I'm going?

Running an activity based Math program is a juggling act at times and it can be hard to keep track of where you're going. Many teachers find the planning guide pictured below helpful. (See

blacklines for a larger copy.) They fill one out at the beginning of each month and use it like a "menu" from which to pull activities as they write weekly lesson plans.

**Box It or Bag It Planning Guide for \_\_\_\_\_**  
(month)

	Monday	Tuesday	Wednesday	Thursday	Friday
30 minutes	Concept Instruction	Concept Instruction	Seasonal Math	Seasonal Math	Concept Instruction
30 minutes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Seasonal Math	Seasonal Math or Boxes

CONCEPT INSTRUCTION, Chapters 13-17, provides specific, direct teaching to each concept.

•Concept(s) I'm introducing this month \_\_\_\_\_  
•Key concept instruction lessons: \_\_\_\_\_

INDEPENDENT PRACTICE TIME: Box It or Bag It Box activities provide individual practice and enrichment.

•Concept(s) my class is practicing \_\_\_\_\_  
•Practice and Enrichment Boxes: \_\_\_\_\_

SEASONAL MATHEMATICS, chapters 1-9, provides consistent exposure and review each month.

•Seasonal unit I'm doing this month \_\_\_\_\_  
•Here are one or more activities I'm planning to draw from my seasonal unit in each area:

Graphing	Sorting
Money	Patterning
Estimation/Place Value Counting	Introduction to Measuring
Story Problems	Counting



**Box It or Bag It Planning Guide for** October  
(month)

**Sample**

	Monday	Tuesday	Wednesday	Thursday	Friday
30 minutes	Concept Instruction	Concept Instruction	Seasonal Math	Seasonal Math	Concept Instruction
30 minutes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Practice and Enrichment Boxes	Seasonal Math	Seasonal Math or Boxes

CONCEPT INSTRUCTION, Chapters 13-17, provides specific, direct teaching to each concept.

•Concept(s) I'm introducing this month Arithmetic-Facts to Ten

•Key concept instruction lessons:

**Sorting (Chapter 10)**

- ✓ People Sorting (Level 1)
- ✓ Collection Sorting
- ✓ Mystery Box Sorting
- People Sorting (Level 2)

**Pattern (Chapter 13)**

- ✓ People Patterns
- ✓ Halloween People Patterns  
(Theater Patterns, Chap. 2)
- Magazine Picture People Patterns
- ✓ Hands and Feet Patterns
- Feely Box Patterns
- Tasty Patterns

INDEPENDENT PRACTICE TIME: Box It or Bag It Box activities provide individual practice and enrichment.

•Concept(s) my class is practicing Pattern

•Practice and Enrichment Boxes:

**Easy**

- ✓ 1. Playdough Patterns
- ✓ 2. Alphabet Stamps
- ✓ 3. Template Patterns
- ✓ 4. Rubber Stamp Patterns
- ✓ 5. Sticker Patterns
- ✓ 6. Mirror Patterns

**Challenging**

- ✓ 7. Unifix Cube Patterns
- ✓ 8. Coin Patterns
- ✓ 9. Pattern Block Patterns
- ✓ 10. Tile Patterns
- 11. Geoboards, Nuts and Washers
- 12. Feely Box Patterns

**Sample**

SEASONAL MATHEMATICS, chapters 1-9, provides consistent exposure and review each month.

- Seasonal unit I'm doing this month October
- Here are one or more activities I'm planning to draw from my seasonal unit in each area:

**Graphing**

*Graphing the Pumpkin  
Circumference  
p. 20*

*Weighing and Carving  
p. 22*

**Sorting**

*Sorting and Graphing  
(Blob Ghost)  
p. 16*

**Money**

*Arithmetic  
p. 19*

**Patterning**

✓ *Art Strip Patterns  
p. 16*

✓ *Theater Patterns  
p. 15*

**Estimation/Place Value Counting**

*Seed Counting  
p. 23*

**Introduction to Measuring**

*Pumpkin Circumference  
p. 20*

*Weighing the Pumpkin  
p. 22*

*Weighing and Carving  
p. 22*

*Changes p. 24*

**Story Problems**

*Arithmetic  
p. 19*

**Counting**

*Counting Word Problems  
p. 18*

*Holiday Pendulum Counting  
p. 138*

**Part 5: Weekly Planning Sheet**
**Kindergarten**

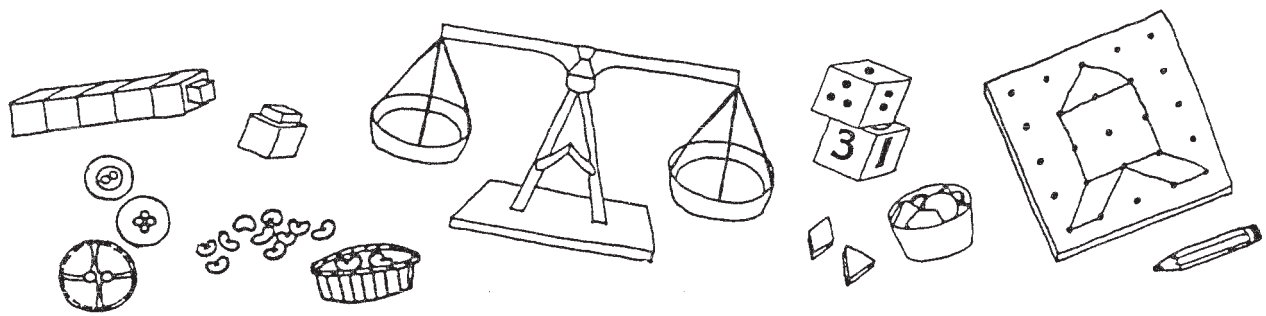
Monday	Tuesday	Wednesday	Thursday	Friday
<b>Group Lessons</b> <i>Sorting</i> <i>People Sorting (Level 1)</i>				
<b>Independent Practice Time</b> <i>(Discovery Time is phasing out / Moving to Pattern Boxes)</i> <i>Unifix Cubes</i> <i>Pattern Blocks</i> <i>Tiles</i> <i>Wooden Cubes</i> <i>Playdough</i> <i>Templates</i> <i>Junk Boxes</i> <i>Geoboards</i>				
<b>Group Lessons</b> <i>Sorting</i> <i>Mystery Box Sorting (pumpkin in box or other Halloween item to be used in curriculum)</i>				
<b>Independent Practice Time</b> <i>As above on Friday</i> <i>Add: Alphabet Stamps</i> <i>Patterns</i> <i>Tile Patterns</i>				
<b>Group Lessons</b> <i>Pattern</i> <i>People Patterns</i>				
<b>Independent Practice Time</b> <i>As on Monday</i> <i>Add: Unifix Cube Patterns</i> <i>Rubber Stamp Patterns</i>				
<b>Group Lessons</b> <i>Pattern</i> <i>Collection Sorting</i> <hr/> <i>Hand &amp; Feet Patterns</i>				
<b>Independent Practice Time</b> <i>Playdough Patterns</i> <i>Add: Template Patterns</i> <hr/> <i>Discovery Materials as on Tuesday except Templates now have a Pattern goal.</i>				
<b>Group Lessons</b> <i>Seasonal Math</i> <i>Art Strip Patterns</i>				
<b>Independent Practice Time</b> <i>Boxes, etc., as on Wed.</i> <i>Playdough Patterns</i> <i>Template Patterns</i> <i>Junk Box Patterns</i> <hr/> <i>Disc. Materials as on Wed. except Junk Boxes now have a Pattern goal.</i>				
<b>Group Lessons</b> <i>Seasonal Math</i> <i>Sorting and Graphing "Blob Ghost"</i>				
<b>Independent Practice Time</b> <i>Continue as on Wed.</i> <i>Add: Pattern Blocks Patterns</i>				
<b>Group Lessons</b> <i>Seasonal Math</i> <i>Graphing</i> <i>Pumpkin Circumferences</i>				
<b>Independent Practice Time</b> <i>Continue as on Wed.</i> <i>Add: Pattern Blocks Patterns</i>				

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## Notes

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# Materials Index



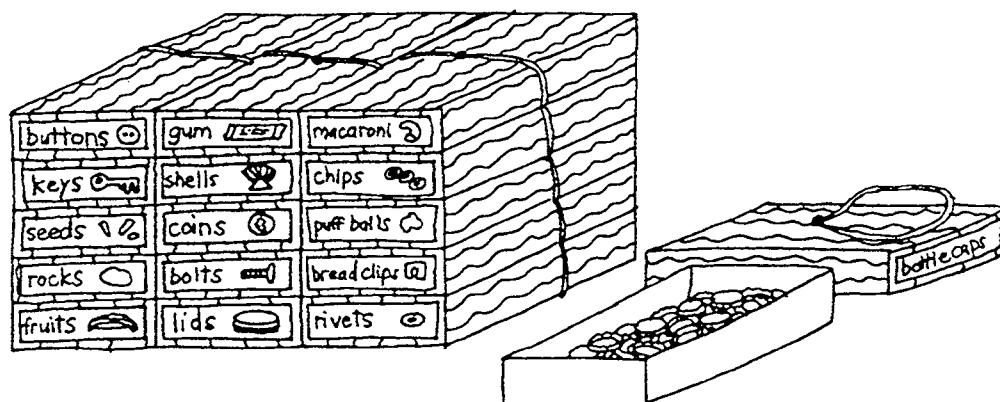


# MATERIALS INDEX

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## Junk Boxes

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### HOW MANY?

10-20 boxes

### WHERE DO I GET IT?

#### Empty Junk boxes

"Junk Boxes" can be ordered from MLC.

#### Junk Children can bring

Each box needs 50-100 items. Send a note home to your students' families asking them to save the following:

old keys  
tiny rocks  
gum wrappers  
dried seeds  
nuts and bolts  
tiny plastic lids

buttons  
seashells  
bottle caps  
foreign coins  
plastic bread fasteners

#### Junk you might want to purchase

small plastic fruits and vegetables

carnival supply items (Be careful not to purchase items which are too tempting for play or theft.)

plastic gourmet toothpicks

colored plastic game markers (MLC)

## Other Junk

You might save lost barrettes and wash them in soapy water.

You might color assorted shapes of macaroni (see directions below).

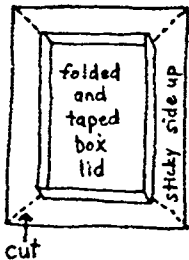
## HOW DO I PREPARE IT?

### Junk Boxes

Tape the corners together with filament tape.

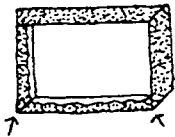
Cover all lids with colored contact paper (the same pattern for all).

Contact paper will be cut to size and laid on table, sticky side up.



Cut mitered corners into contact paper.

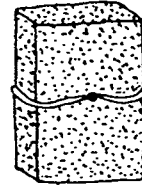
Fold up sides and ends wrapping mitered portion around corners.



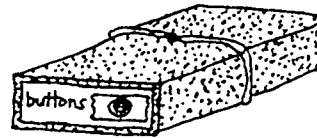
Slit contact paper at corners down to edge of box so you can fold about 1/2" of contact paper into lid.

Cut a length of 1/4" elastic to go comfortably around the narrow portion of your box. Tie the

ends together to make a knot. Poke a hole in the center of your lid. Slip the elastic through from the inside so the knot stays inside the lid. Anchor the knot by slipping a paper clip through it. Tape the clip to the lid with your filament tape.



Label *both* ends of each box with the name of the junk that will be inside using a permanent Sanford Sharpie marking pen. It's also very effective to use clear contact paper to fasten an example of the item to either end by the written label so every child can easily know what is inside.



### Coloring Macaroni

Purchase three or more varieties of small, sturdy macaroni. Mix 1/3 cup of each into a bowl. Divide this mix into four portions. Pour 1/2 teaspoon of rubbing alcohol into a jar or sealable ziplock bag. Add 15 to 20 drops of food coloring.

Add one of your portions of macaroni mix. Seal with a lid and shake until thoroughly colored. Pour out on newspaper to dry. Continue in this manner until you've used four colors.

---

## Big Books

---



### HOW MANY?

Once you start having your class make some, you can judge how many by your energy and their enthusiasm.

### WHERE DO I GET IT?

These will be assembled throughout the year.



For each Big Book you will need:

- 12" X 18" sheets of construction paper
- water-based marking pens for lettering
- poster board or matte board for covers
- scotch tape      filament tape
- a hole punch      yarn or brass fasteners

### HOW DO I PREPARE IT?

If you want your books to easily open out flat, cut your covers 12" X 18" and then cut all pages and

your covers to 12" X 17", saving the 1" X 12" piece to tape on the left hand side of each page and each cover. Scotch tape works fine on the pages but it's best to use filament tape on the covers.

If your children are writing in their Best Guess spelling, it's fun to use a glue stick to glue their rough copy to the back of each finished page.

If you have lamination services available, laminate each page and cover.

Assemble your book by punching holes in the covers and pages and securing with yarn or brass fasteners.

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## Feely Boxes

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### HOW MANY?

One or two

### WHERE DO I GET IT?

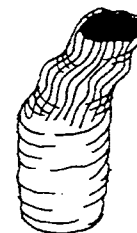
For each box you will need:

- a stretchy adult tube sock
- a plastic pint or quart yogurt or cottage cheese container

### HOW DO I PREPARE IT?

Push plastic container down into the toe of the sock.

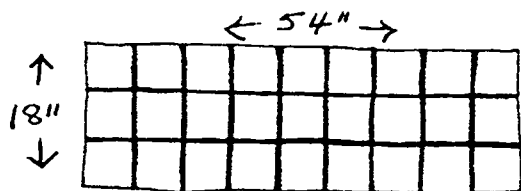
Cut strips of paper on which to write each student's name. (See Seasonal Math, Money and Pattern for other uses of Feely Boxes.)



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## Graphing Mat

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### HOW MANY?

One

### WHERE DO I GET IT?

Buy 1/2 yard of 54" vinyl at your local hardware or dime store. You can also use shower curtains, solid color plastic tablecloths, or old window shades.

### HOW DO I PREPARE IT?

Use a permanent marking pen to mark off three 6" rows and nine 6" columns.

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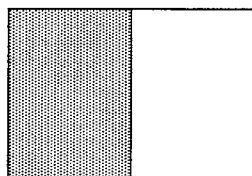
## Place Value Board—Teacher Board

(for group instruction)

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### HOW MANY?

One



a 12" X 18" piece of white poster board

a 9" X 12" piece of lavender construction paper

### HOW DO I PREPARE IT?

### WHERE DO I GET IT?

You will prepare it. You will need:

Use a glue stick to glue the lavender paper to the left side of your poster board. Laminate or cover with clear contact paper.

---

## Large Milk Carton Dice or Foam Dice

---

### HOW MANY?

Two or more



### WHERE DO I GET IT?

You or a parent will prepare milk carton dice.

Cut the fourth side so it is twice the height of the bottom measurement. Fold the fourth side down to close the box and tape it securely with filament tape. Cover with contact paper or spray with a dark, fast-drying paint.

### HOW DO I PREPARE IT?

There are two ways to make these. Cut down a half gallon milk carton so three sides are the same height as the measurement of the bottom of the milk carton.

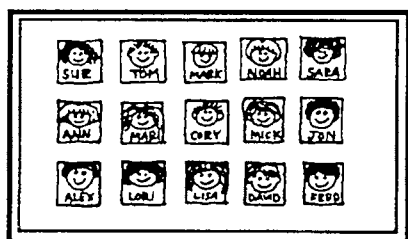
Write numerals and dots as appropriate to your needs. (You will probably want one labeled 1-6 with large dots and one labeled 0-5 with numerals.)

**Or**—Cut two half gallon milk cartons down so all sides are the same as the bottom measurement. Shove one inside the other and tape securely. Continue as above.

---

## Xeroxed Copies of School Pictures

---



### HOW MANY?

You will want to run about ten copies each time.

### WHERE DO I GET IT?

You will prepare these in the late fall by using the individual "cum" pictures you get from the photographer.

### HOW DO I PREPARE IT?

Mount a small photograph of each child on an 8-1/2" X 14" piece of paper. Label each photo with the child's name. Run copies on the best copy machine you have available. (As new students arrive, ask them for a wallet size copy of their school picture. If they don't have one, pull the one from the cum when it arrives.)

---

## Hundreds Matrix

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### HOW MANY?

You will want at least one kind.

### WHERE DO I GET IT?

Purchase from teacher supply stores or make your own. A wonderful Hundreds Chart with removable numeral cards (25" X 26" nylon fabric sewn with clear plastic pockets) is available from MLC.

### HOW DO I PREPARE IT?

To make your own matrix, use a 30" square of manila tag. Divide it into 3" rows and columns. Write the numerals 1-100.

Color the fives column and tens column in light colors to make those counting patterns easy to see.

Laminate.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

---

## Unifix Cubes

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### HOW MANY?

1,000

### WHERE DO I GET IT?

These can be ordered from MLC.

### HOW DO I PREPARE IT?

Pour cubes into a tub or box.

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## Pattern Blocks

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### HOW MANY?

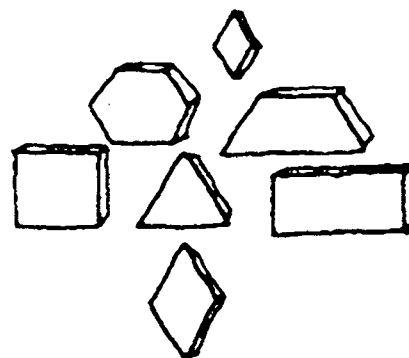
2 or 3 sets

### WHERE DO I GET IT?

These can be ordered from MLC.

### HOW DO I PREPARE IT?

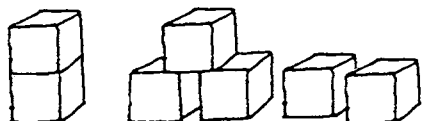
Keep pattern blocks in a tub or box.



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## Wooden Cubes (3/4" or 1")

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### HOW MANY?

200-300

### WHERE DO I GET IT?

These can be ordered from MLC.

### HOW DO I PREPARE IT?

Pour cubes into a tub or box.

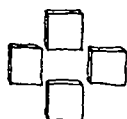
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## Tiles (1" square)

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### HOW MANY?

300-400, all the same color.



### WHERE DO I GET IT?

Ready to use tiles, either ceramic or plastic, can be purchased from MLC or they can be

purchased at your local tile store. They come on sheets.

### HOW DO I PREPARE IT?

If your tiles are on string mesh sheets, soak them awhile in your sink and then peel. Put tiles in tub or box.

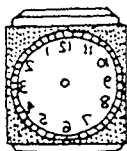
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## Clock Stamps

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### HOW MANY?

1-2



### WHERE DO I GET IT?

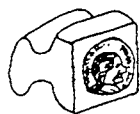
You may be able to special order these from a stamp or stationery company, or make them from blank rubber stamps by hand. (They are no longer available from MLC.)

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## Coin and Dollar Stamps

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### HOW MANY?



2-4 sets of coin stamps. It's nice to have one each of \$1, \$5, and \$10 stamps.

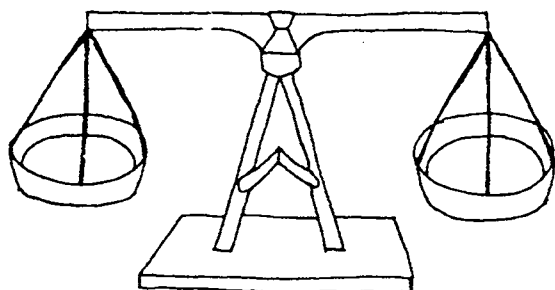
### WHERE DO I GET IT?

You may be able to special order these from a stamp or stationery company, or make them from blank rubber stamps by hand. (They are no longer available from MLC.)

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## Scales

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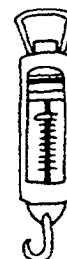
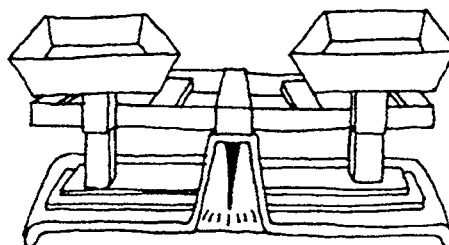
- Balance
- Pan Balance
- Spring Scale (If you have a generous budget, add this.)

### HOW MANY?

One, two or more

### WHERE DO I GET IT?

Available from MLC. (Check your school closets first. Many scales are hiding in supply room or teacher closets.)



Try to have a scale with very large pans and another with a balance needle and buckets or pans to either side.

Spring scales are another way to weigh and give children a different experience. You can hook a milk box scale to them. These are used mainly in large group lessons.

You may also want to ask parents if anyone has a Weight Watchers scale they no longer need.

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## Milk Box Scales

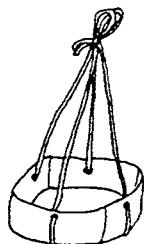
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### HOW MANY?

A pair and one more

### WHERE DO I GET IT?

You will make them yourself or ask a parent to make them. You will need string, scissors, rubber bands, a hole punch, and plastic or cardboard milk containers



### HOW DO I PREPARE IT?

Use your scissors to trim your containers down to about a 2" height. Punch a hole in the center of each of the four sides about 1/3" down from the top edge. Cut two 25" lengths of string. Thread the string through one hole, under the container and up

through the opposite side's hole. Repeat for the other pair of holes.

Hold the scale up and balance it on the strings. Tie a slip knot at the top of the strings. Use filament tape to tape the strings in place on the bottom of the box.

Slip a school rubber band (not heavy duty) under the knot at the top and loop one end through the other to secure it.

Do the same for your other box trying to get the strings the same length as your first scale. Be sure to use the same size and thickness of rubber band.

Extend rulers out from top of table or desk and anchor the ruler with books. Suspend the scales from the rulers by their rubber band loops. Don't worry about rubber band breakage—the bands can easily be replaced and bear more weight than you might think.

---

## Rice, Jars and Funnels

---

### HOW MANY?

5 pounds of rice (not instant). Or use aquarium gravel or salt if mice are a problem.

6-10 bottles and jars of varying sizes

2 funnels

### WHERE DO I GET IT?

**Rice:** most grocery stores

**Bottles:** You save or have children bring

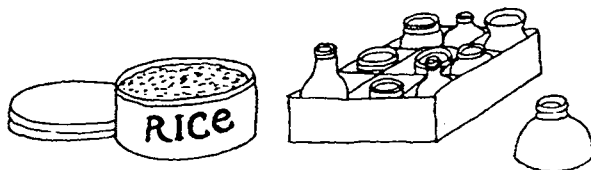
**Funnels:** Save large plastic pop bottles

### HOW DO I PREPARE IT?

**Rice:** Pour rice into a plastic tub or a large cooky tin saved from the holidays. (Mice aren't so tempted if you can seal the rice.)

**Bottles:** Save salad dressing bottles, jelly jars, instant coffee jars, pickle jars, etc. Place jars in a divided cardboard box. Label each jar with an alphabet letter.

**Funnels:** Cut the top from a large plastic pop bottle with scissors, leaving about 4"-5". This is a great funnel!



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## Individual Student Chalkboards

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### HOW MANY?

One per student

### WHERE DO I GET IT?

These can be purchased from MLC or you can search out black Nat-Mat and cut it on a very large paper cutter.



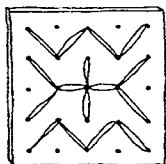
### HOW DO I PREPARE IT?

Have children thoroughly rub these down in both directions with chalk, erase and you're ready to have them write.

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## Geoboards and Rubber Bands

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### HOW MANY?

4-6 boards and 1 package of rubber bands

### WHERE DO I GET IT?

These can be purchased from MLC.

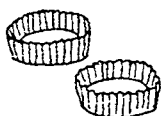
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## Portion Cups

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### HOW MANY?

2 boxes



### WHERE DO I GET IT?

These can be purchased from MLC. We like the shallow 1-oz. portion cups.

---

## Filament Tape

---



### HOW MANY?

One roll, 3/4" wide (not on a dispenser)

### WHERE DO I GET IT?

Hardware stores, stationery stores, grocery stores (we prefer better brands).

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## Tacky Glue

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### WHERE DO I GET IT?

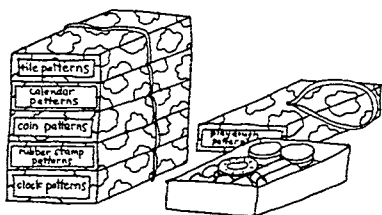
Any craft store, many fabric stores

(A hot glue gun is often nice if you own one and feel safe using it.)

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## Practice and Enrichment Boxes

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### HOW MANY?

There are nine Practice and Enrichment Box packets available. Topics are:

- Pattern (K-2)
- Shapes (K)
- Reading, Writing, and Understanding Numerals 0-10 (K)
- Money (K-2)
- Arithmetic (1-2)
- Place Value Counting (1-2)
- Place Value Addition and Subtraction (2)
- Introduction to Measuring (K)
- Understanding Measuring (1-2)

Each Practice and Enrichment Box packet contains nine to eighteen Independent Practice Time activities that are appropriate for the grade levels indicated. An activity includes, blacklines, game-boards and cards, making and playing instructions. Materials needed for an activity (such as dice) but not included in the Practice and Enrichment Box packet are listed in the instructions.

### WHERE DO I GET IT?

Order from MLC. For storing your Boxed activities, order half and standard boxes.

### HOW DO I PREPARE IT?

Packets include instructions for completing each Boxed activity. See Junk boxes in this Materials Index for how to construct and cover your activity storage boxes. Cover same topic activity boxes with a matching color or pattern to make identification of sets easy. For example, you might cover all

Pattern Boxes in red-checked paper, Money Boxes in yellow-flowered paper, Shapes Boxes in solid blue, etc.).

To request a catalogue or order materials from The Math Learning Center, contact us at 1-800-575-8130 or [www.mlc.pdx.edu](http://www.mlc.pdx.edu).

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## Problem-Solving Books

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*Invitations to Problem Solving with Story Boxes Kindergarten*

*Posing and Solving Problems with Story Boxes 1st & 2nd Grade*

Story problem guides filled with activities designed to develop number and operation sense in the context of familiar themes. Theme-based activities move children from solving teacher-posed problems to inventing counting strategies as they solve adding, subtracting, grouping, and partitioning problems.

### **HOW MANY?**

One copy per classroom. Each copy includes lesson plans, instructions for preparing story boxes and other materials, and a separate volume of blacklines. Kindergarten contains six story problem themes: The Spooky House, The Cat Cottage, Penguins, Frogs & Toads, The Burger Hut, and Rainbow Bears. 1st & 2nd Grade contains five story problem themes: School Bus Kids, Pumpkins, Goblins & Ghosts or Night Critters, Christmas Presents or Presents for Special Occasions, The Teddy Bear Store, and The Cookie Store.

### **WHERE DO I GET?**

May be ordered from The Math Learning Center.



# Kindergarten

## Blackline Masters

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# BOX IT OR BAG IT MATHEMATICS

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Written by—  
Primary Classroom Teachers

**Donna Burk**  
San Jose, California; a graduate  
of the University of Oregon

**Allyn Snider**  
Portland, Oregon; a graduate  
of the University of Oregon

**Paula Symonds**  
San Francisco, California; a graduate  
of University of California at Davis

Published by—  
The Math Learning Center  
Salem Oregon

## **Box It or Bag It Mathematics, Blackline Masters—Kindergarten**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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*As a result, some PDF functionalities, such as editing, copying, and text search, are not available.*

QP169 BBK-B

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ISBN 1-886131-00-7

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No Blacklines

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TRG 153	More/Less Spinner*	BL 42
TRG 154	Spin 50 Spinner*	BL 43
TRG 154	Green Beans Record Sheet*	BL 44

## Chapter 15 Shapes

TRG 162	Felt Shapes Patterns*	BL 45
TRG 162	Shape Sheets Patterns*	BL 46-52
TRG 169	Shapes Die*	BL 53
TRG 170	Spin & Count Gameboard	BL 34
TRG 170	Spin & Count Double Spinner	BL 54

## Chapter 16 Introduction to Measuring

TRG 177	Measuring Jar Record Sheet*	BL 55
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## Chapter 17 Money

TRG 180	Coin Graph Spinner*	BL 56
TRG 180	Coin Graph Record Sheet*	BL 57
TRG 181	Spin a Half Dollar Spinner*	BL 57
TRG 181	Spin a Half Dollar Gameboard	BL 35
TRG 181	Spin 25 Cents Trading Game Board	BL 36
TRG 182	Money March Spinner*	BL 58

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## Planning

TRG 191	Planning Sheet (Concepts)	BL 37
TRG 194	Planning Sheet (Monthly)	BL 38
TRG 194	Planning Sheet (Seasonal Mathematics)	BL 39
TRG 197	Weekly Planning Sheet	BL 40

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## Materials Index

No Blacklines

**\*Note** These blacklines from Practice & Enrichment Boxes are supplemental to the original blackline packet. They are needed to conduct the whole group lessons in the Teachers Resource Guide.

**Key to Abbreviations:** TRG – designates page in Teachers Resource Guide on which the blackline is listed. BL – designates page number in Blackline Masters.

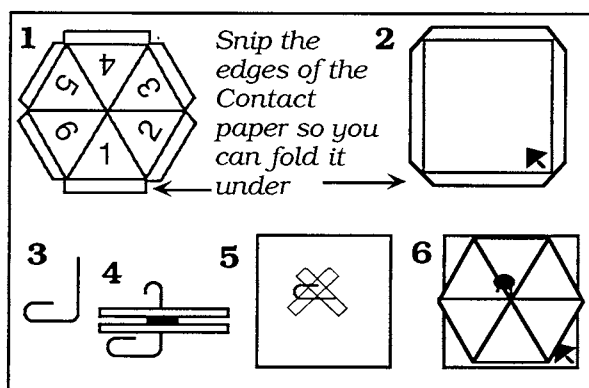
## BLACKLINE SUPPLEMENT FOR KINDERGARTEN

Included in the Supplement (which starts with Blackline 41) are adaption of blacklines from Practice and Enrichment Boxes needed to conduct the whole group lessons in the Teachers Resource Guide.

### SPINNERS (MAKING INSTRUCTIONS)

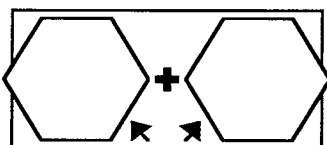
#### Single spinner

1. Glue spinner tops to sturdy cardboard. Cut them out and cover tops with clear Contact paper overlapping edges to the underside.
2. For the base, cut a square or rectangle from sturdy cardboard or bristol board. Check spinner top to determine needed size. Cover with clear Contact paper.
3. Straighten out one side of paper clip.
4. Cut two 1-1/2" washers from your cardboard. Assemble as shown. Bend top of paper clip.
5. Tape underside of base to secure paper clip.
6. Use a permanent pen to draw arrow on base at corner. Tape top part of paper clip for safety.



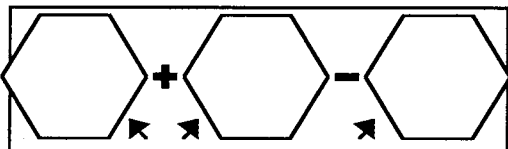
#### Double spinner

The base needs to look like this:

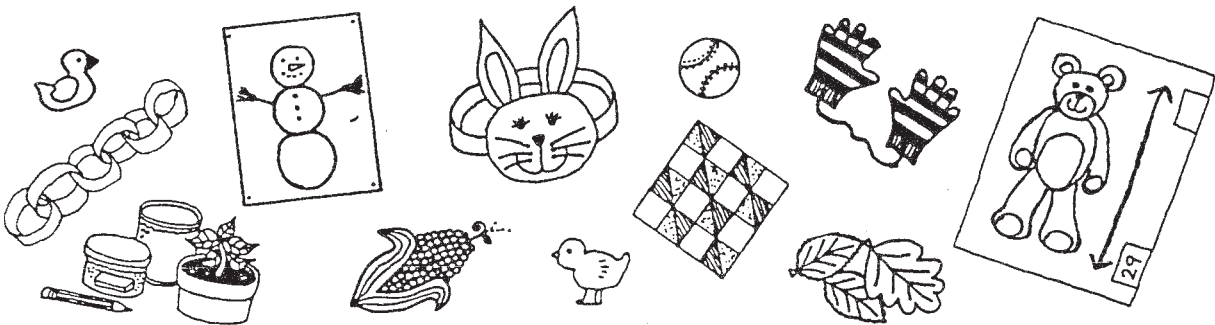


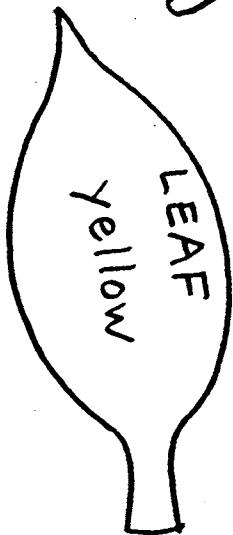
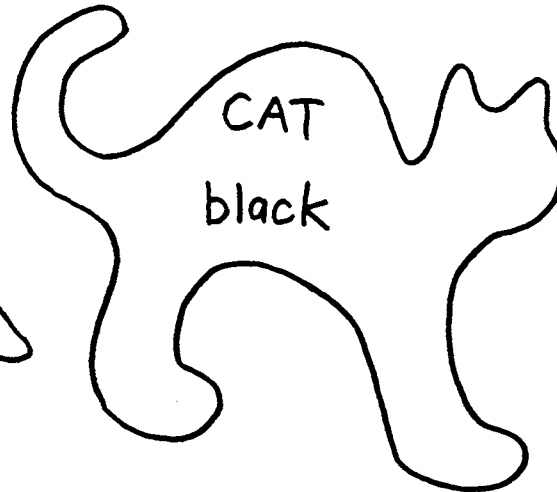
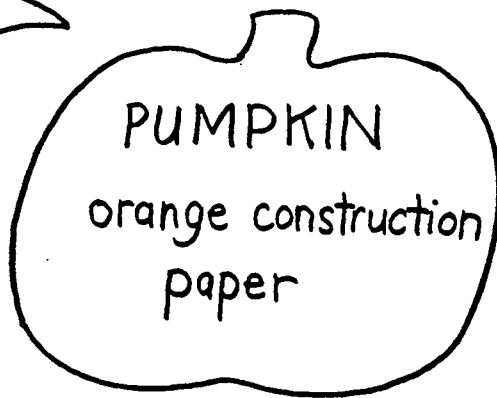
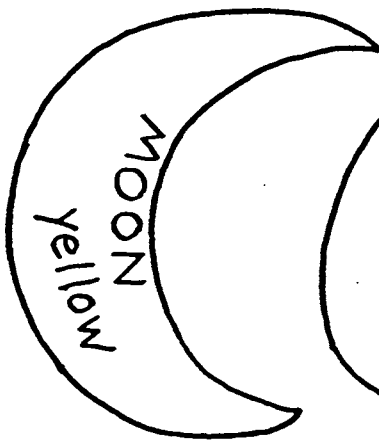
Be sure to label each spinner with the name of the game to which it belongs.

#### Triple spinner

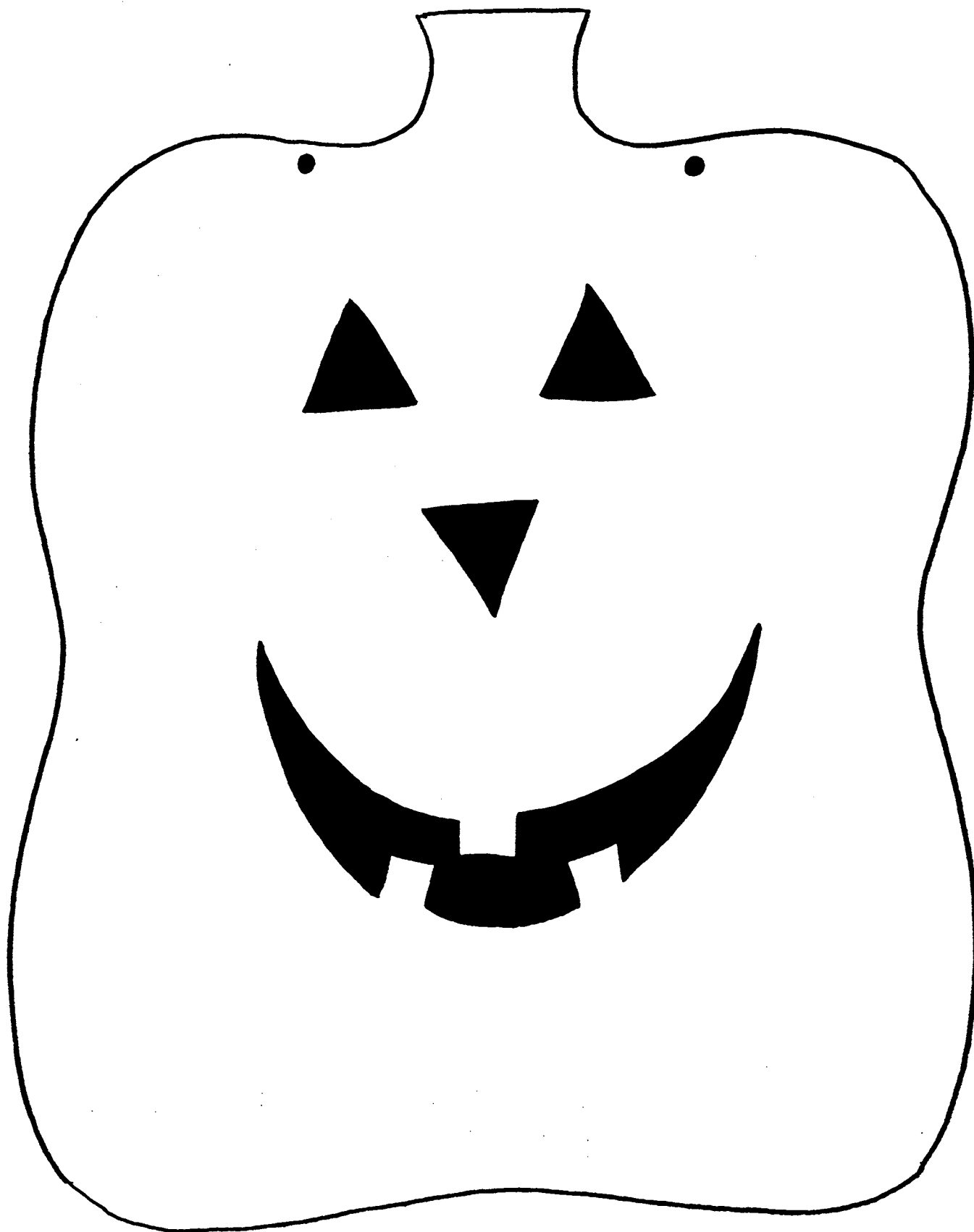


# Seasonal Mathematics

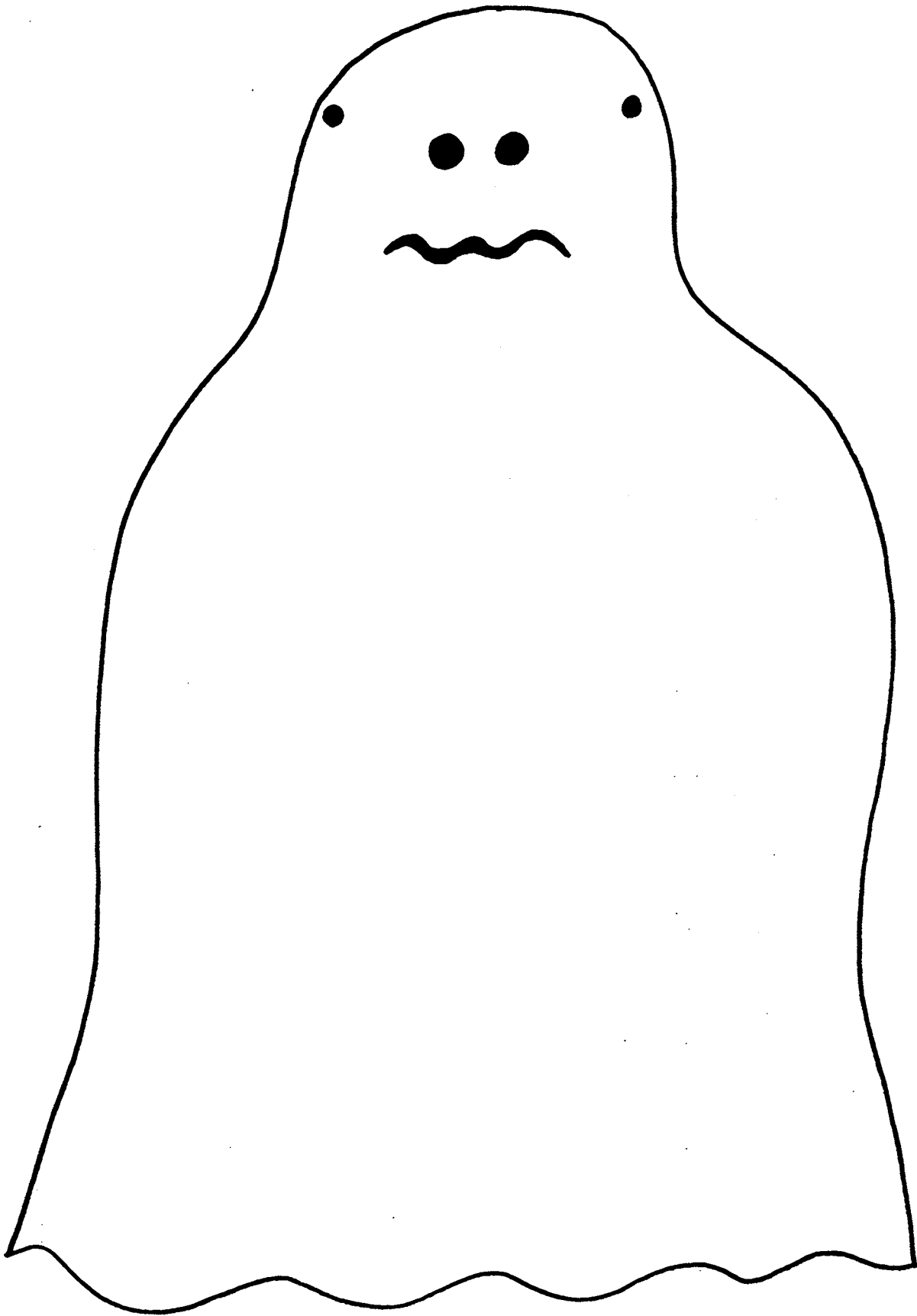








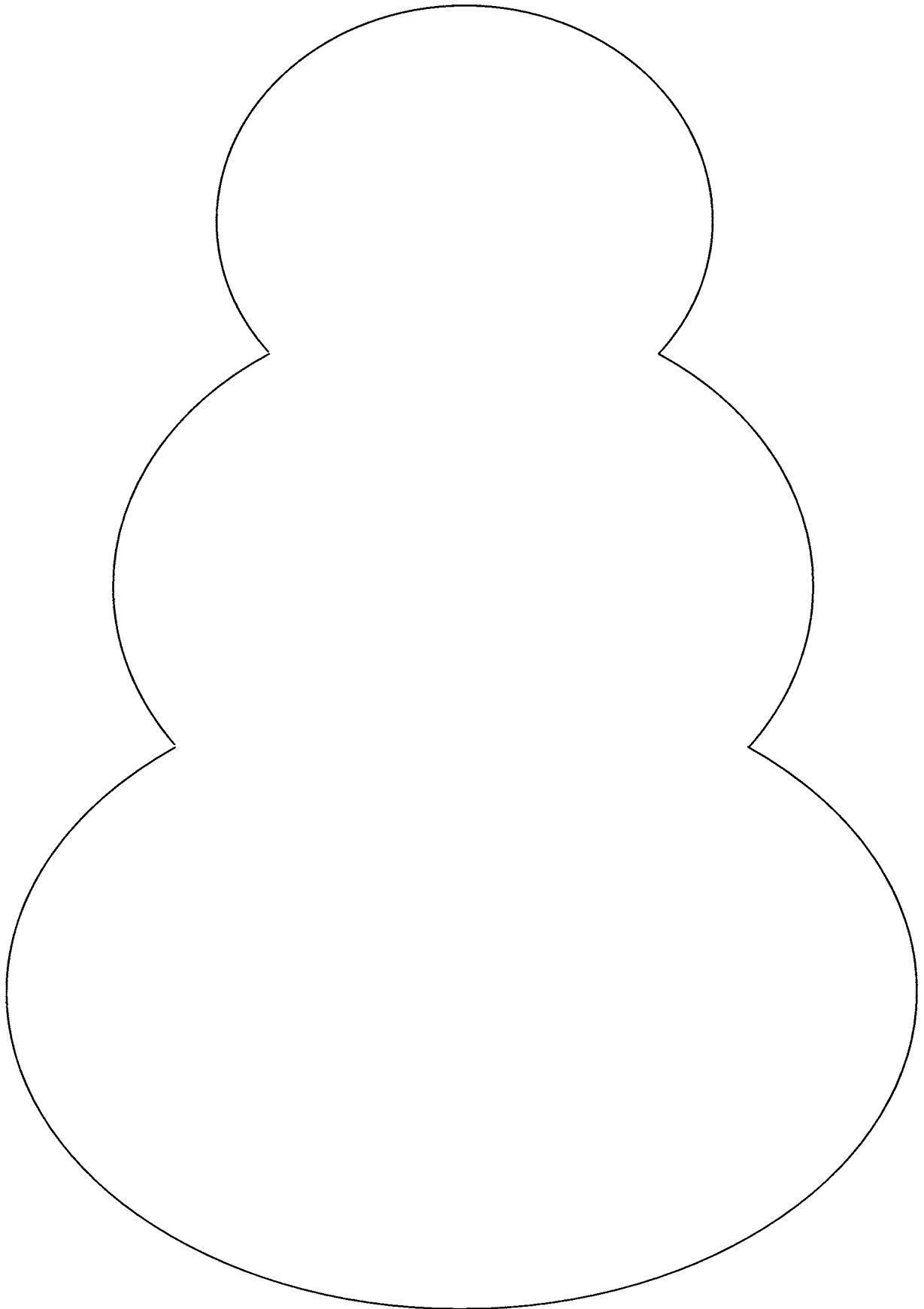




## Chapter 4: Snowman

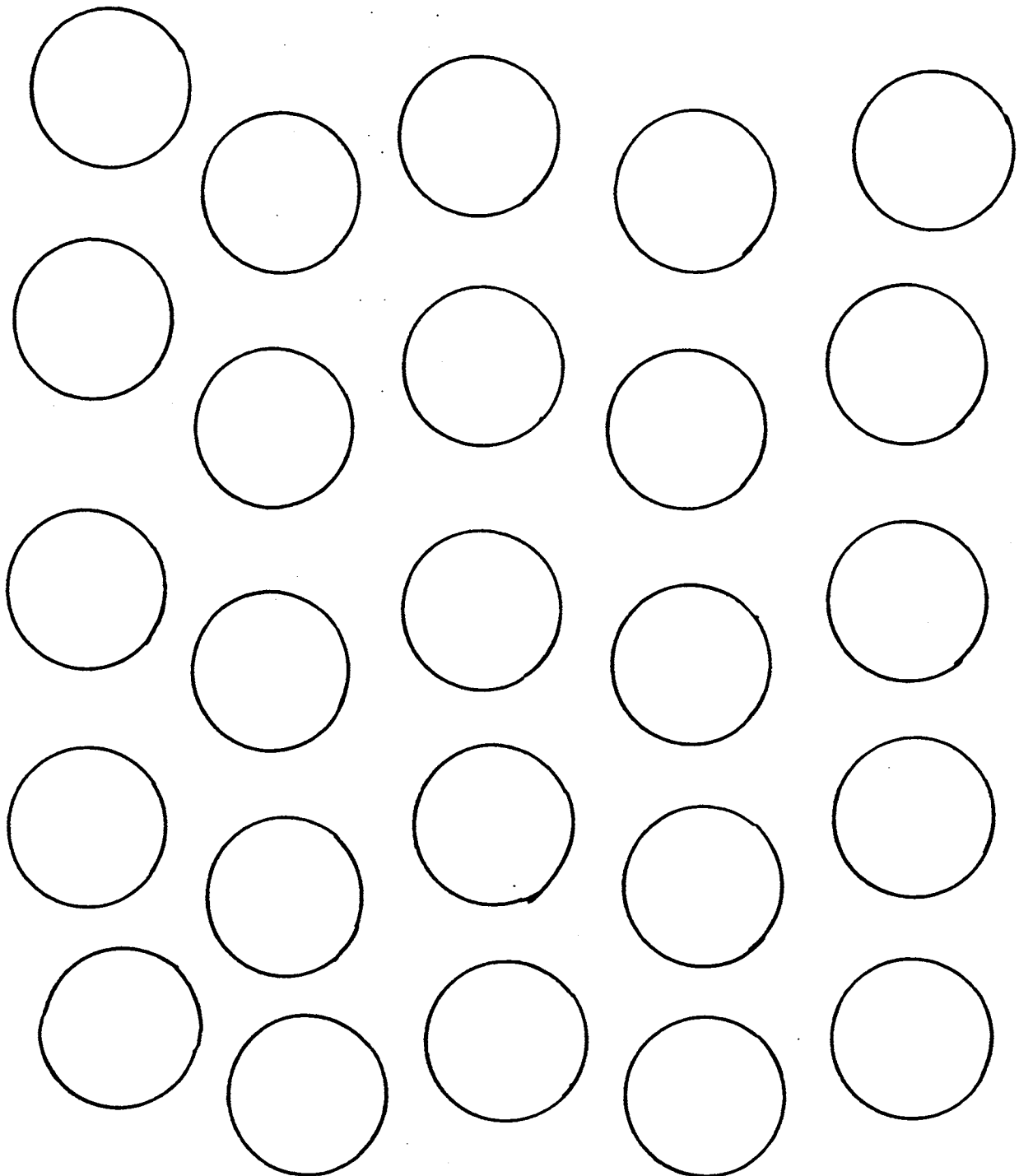
Kindergarten-5

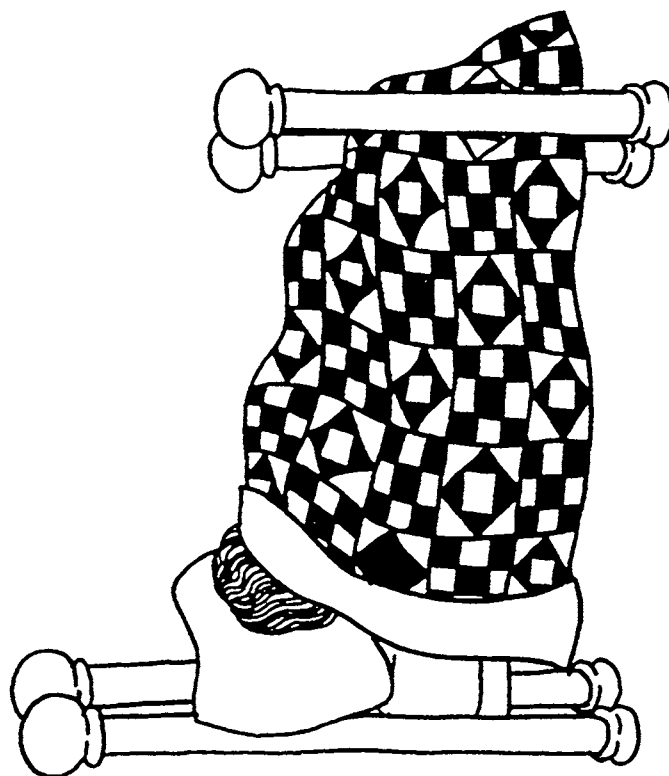
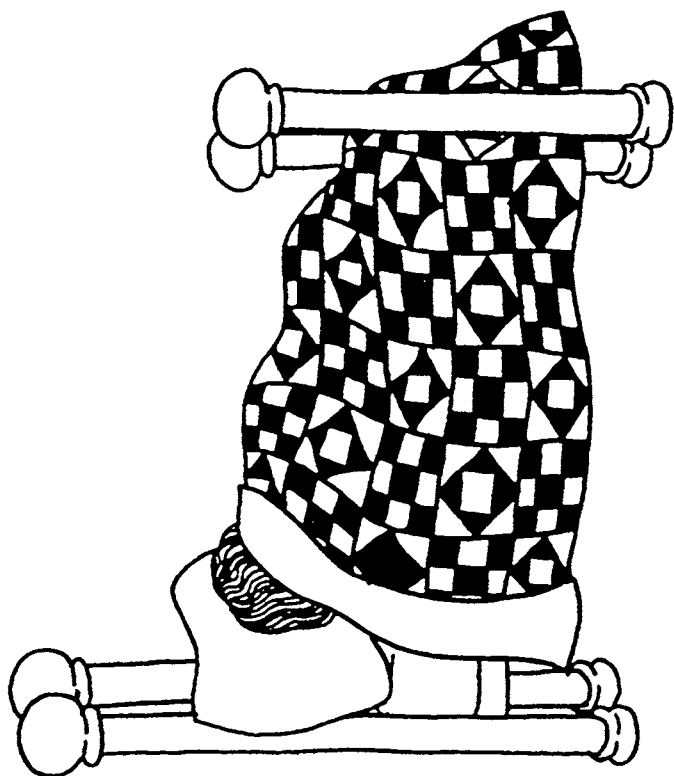
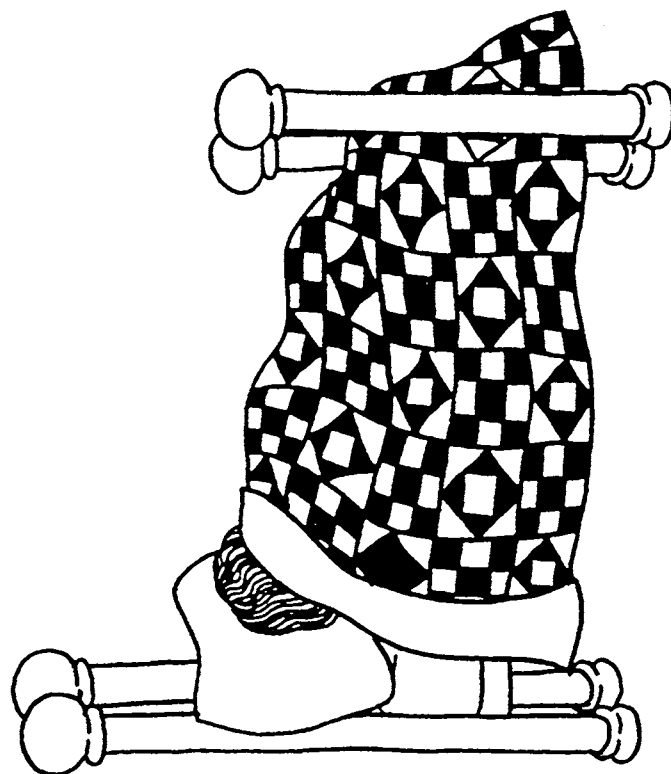
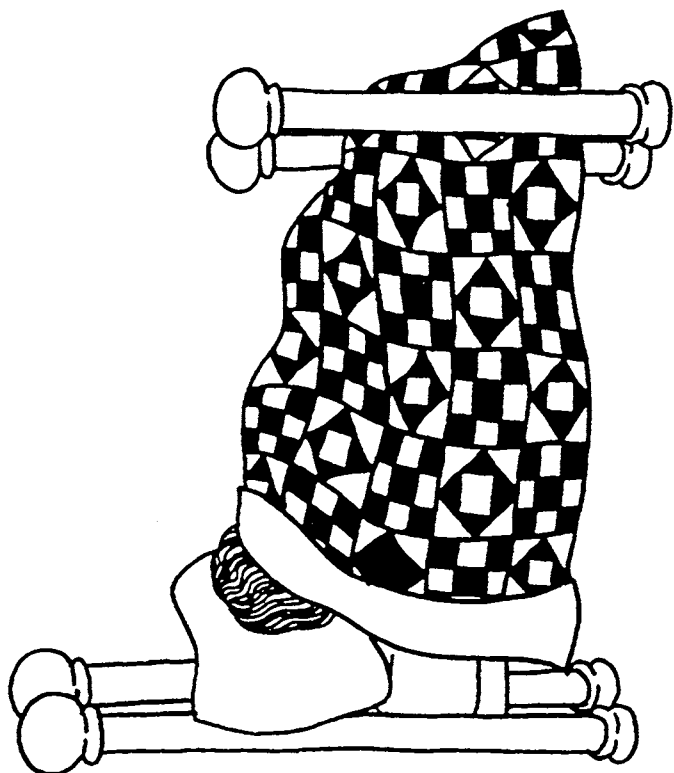
First run 1 copy to act as a master for the current year. Then, on the copy, on the middle and lower areas of the snowman, draw one circle for each day until winter vacation starts. Run the snowman on white construction paper and have children number the circles.



**Chapter 4: Advent Calendar-Circles for Xmas Ornaments** Kindergarten-6

run on red construction paper— children don't number these

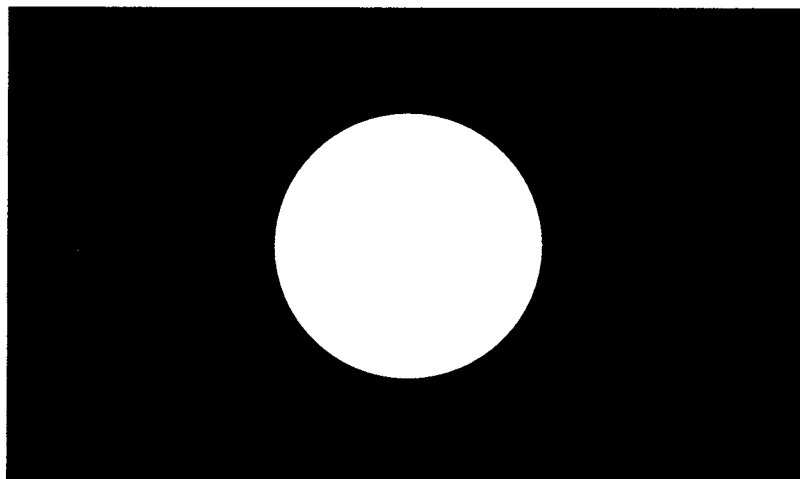




Dear Parents,

We are doing a class study of Changes. We will be completing 10 of these pages with your child throughout the month. Please take your child out tonight after dark to observe the moon. Help him/her color with a yellow crayon how the moon looks. Record the date and time. Please return the paper tomorrow. Thank you!

Name \_\_\_\_\_



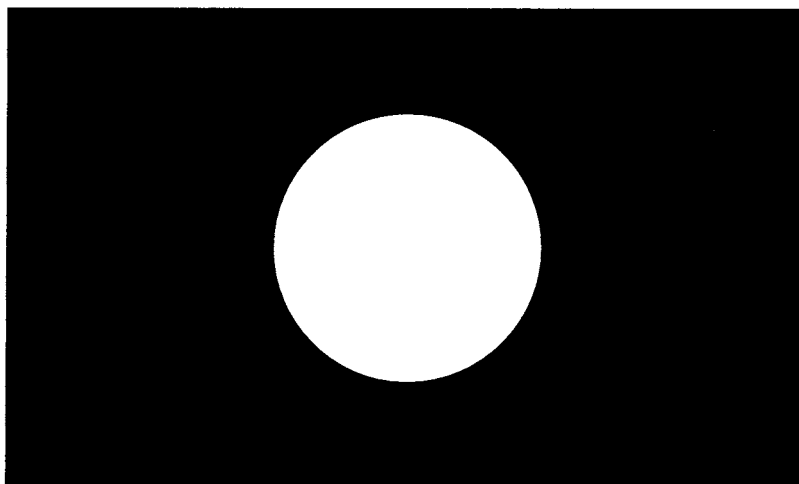
Date \_\_\_\_\_ Time \_\_\_\_\_

---

Dear Parents,

We are doing a class study of Changes. We will be completing 10 of these pages with your child throughout the month. Please take your child out tonight after dark to observe the moon. Help him/her color with a yellow crayon how the moon looks. Record the date and time. Please return the paper tomorrow. Thank you!

Name \_\_\_\_\_



Date \_\_\_\_\_ Time \_\_\_\_\_

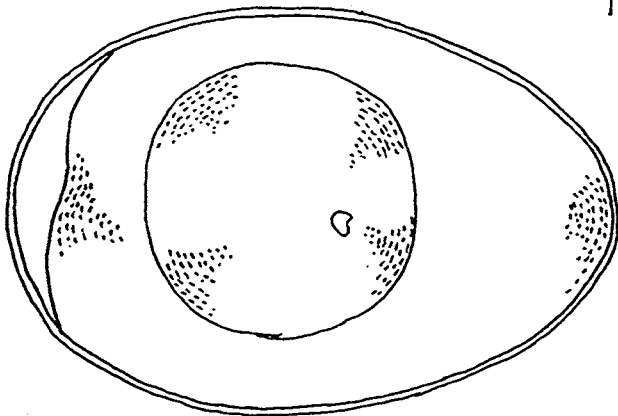
**Chapter 6: Hundreds Counting Mat**

**Kindergarten–9**

(tape 5 copies side-by-side to form each mat)



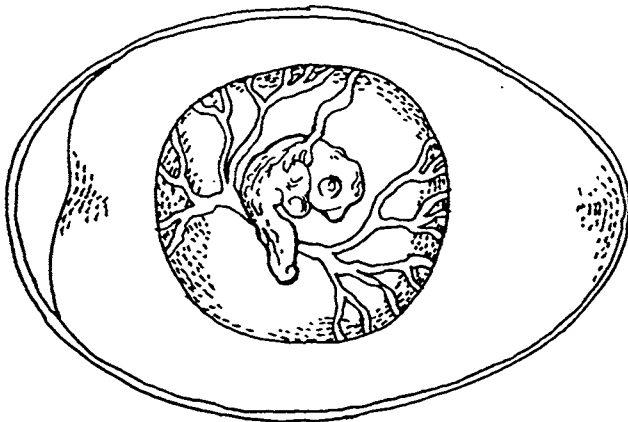

1



2

It's starting to grow.  
The tiny chick is called an  
**EMBRYO**.

3



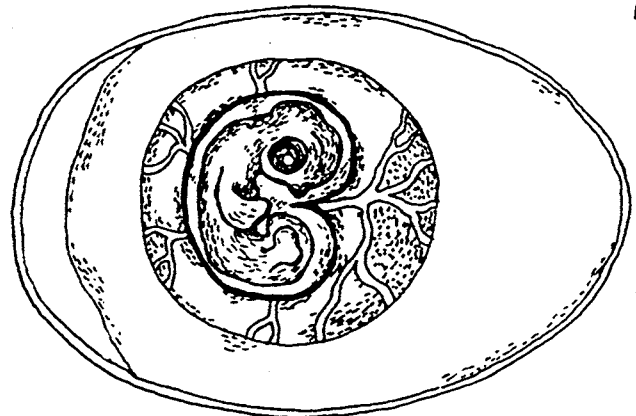
4

The blood vessels are  
carrying food from the  
yolk to the embryo.

5

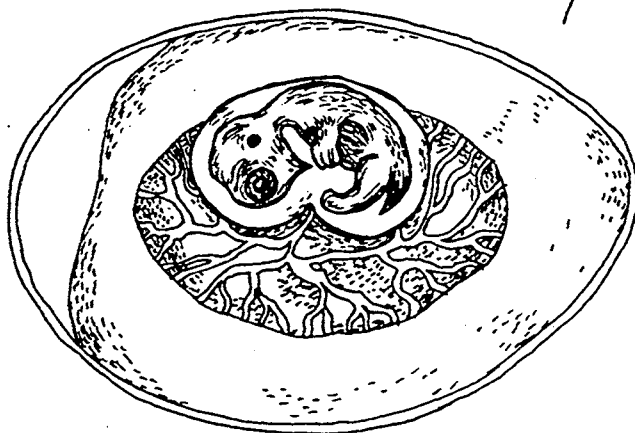
The heart is pumping  
blood through the  
blood vessels.

6



8

7



The embryo is  
now 1 inch  
long.

The embryo now is beginning to look like a chick. The ears, eyes, beak, wings, tail, and legs are formed.

9



10

The embryo rests on the yolk. It is beginning to look like a little bird without feathers.

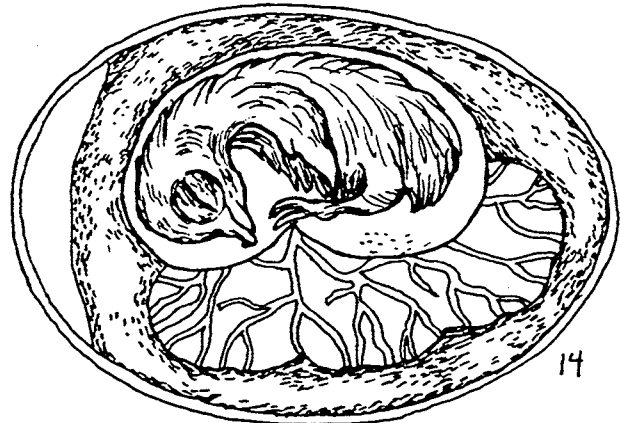
11

There is a sac around the embryo that looks like a plastic water bag. The sac cushions the embryo.

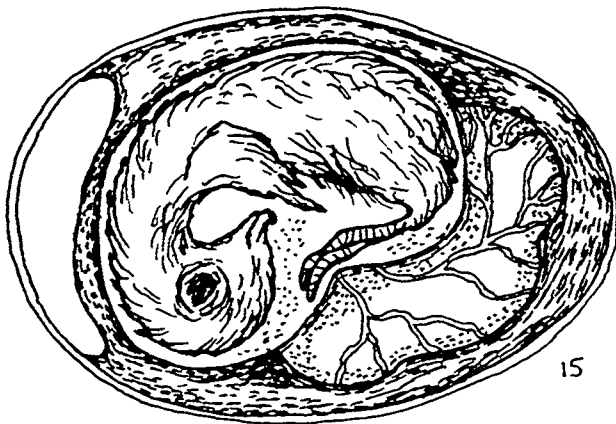
12

Now the embryo has some feathers.

13



14



15

Look at the tip of the beak. It has a special hard point that is called the egg tooth.

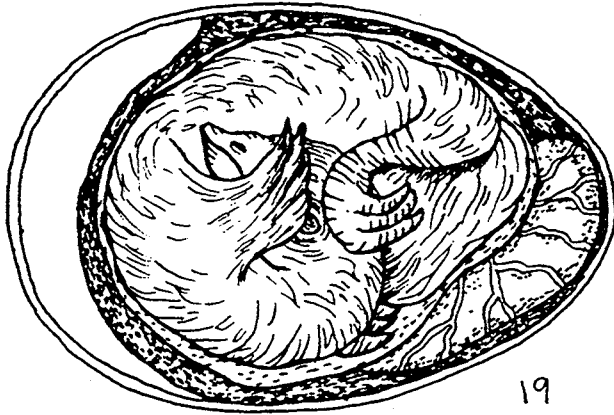
16

How many more days  
are left before the chick  
will be ready to come  
out of the  
egg ?

17

A lot of the yolk is  
gone. A lot of the white  
is gone too. The growing  
embryo used up all the  
water in the white.

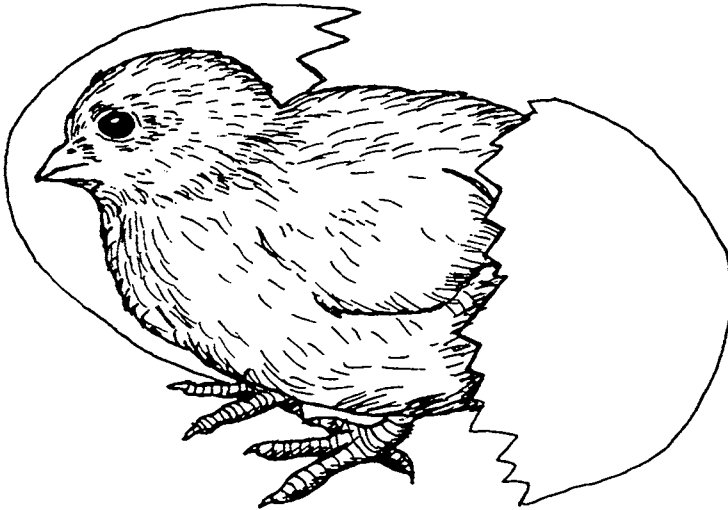
18



19

The feathers and  
feet have both grown.  
The chick is almost  
ready to hatch !

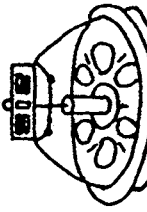
20

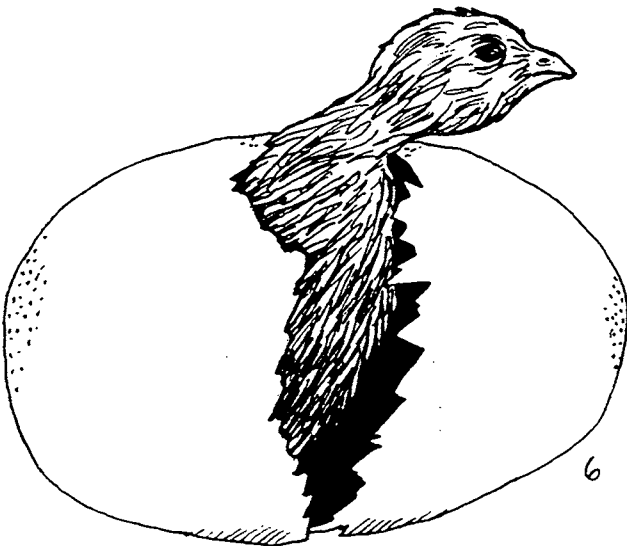
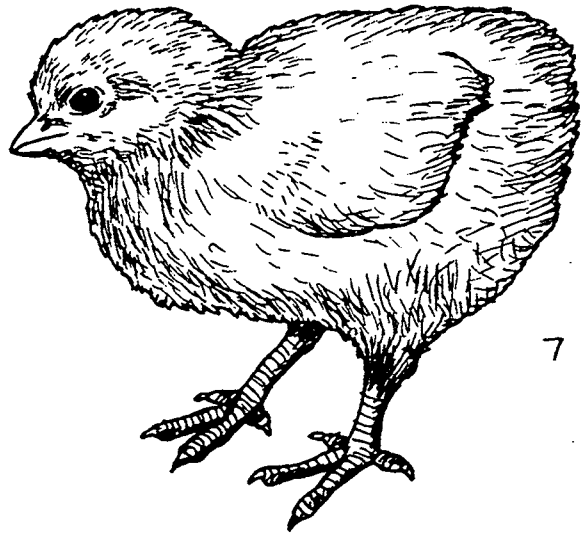
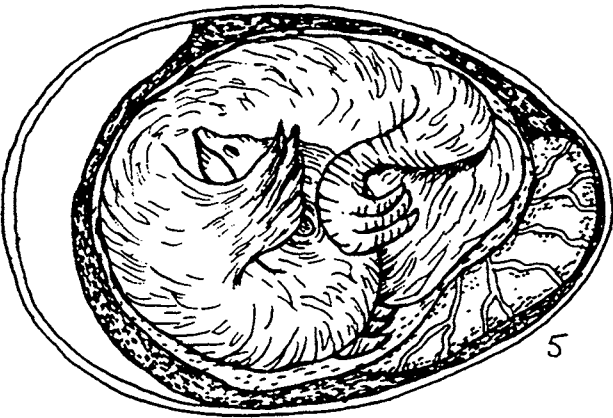
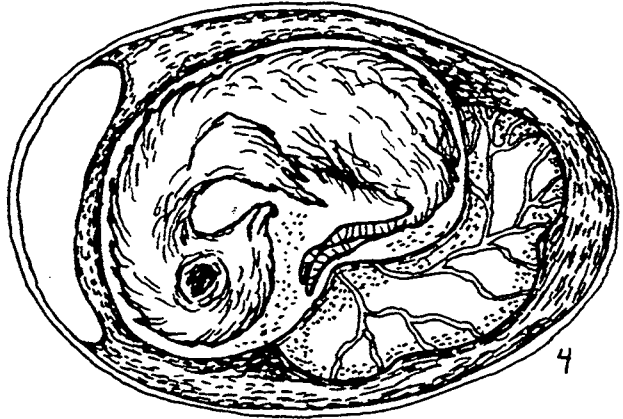
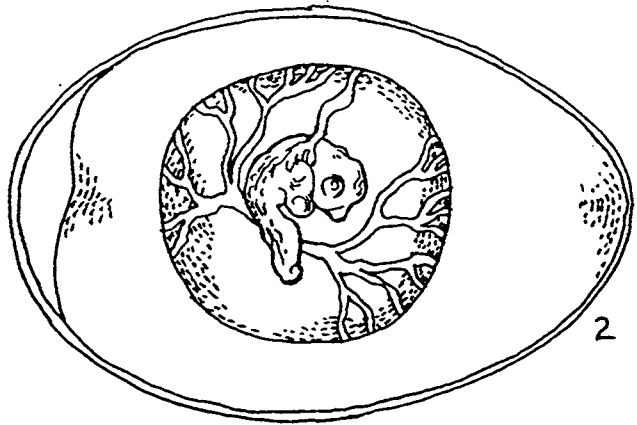
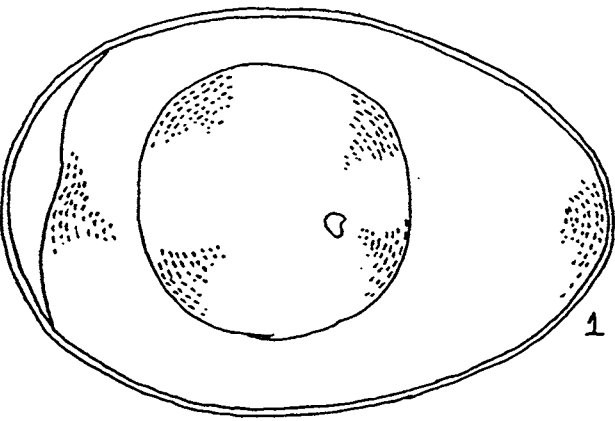


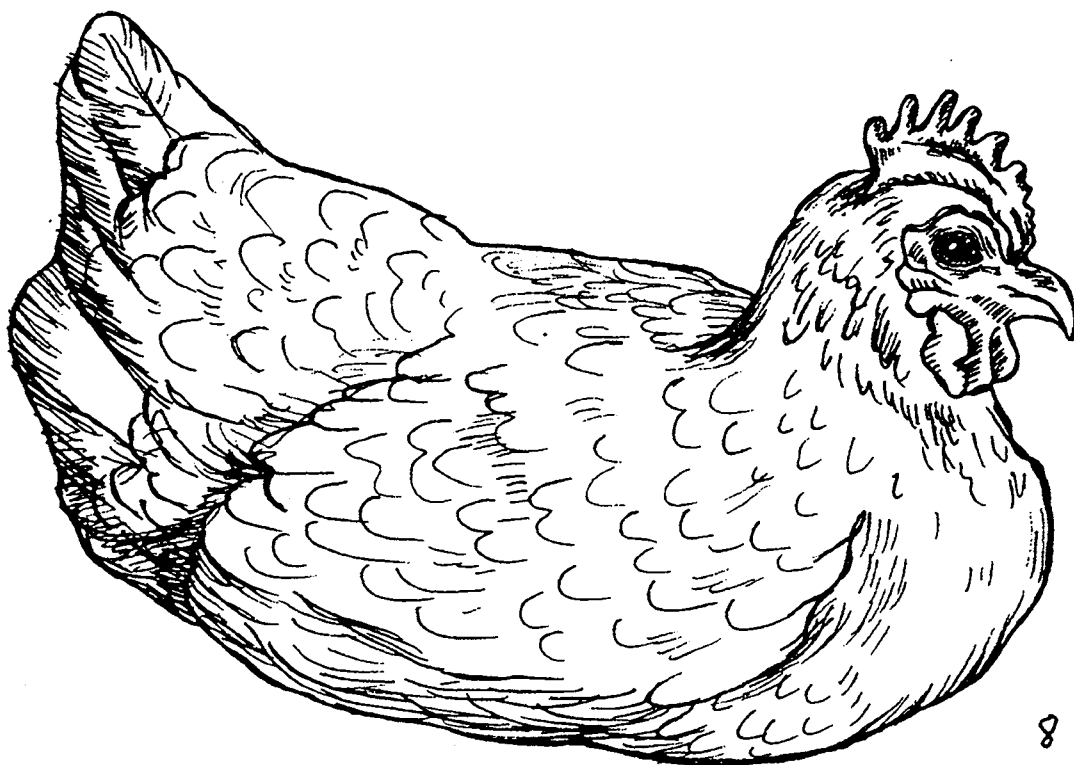
21

Make a calendar similar to this to send home with children, as described in 'Calendar Count'

# The Egg Calendar

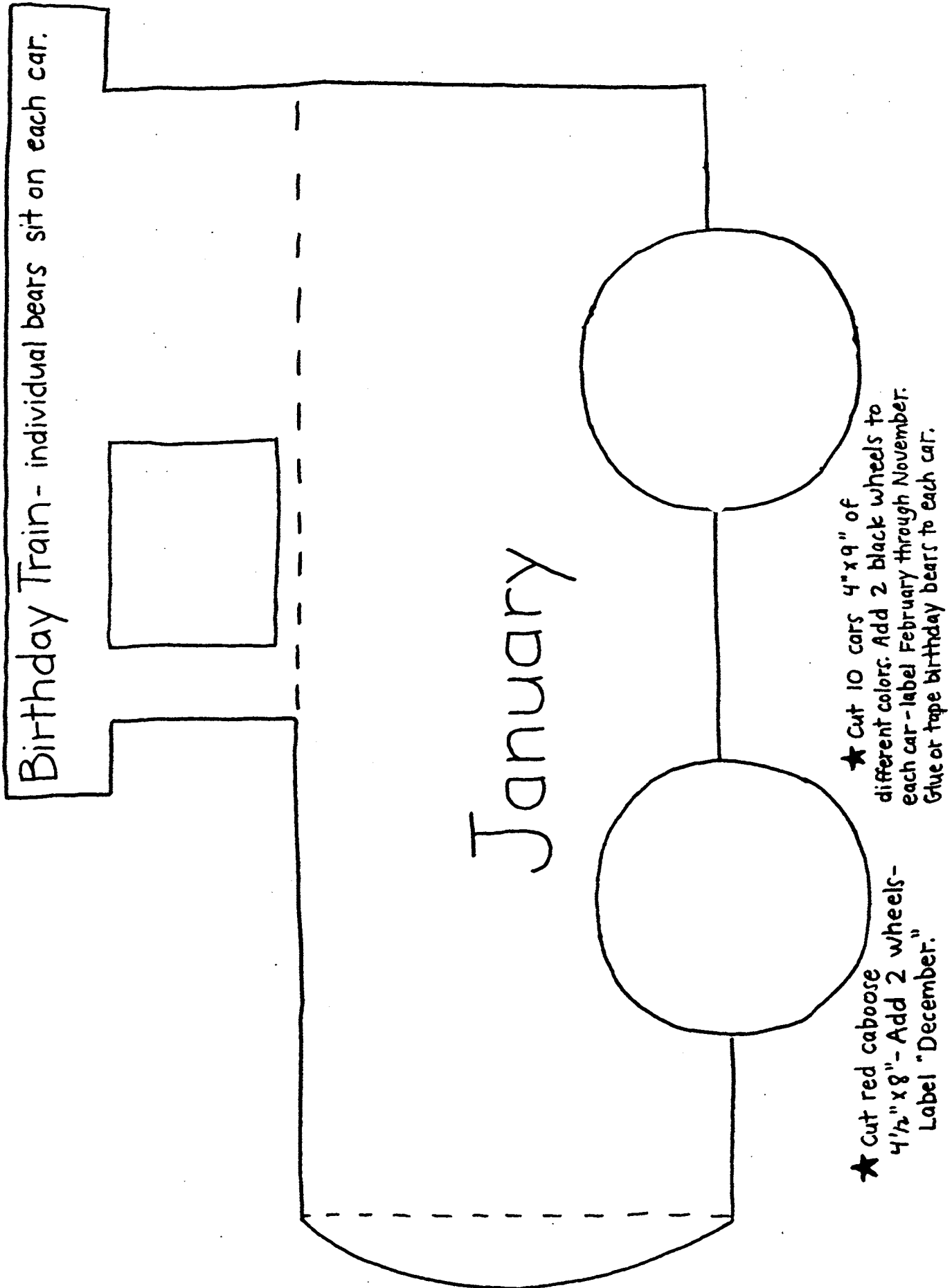
Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Incubator Temperature 102° Eggs turned automatically each hour.		 Eggs placed in incubator.	DAY 1	DAY 2	DAY 3	DAY 4
DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10	DAY 11
DAY 12	DAY 13 Candle eggs for fertility check.	DAY 14	DAY 15	DAY 16	DAY 17	DAY 18 Do not open incubator!
DAY 19 Do not open incubator!	DAY 20 Do not open incubator!	DAY 21 HERE THEY COME!		The incubator has to stay closed the last few days to maintain a high humidity to make it easier for the chicks to break the shell and hatch out.		



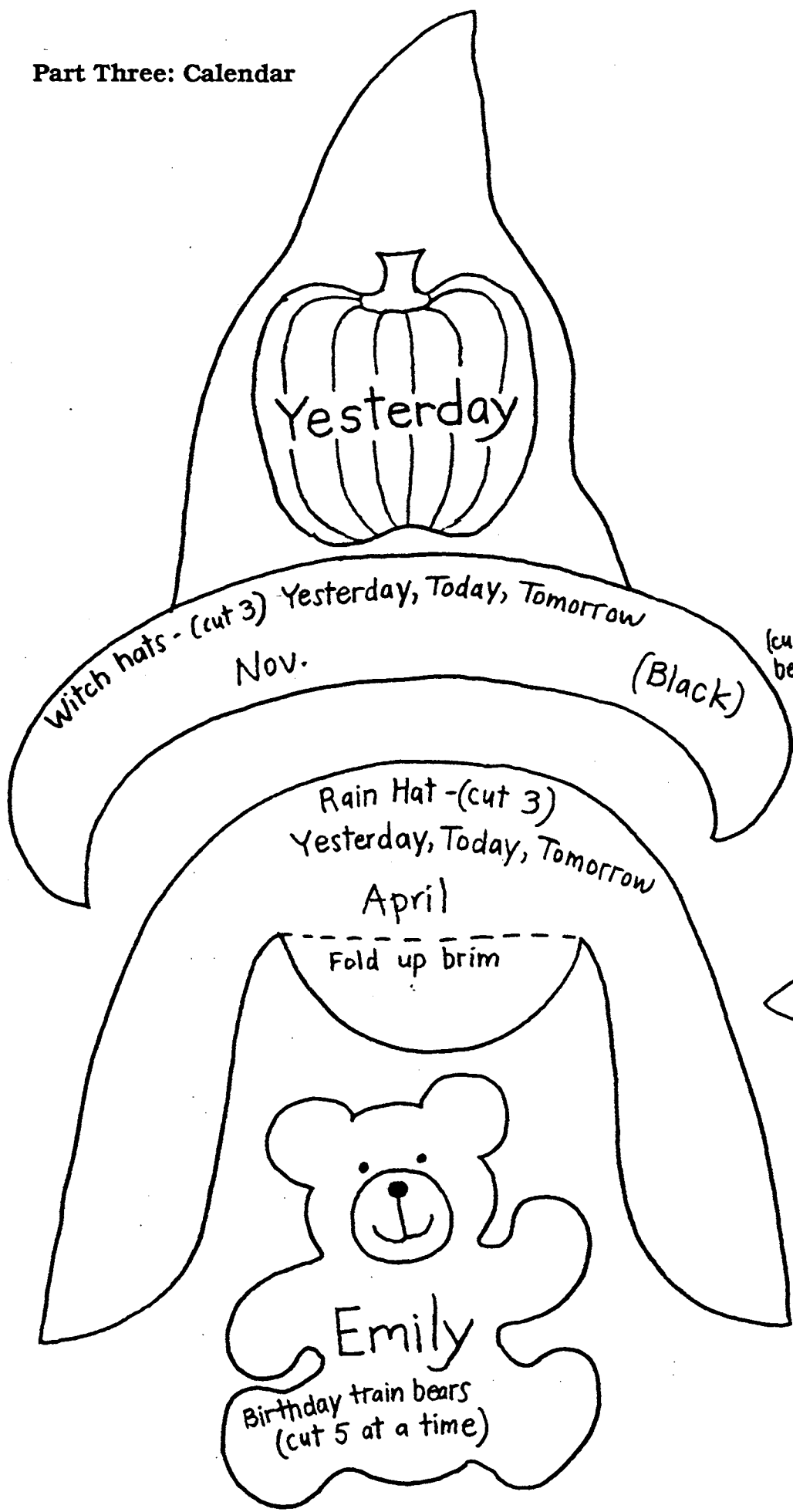


# The Calendar

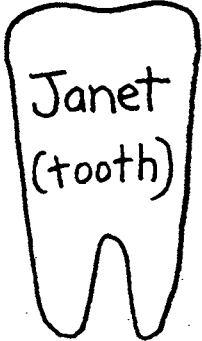
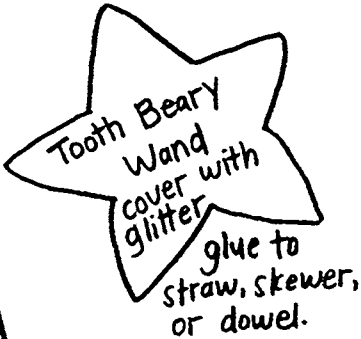
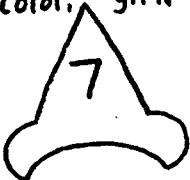
[illegible]



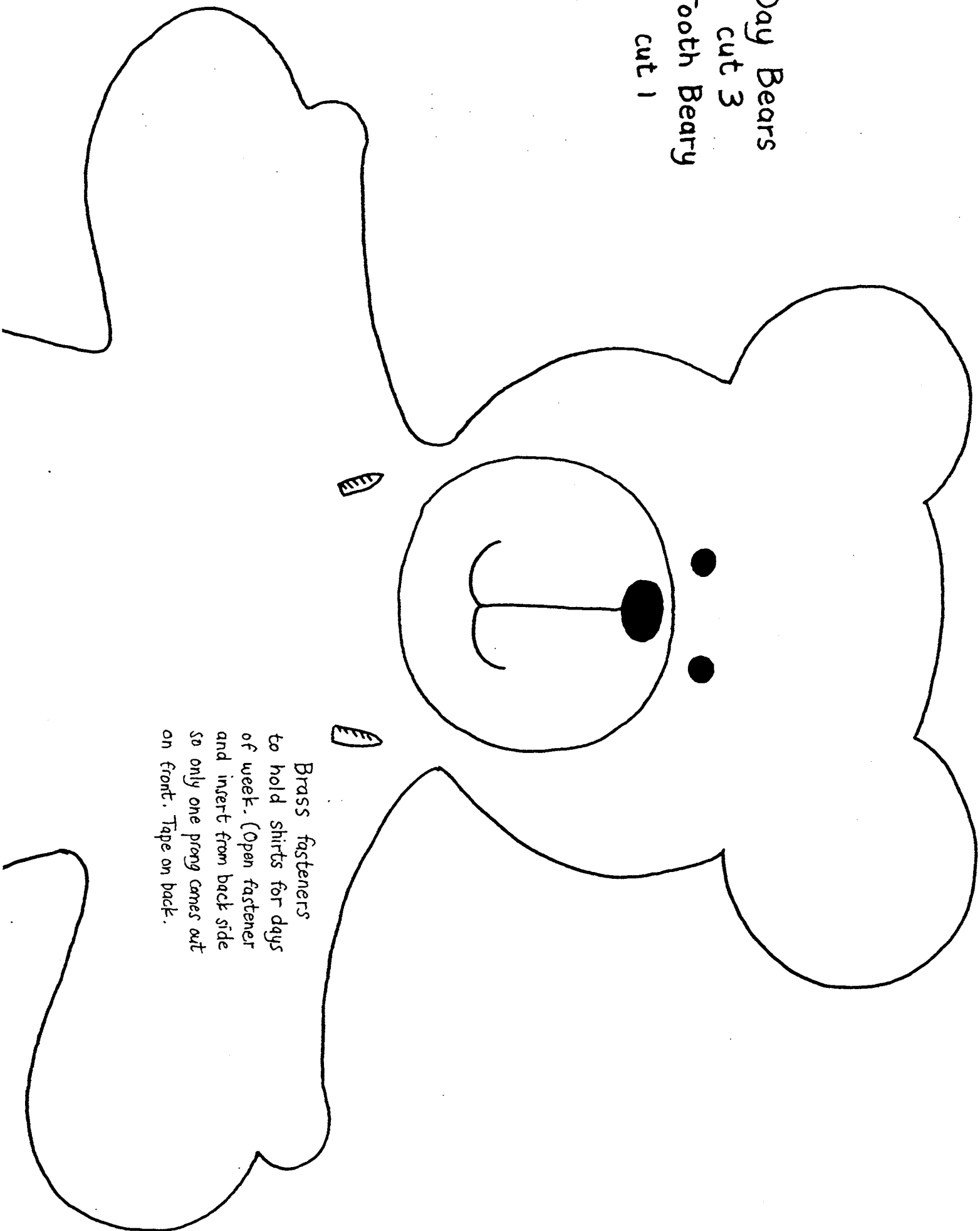




Birthday bear hats (cut 5 at a time) boys could be one color, girls another.



Day Bears  
cut 3  
Tooth Beary  
cut 1



Brass fasteners  
to hold shirts for days  
of week. (Open fastener  
and insert from back side  
so only one prong comes out  
on front. Tape on back.

(lower half of bear and looth beary)

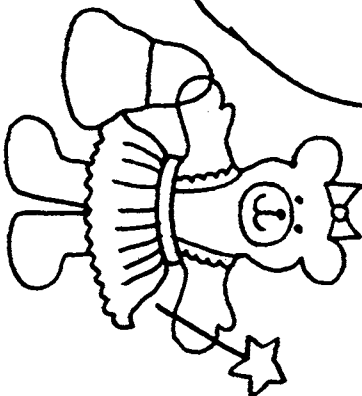
St. Patrick's Day Hat  
(make 3)  
Yesterday, Today, Tomorrow -

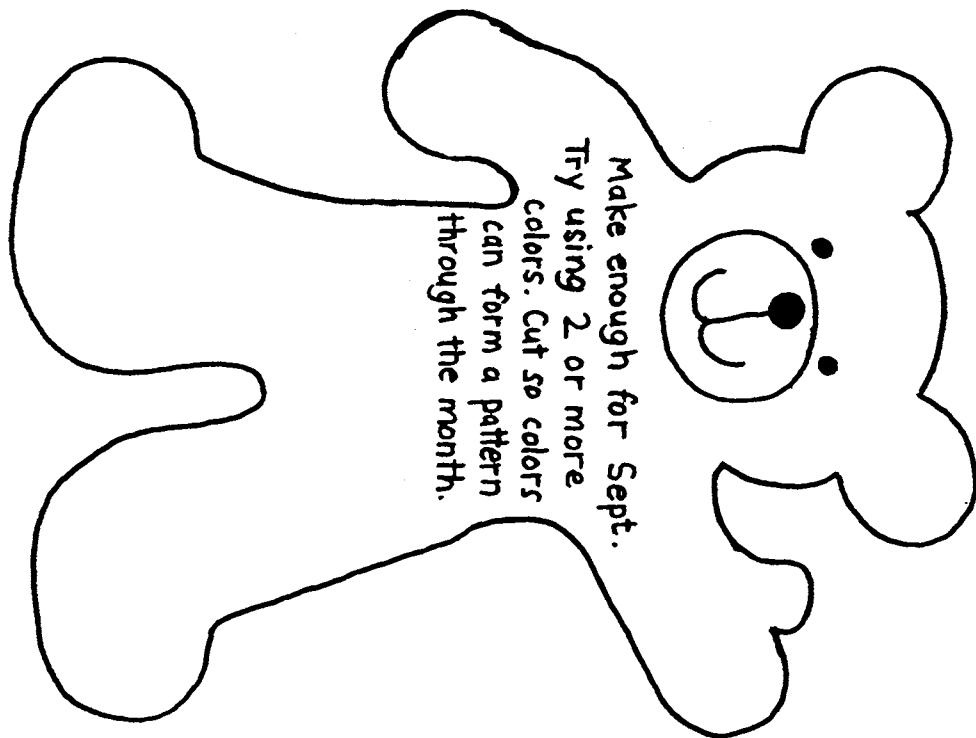
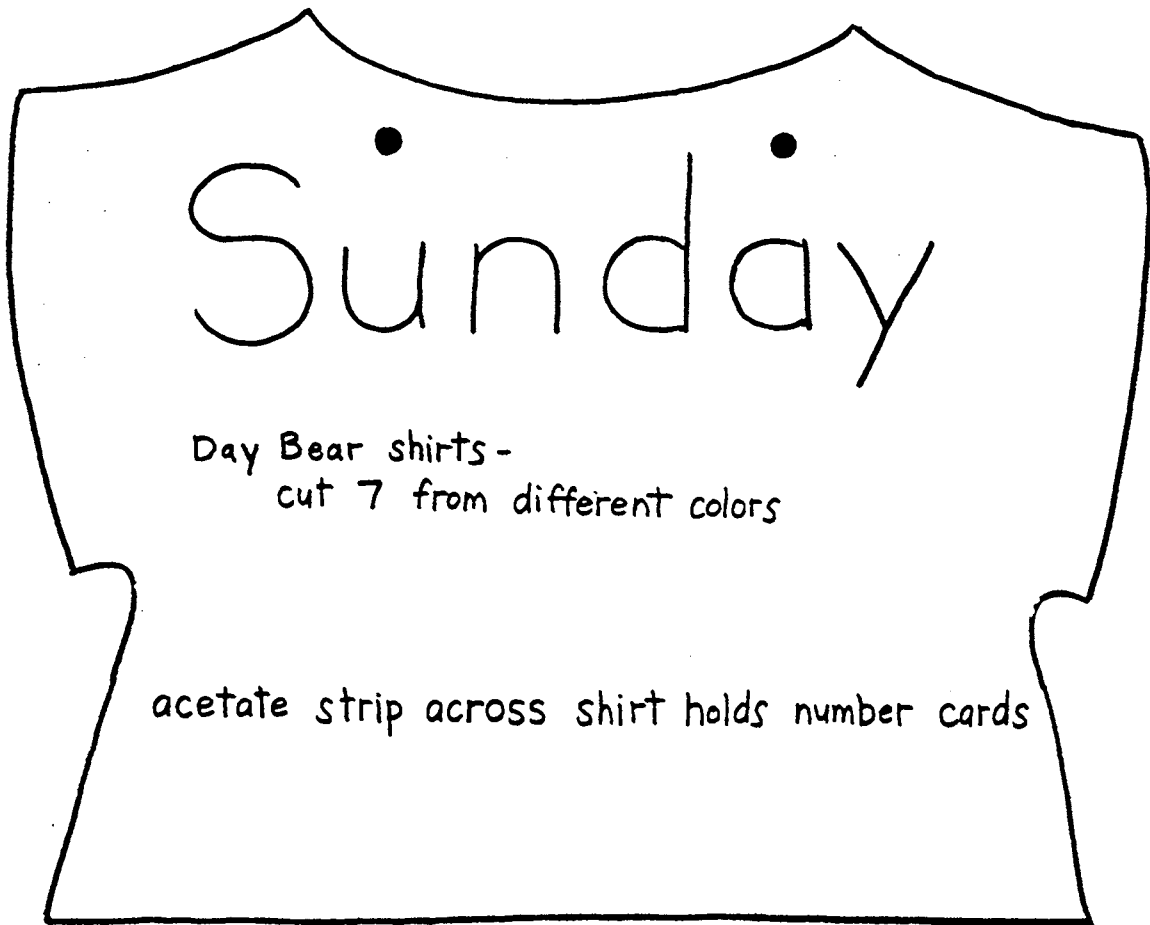


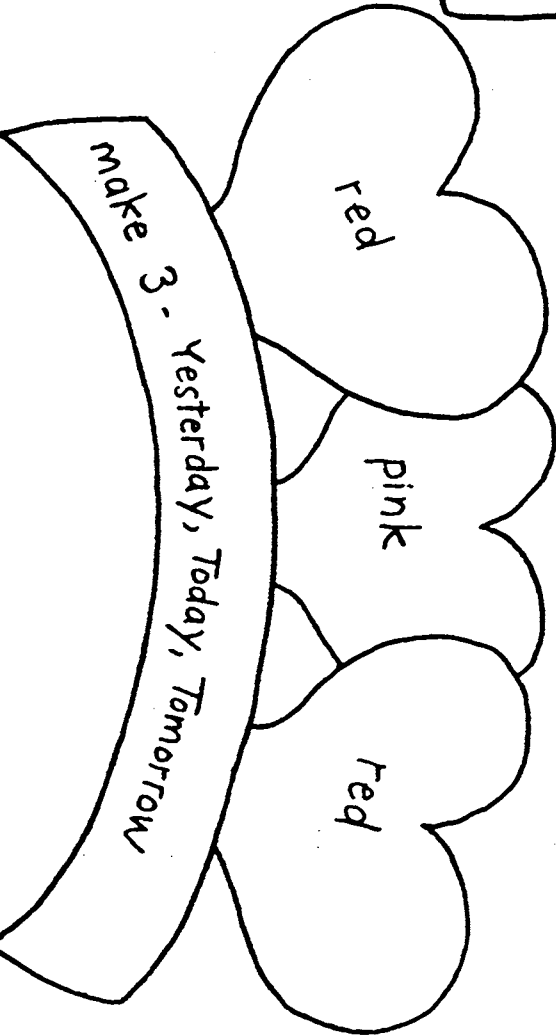
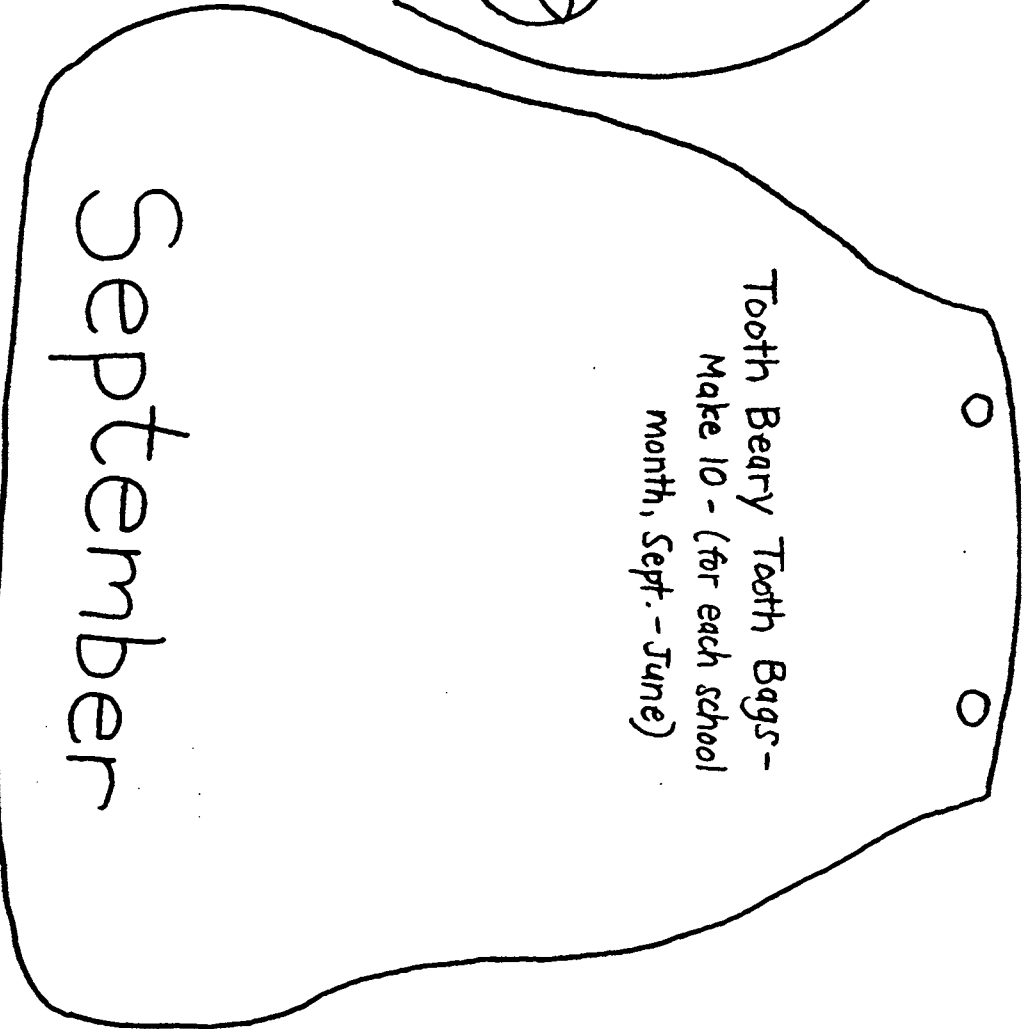
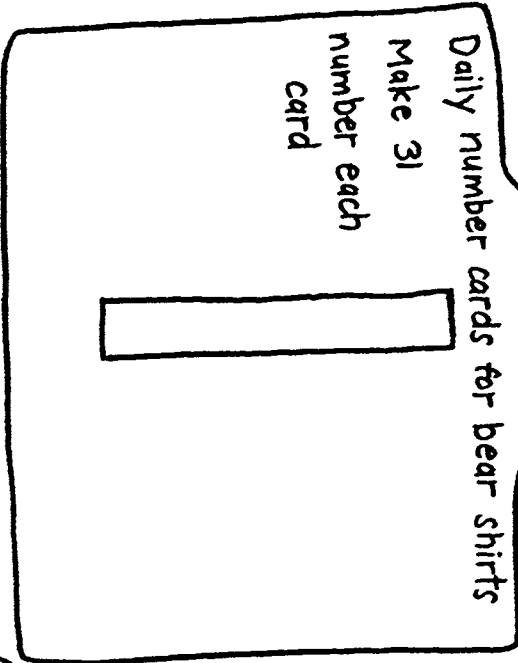
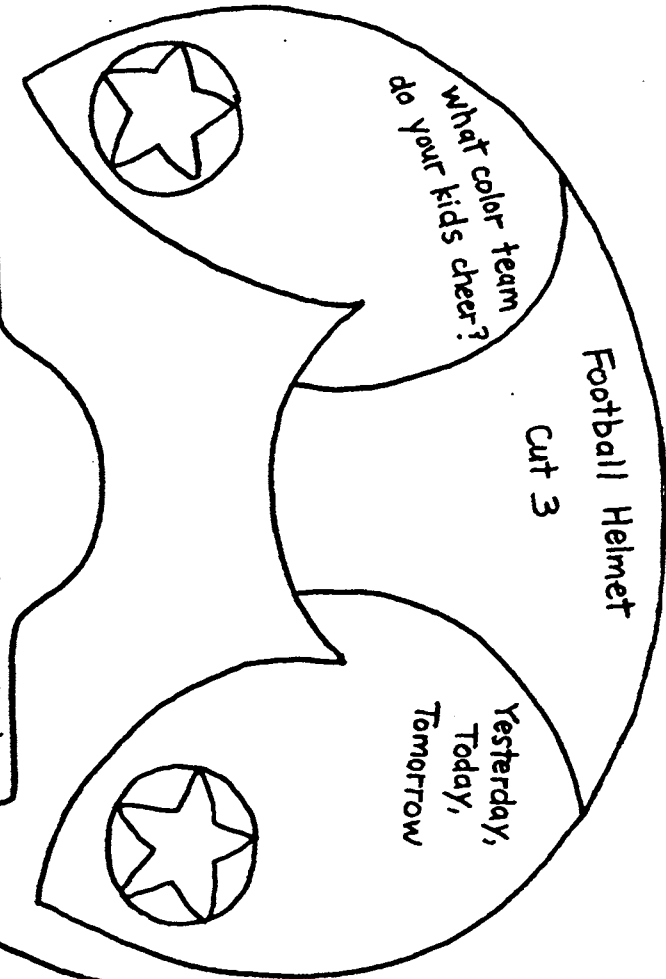
March

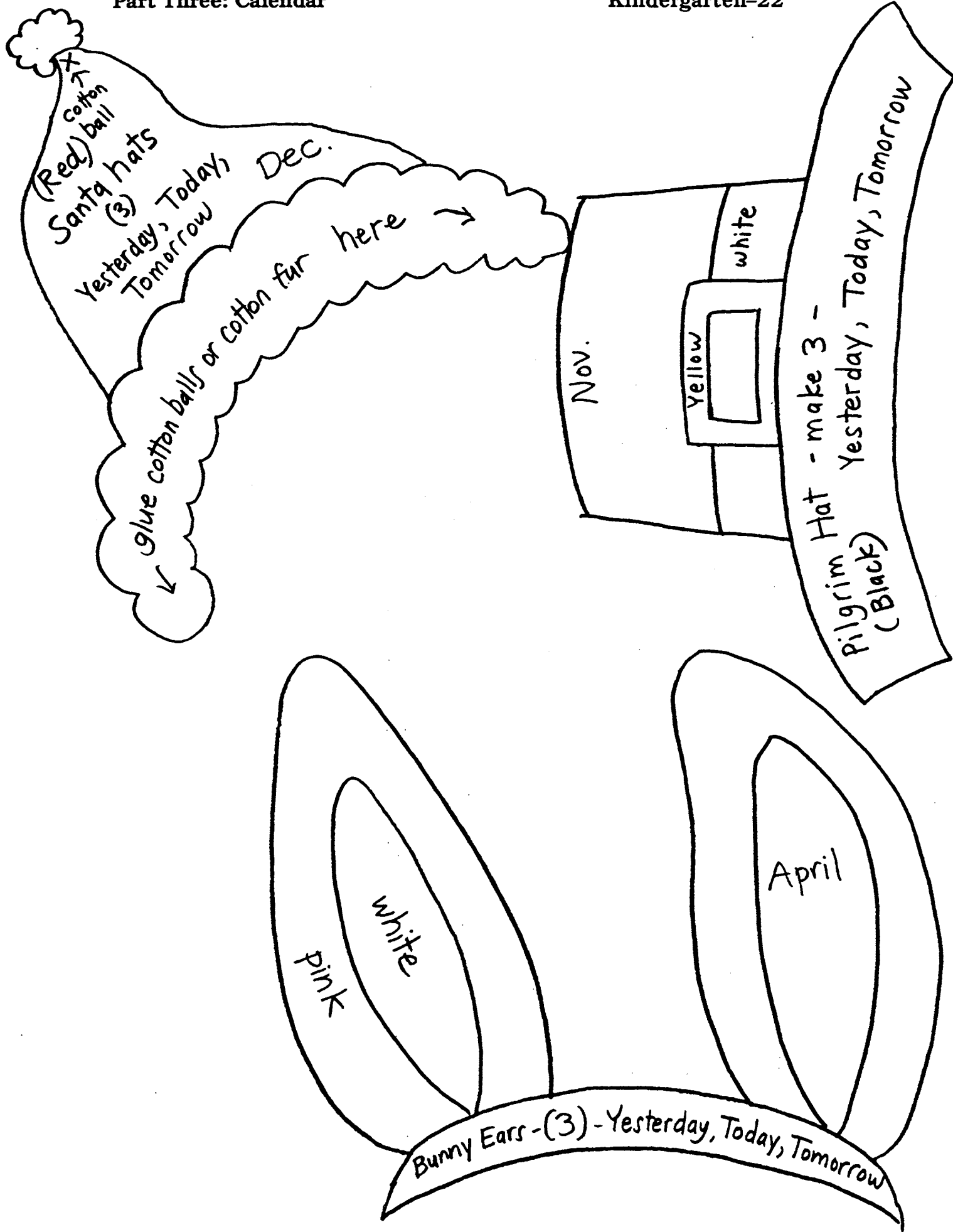
### Tooth Beary Skirt

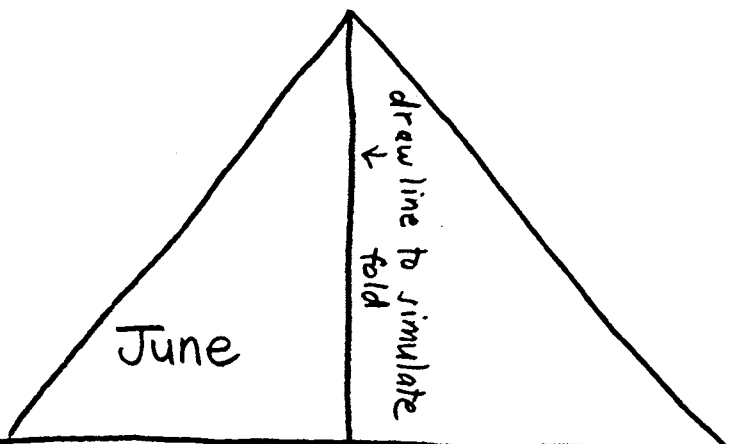
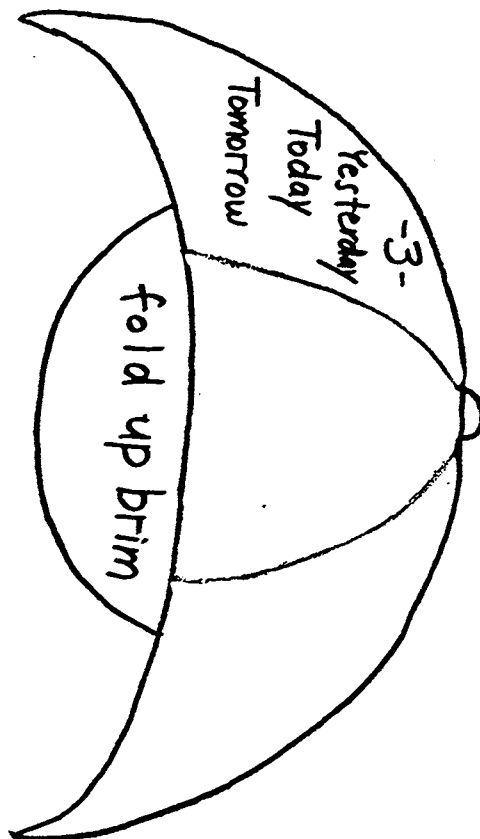
1. Cut formal type "net" 3"x54" or more, depending on fabric width. Fold in half.
2. Run gathering thread at top. Pull to gather, about 7".





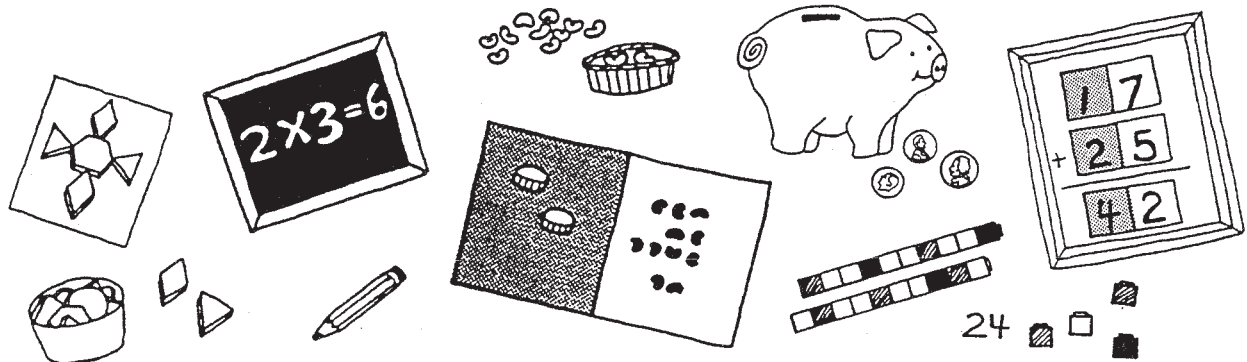




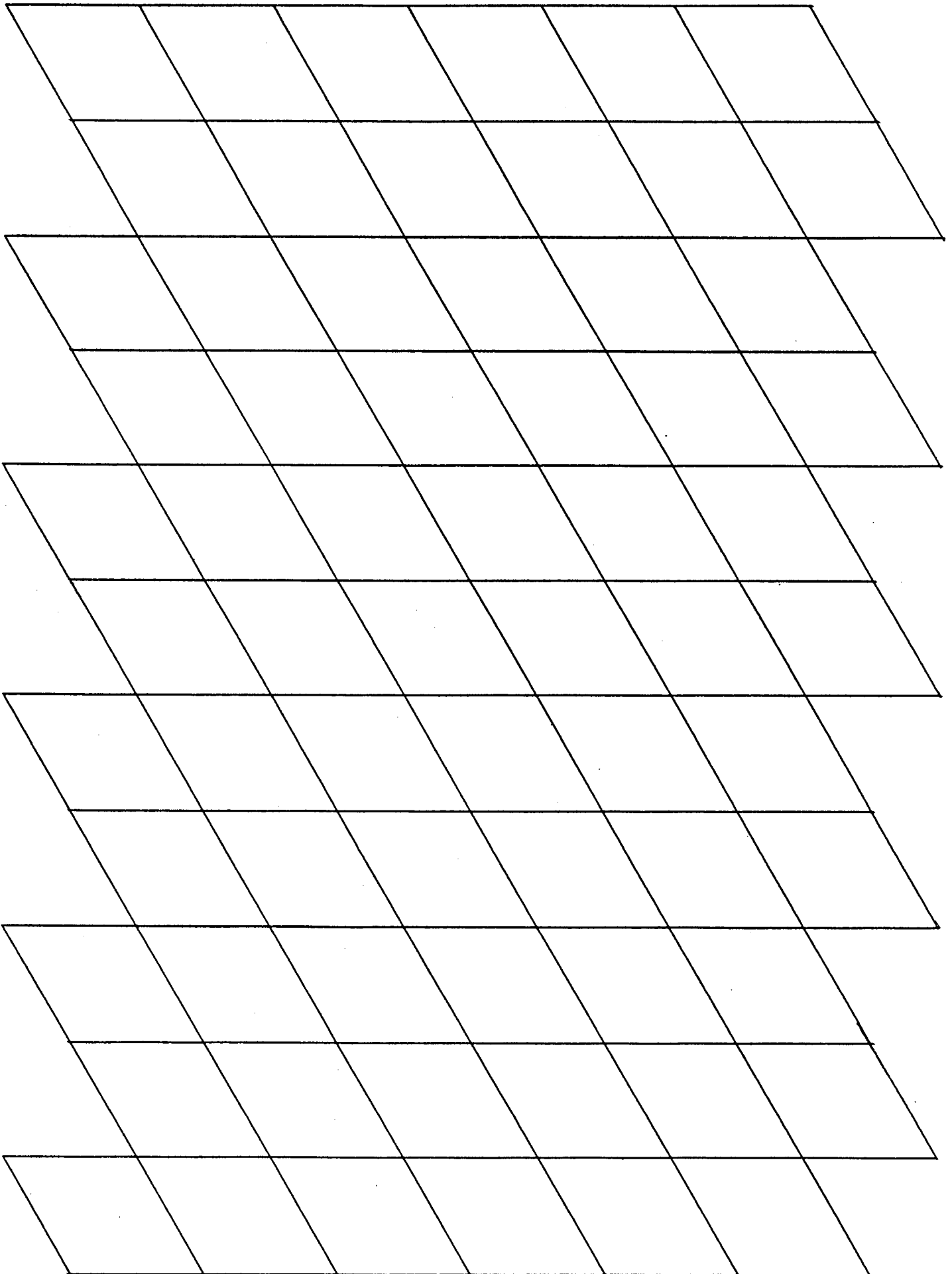


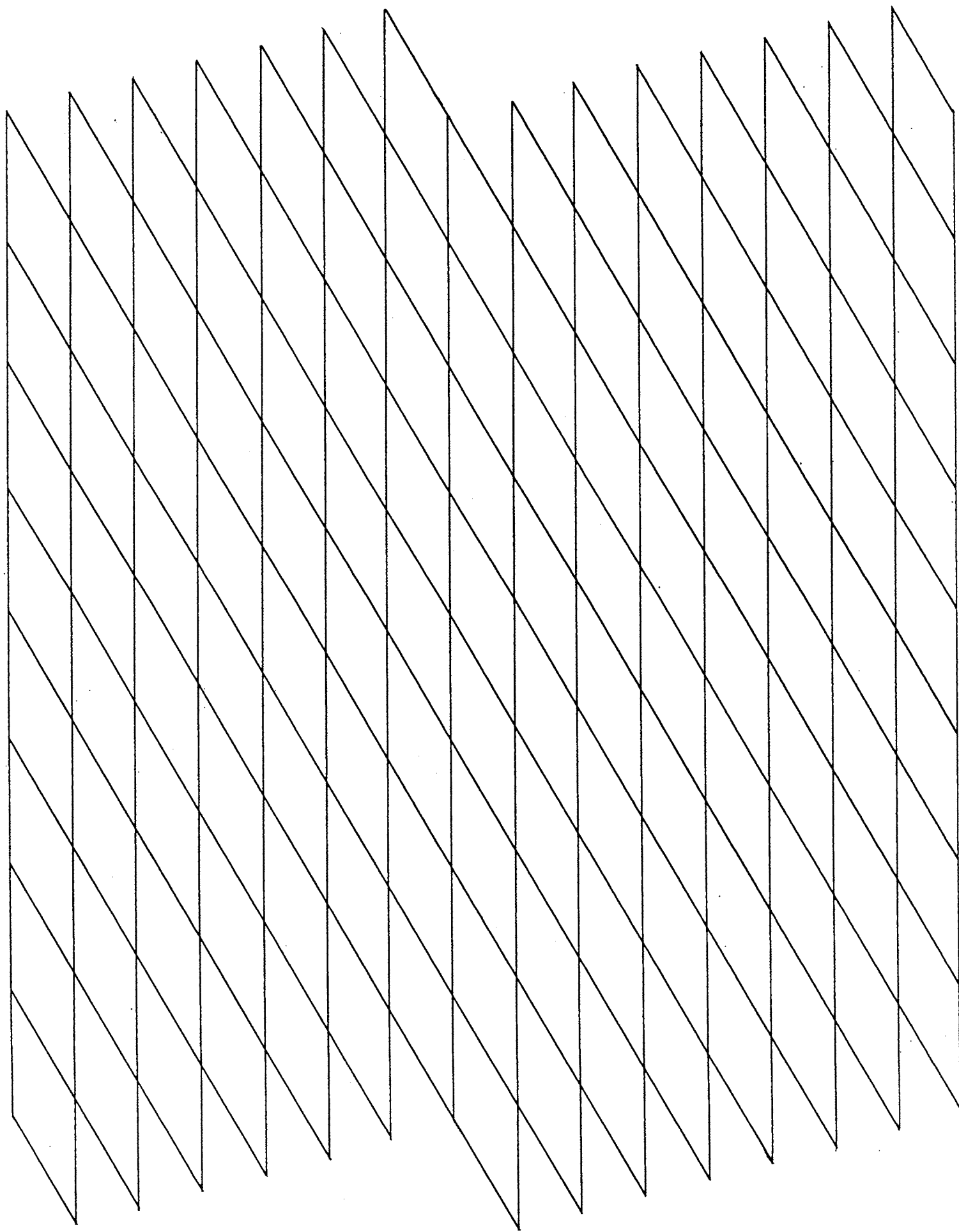
Make 3 out of newspaper or construction paper  
Yesterday, Today, Tomorrow

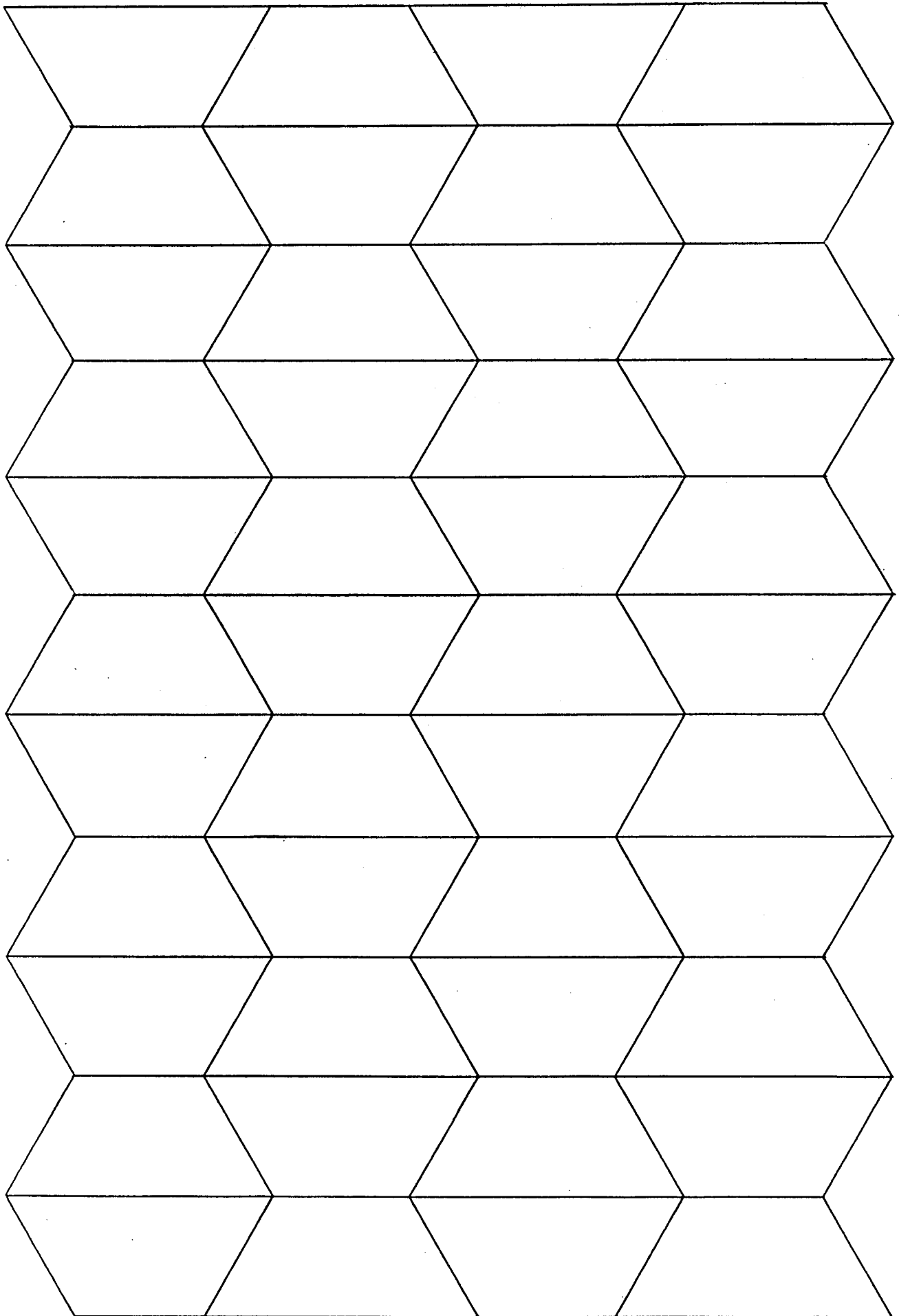
# Concept Instruction

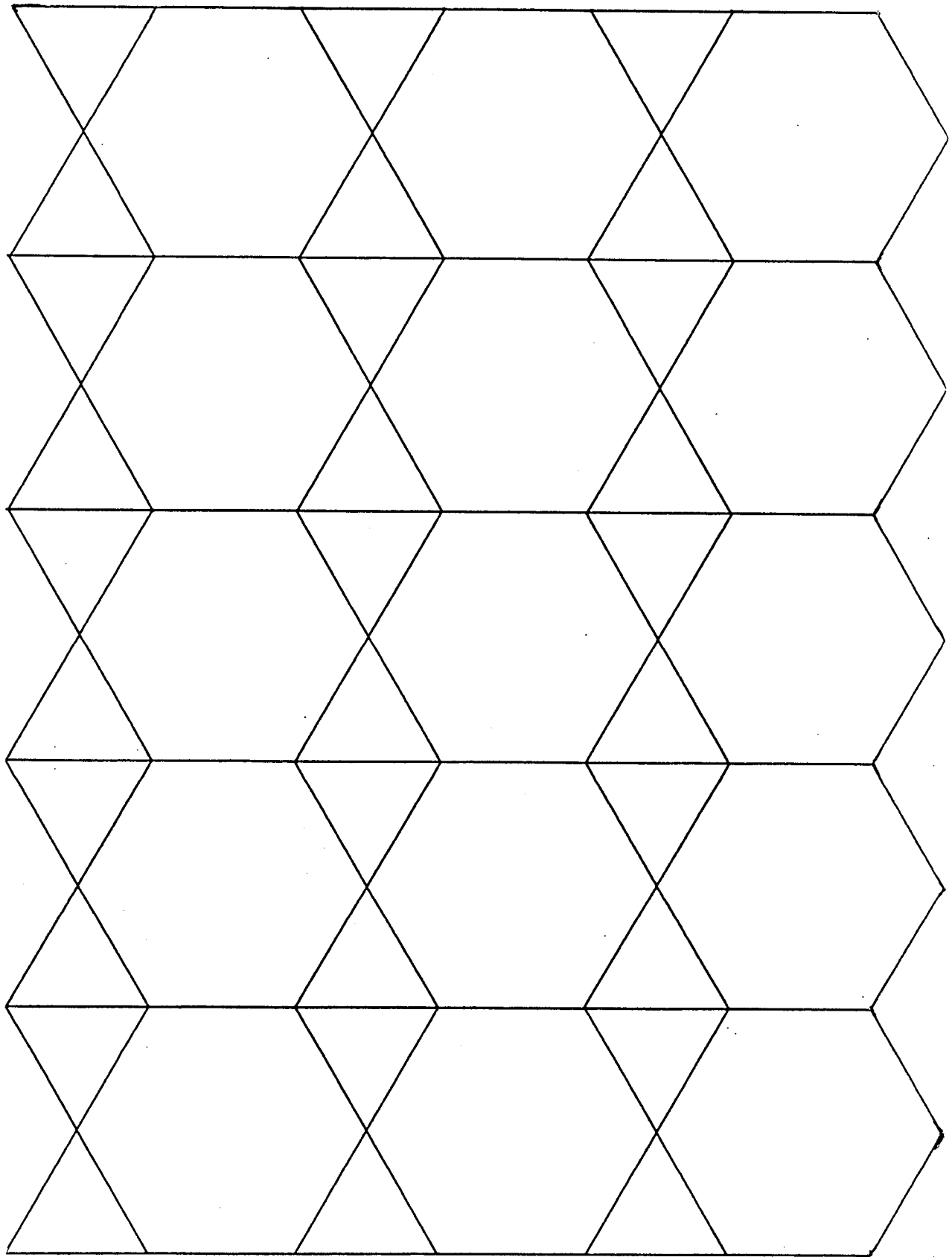


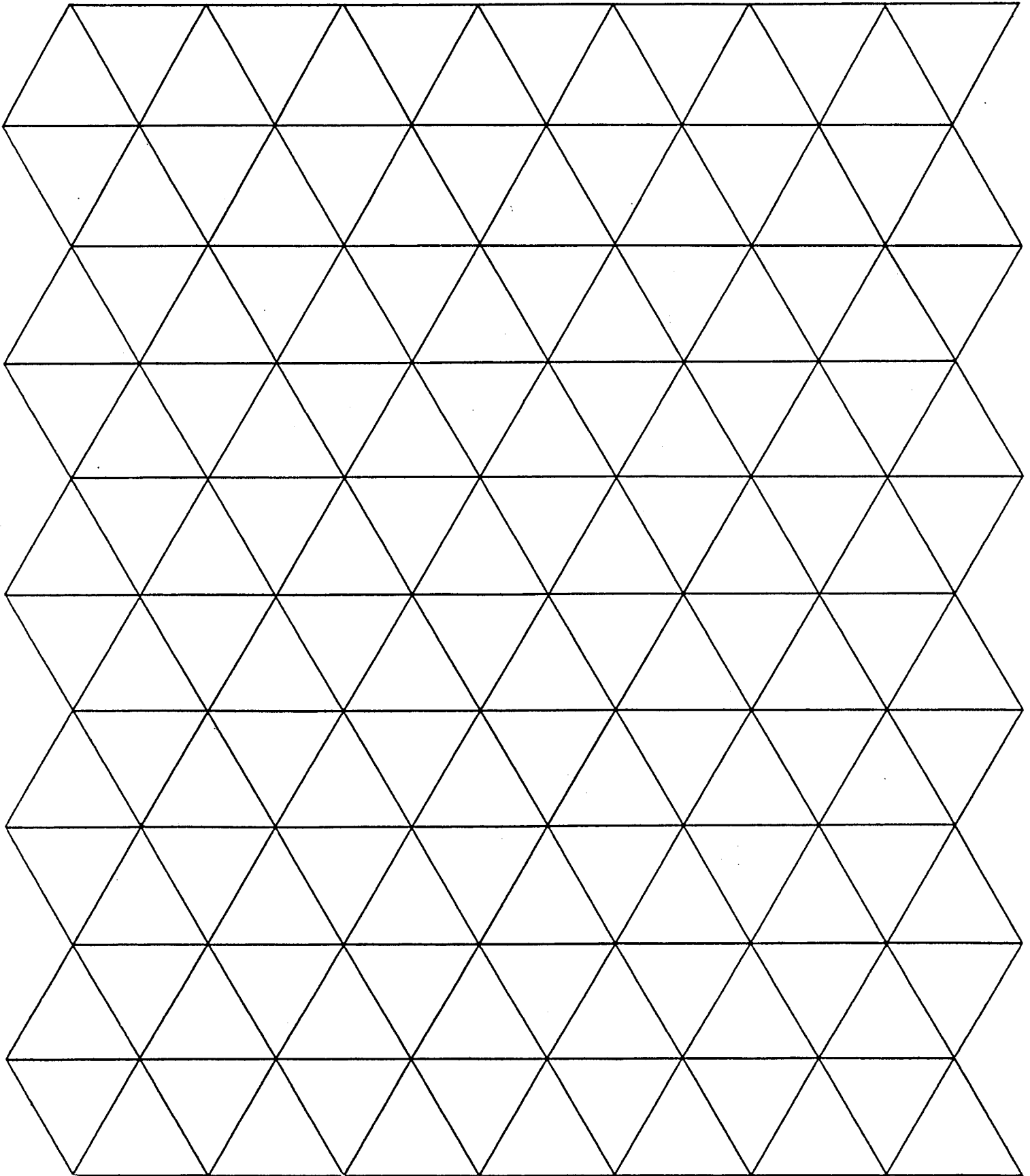


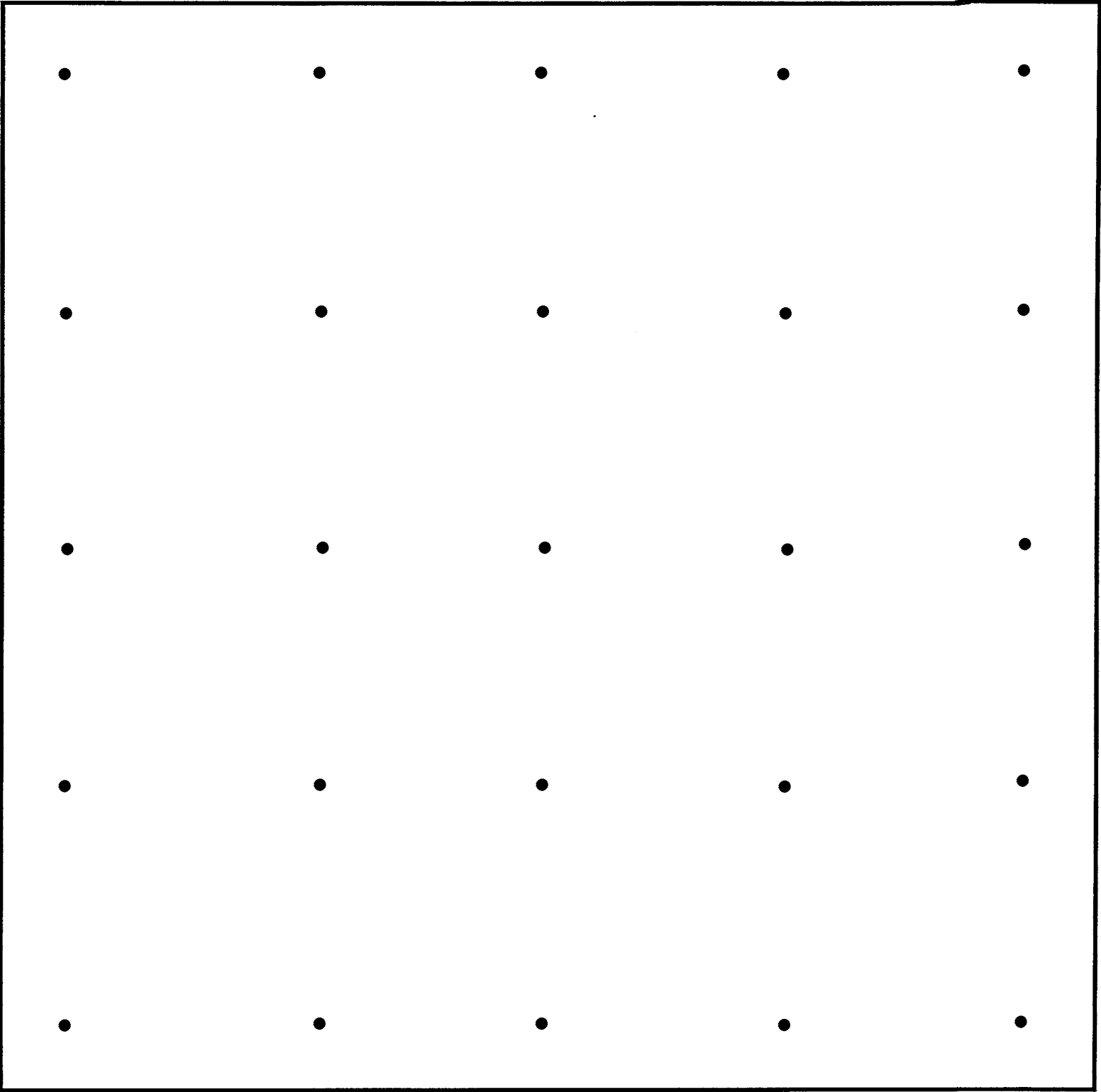












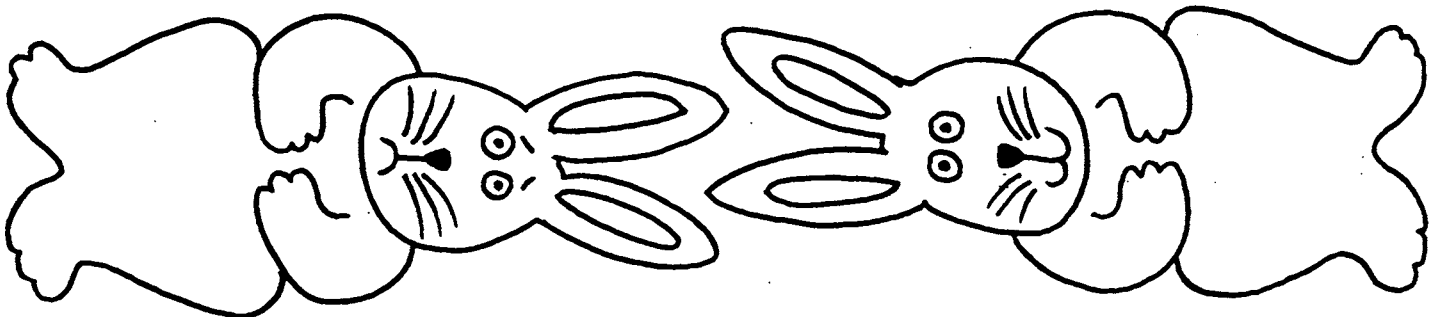
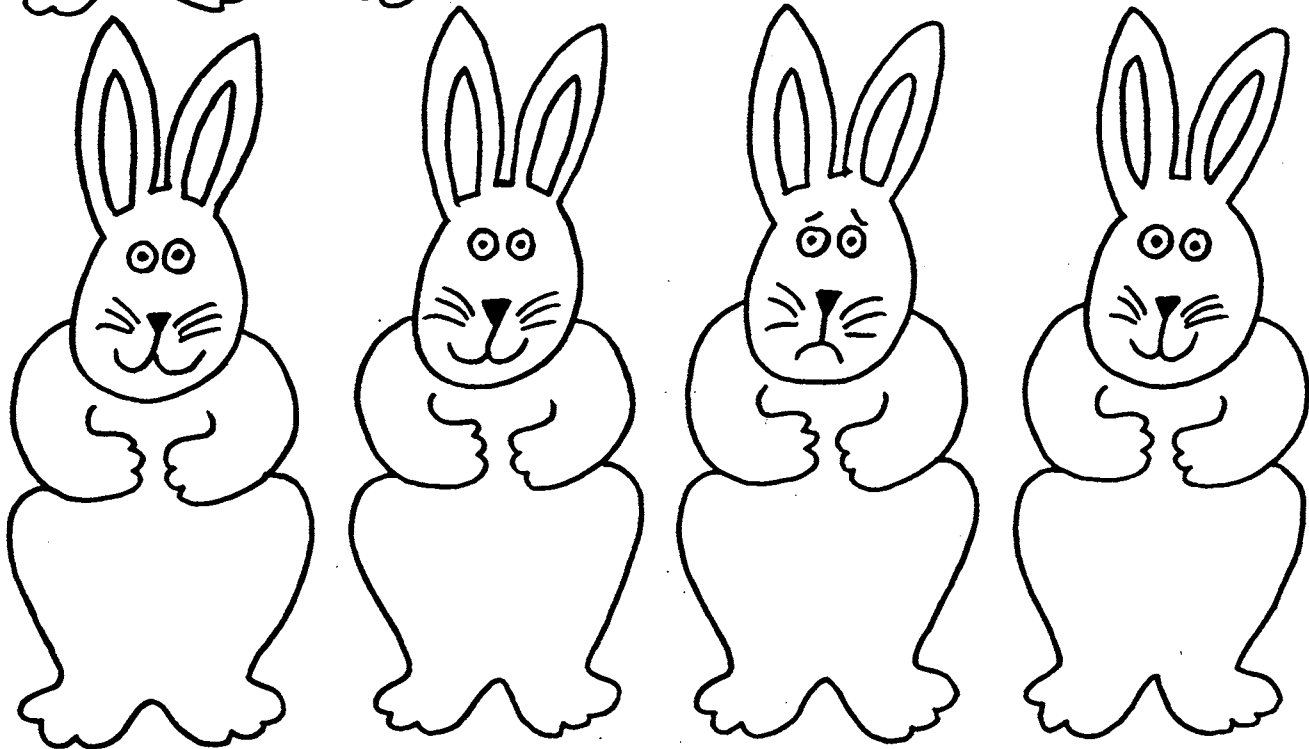
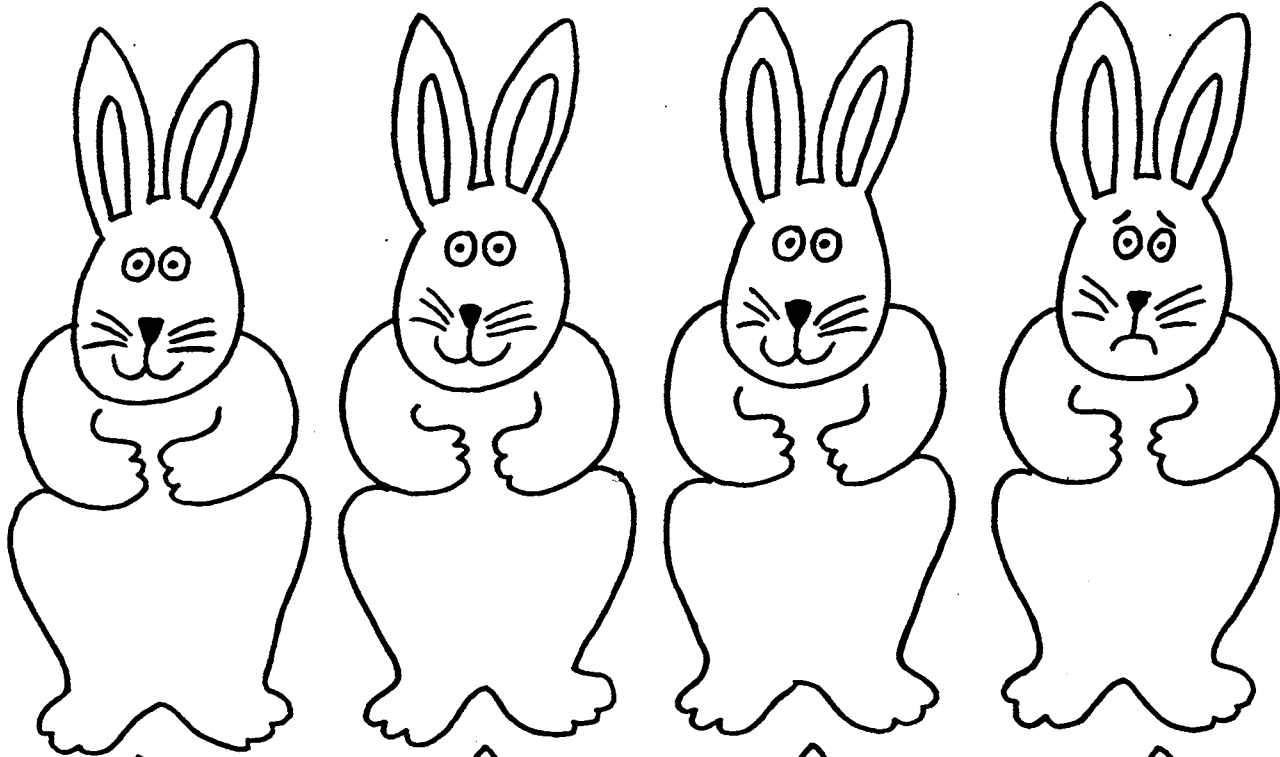
Run a half class set of this blackline on cardstock. Cut apart and laminate.

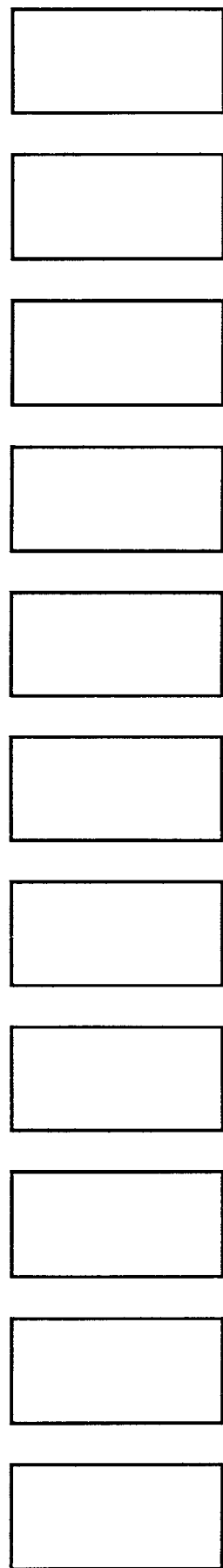
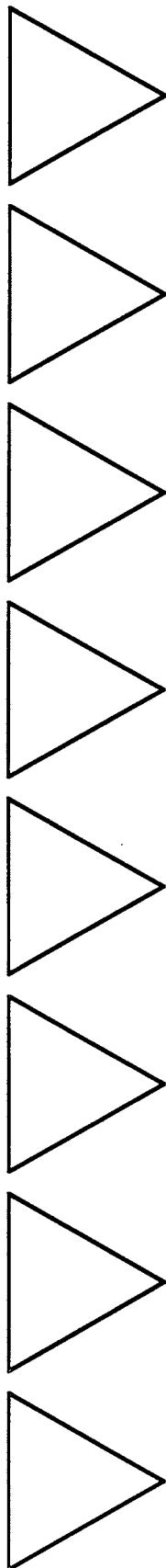
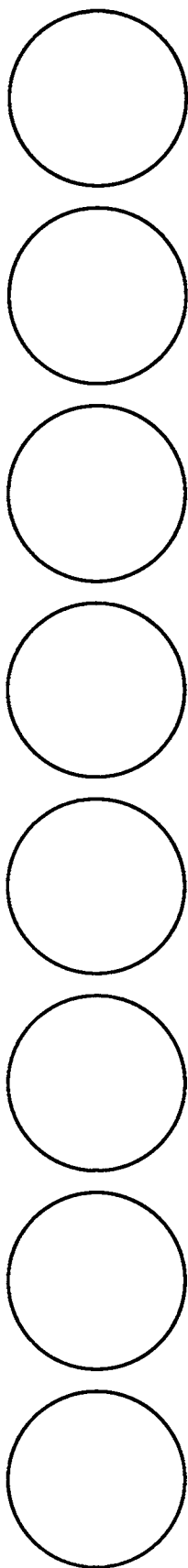
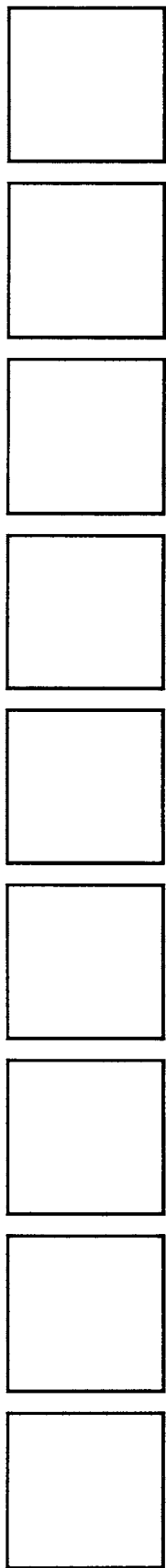
---



0	1 •	2 ••	3 •••	4 •• ••
5 •• ••	6 •• •• ••	7 •• •• •• •	8 •• •• •• ••	9 •• •• •• ••
1 •	2 ••	3 •••	4 •• ••	5 •• •• ••
6 •• •• ••	7 •• •• •• •	8 •• •• •• ••	9 •• •• •• ••	10 •• •• •• ••



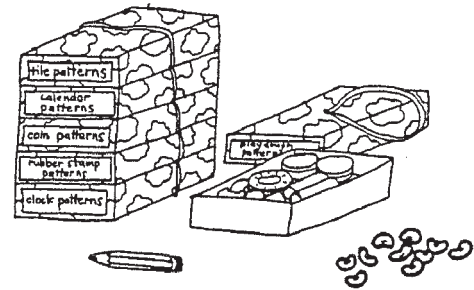
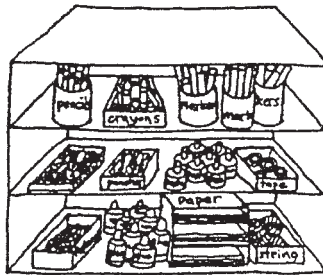
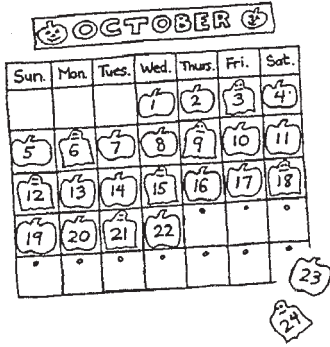









# Planning



**Box It or Bag It Mathematics  
Concept Planning Sheet**

Concept Instruction—Group Lessons  
How are you going to introduce this concept?

Independent Practice Time—What do you already have?

What boxes will you try to make?

Easy

Challenging

What could you ask your class parents to make for you?

Is there anything you will include for additional practice?  
(workbook pages, ditto sheets, computer programs?)

**Box It or Bag It Planning Guide for \_\_\_\_\_**  
(month)

	Monday	Tuesday	Wednesday	Thursday	Friday
20-30 minutes	Concept Instruction	Concept Instruction	Seasonal Math	Seasonal Math	Concept Instruction
20-30 minutes	Independent Practice Boxes	Independent Practice Boxes	Independent Practice Boxes	Seasonal Math	Seasonal Math or Boxes

CONCEPT INSTRUCTION provides specific, direct teaching to each concept.

- Concept(s) I'm introducing this month\_\_\_\_\_
- Key concept instruction lessons:

INDEPENDENT PRACTICE BOXES provide individual practice and enrichment.

- Concept(s) my class is practicing\_\_\_\_\_
- Independent Practice Boxes:



SEASONAL MATHEMATICS, chapters 1-9, provides consistent exposure and review each month.

- Seasonal unit I'm doing this month\_\_\_\_\_
- Here are one or more activities I'm planning to draw from my seasonal unit in each area:

Graphing

Sorting

Money

Patterning

Estimation/Place Value Counting

Introduction to Measuring

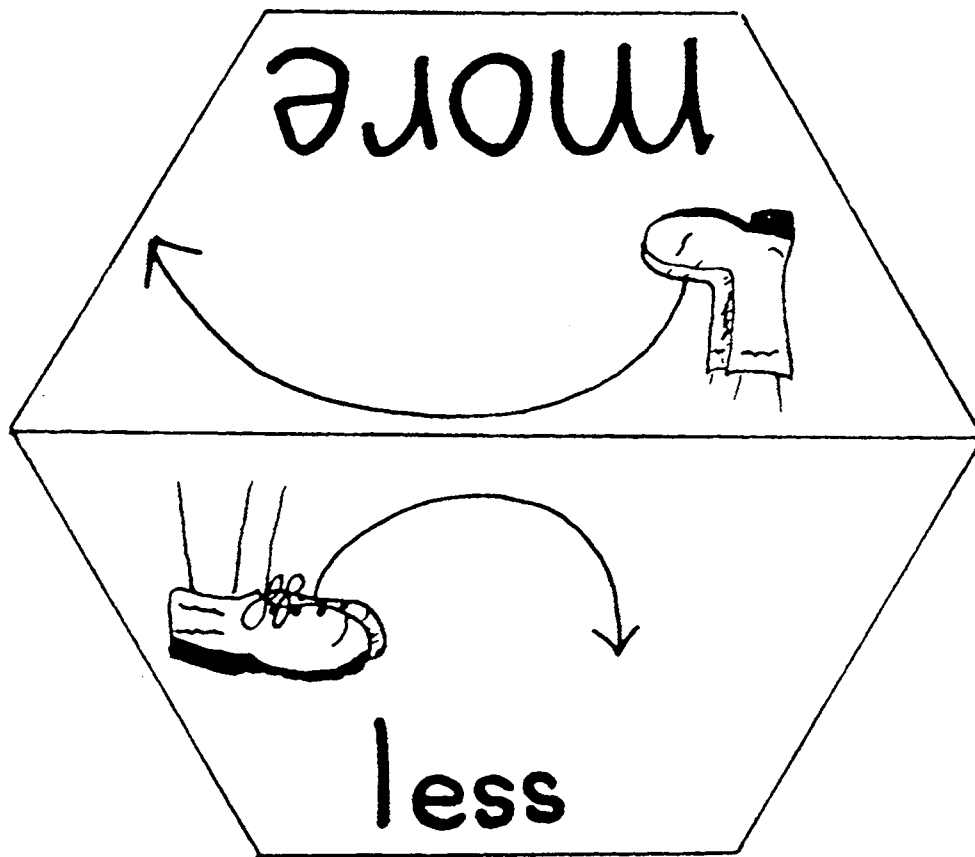
Story Problems

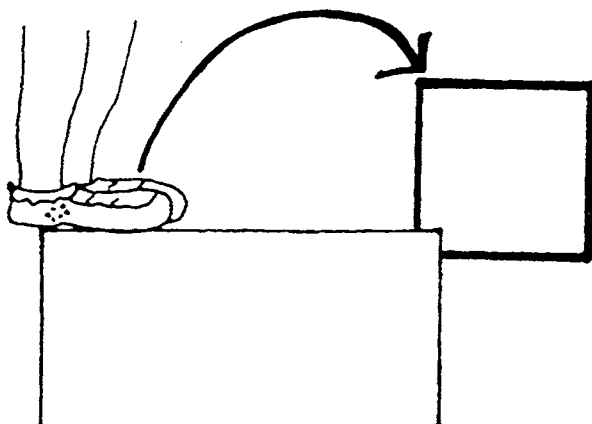
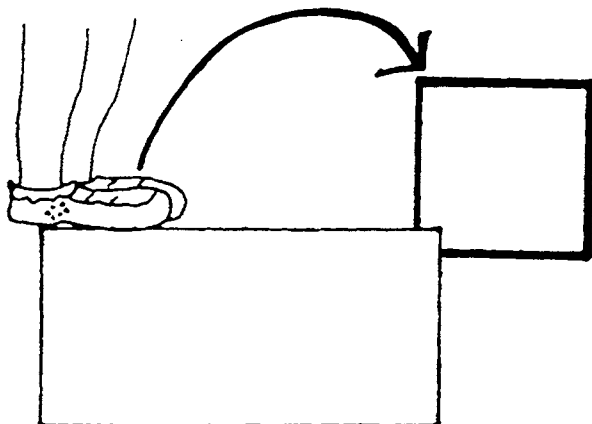
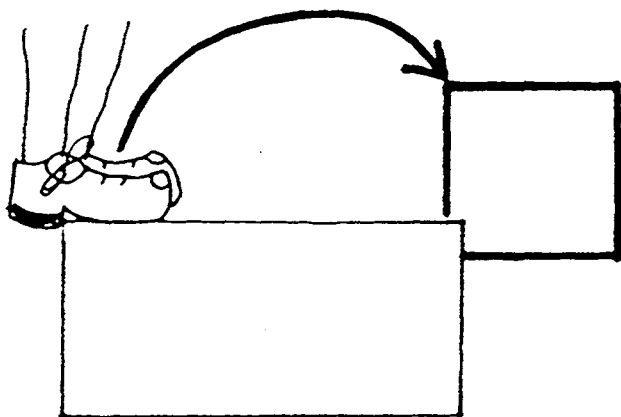
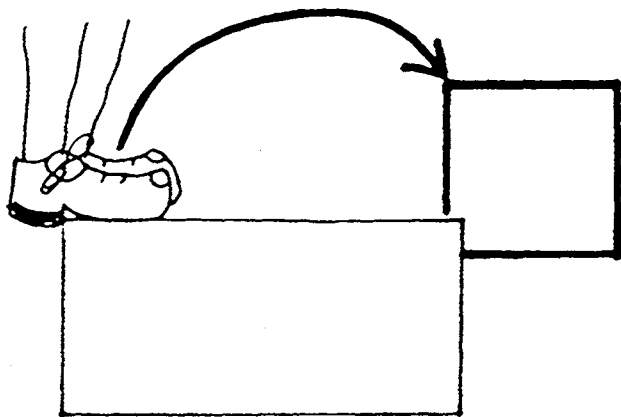
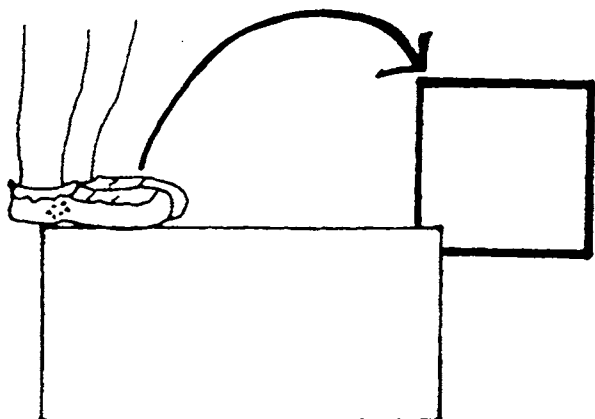
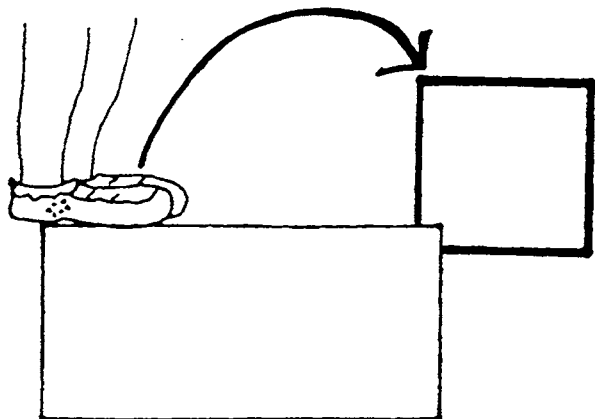
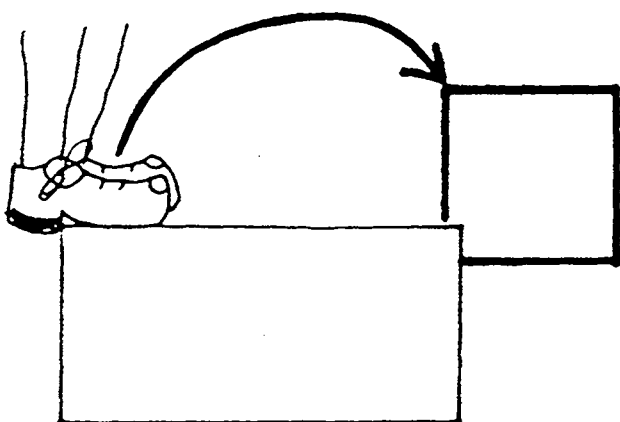
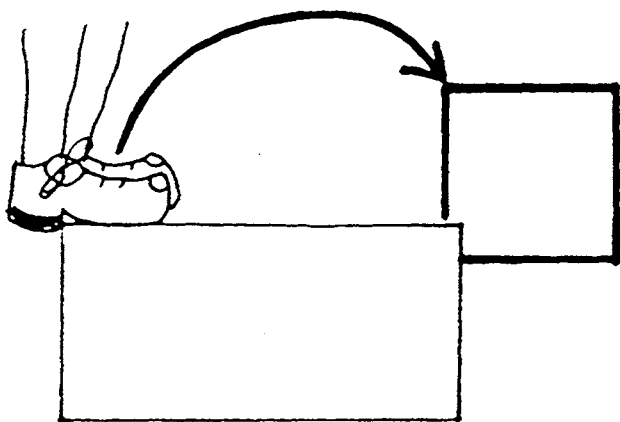
Counting

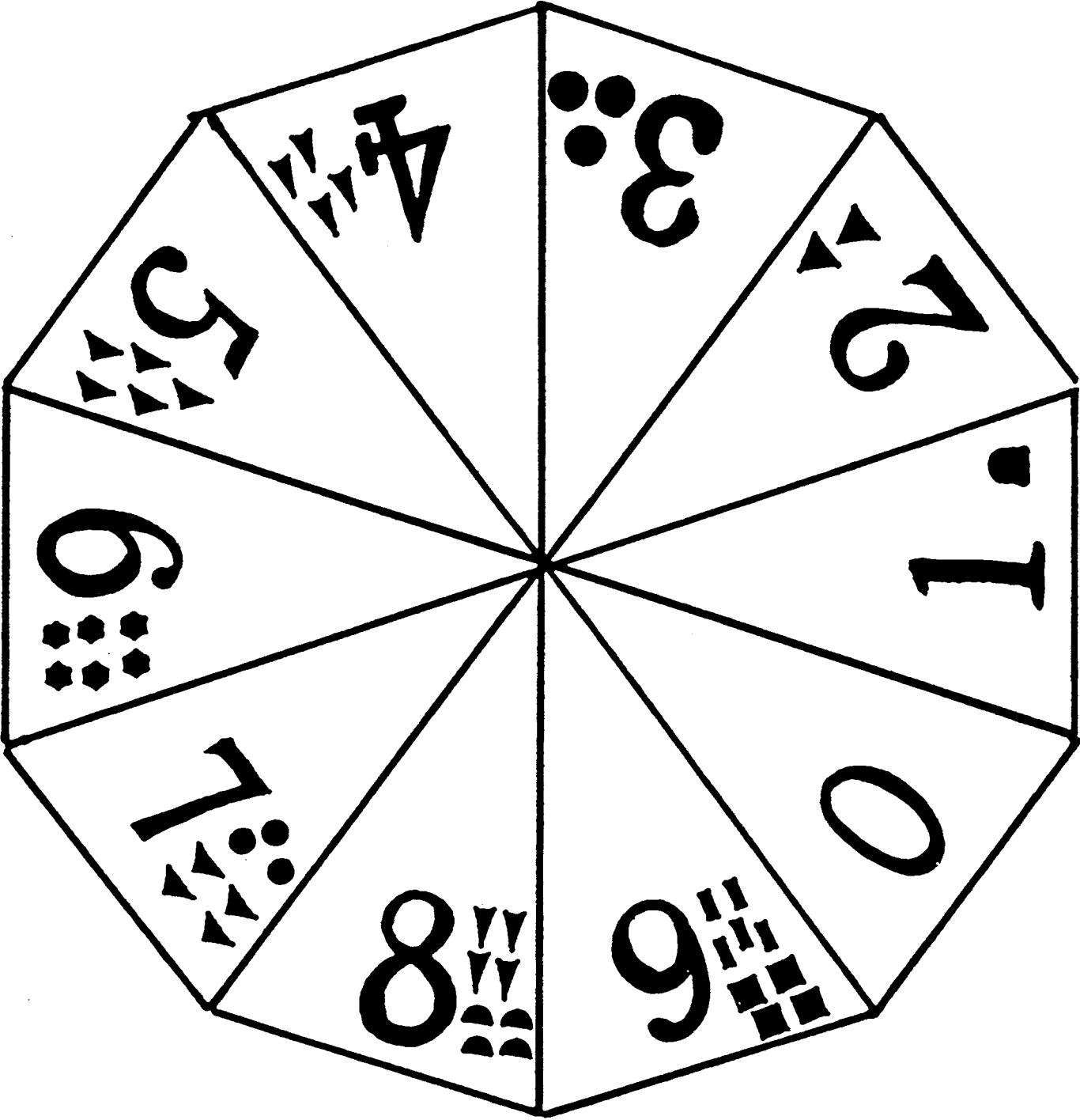
Monday	Tuesday	Wednesday	Thursday	Friday
Group Lessons				
Independent Practice Time				
Monday	Tuesday	Wednesday	Thursday	Friday
Group Lessons				
Independent Practice Time				







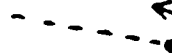
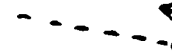








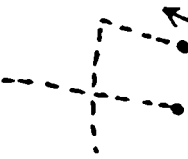
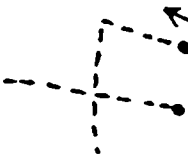
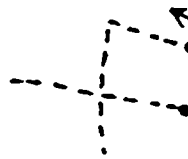
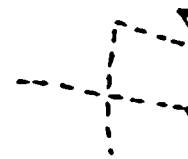
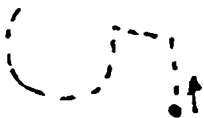
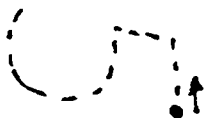
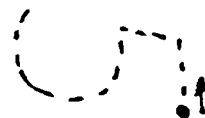
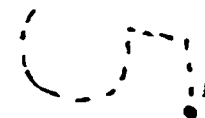
# **Blackline Supplement**

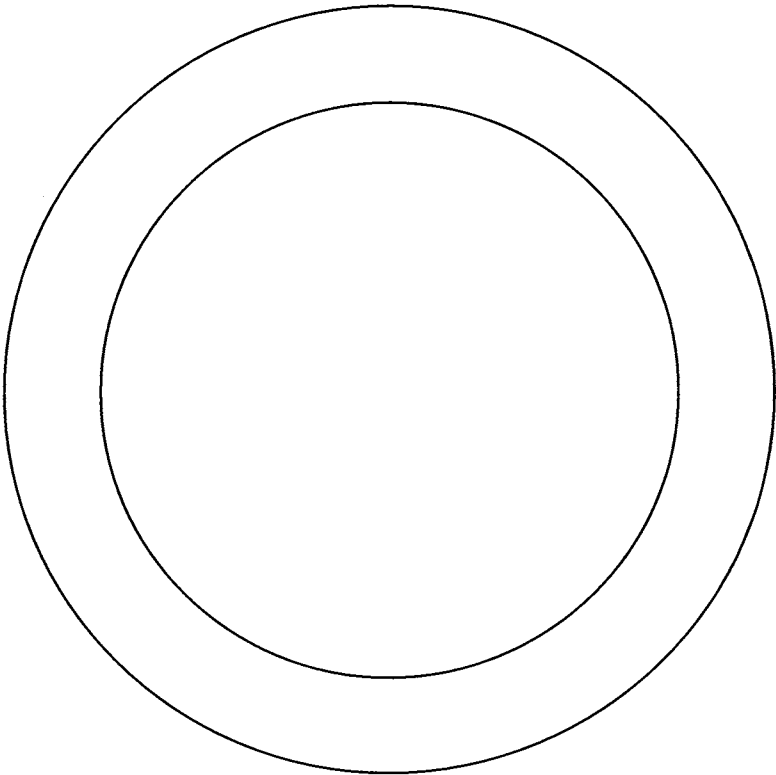
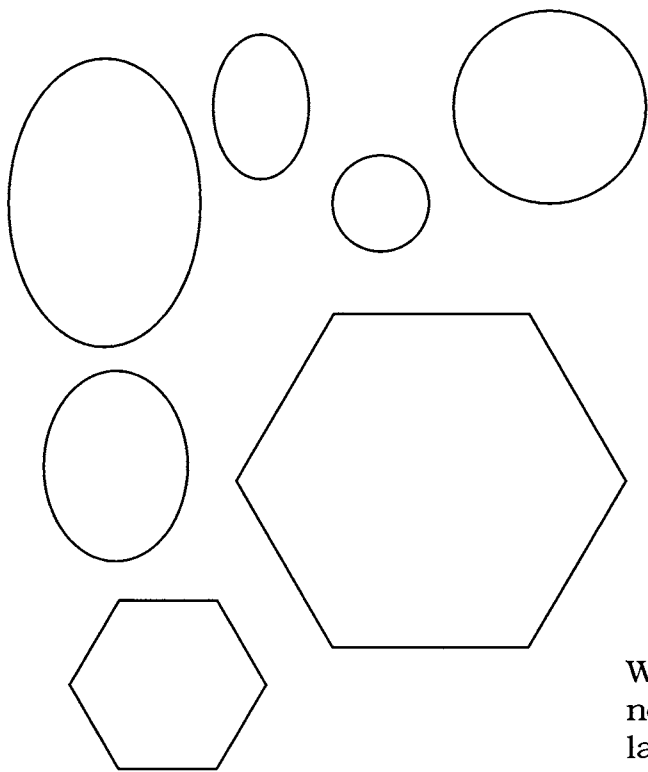
The materials in this collection are also found in the Practice & Enrichment Boxes.



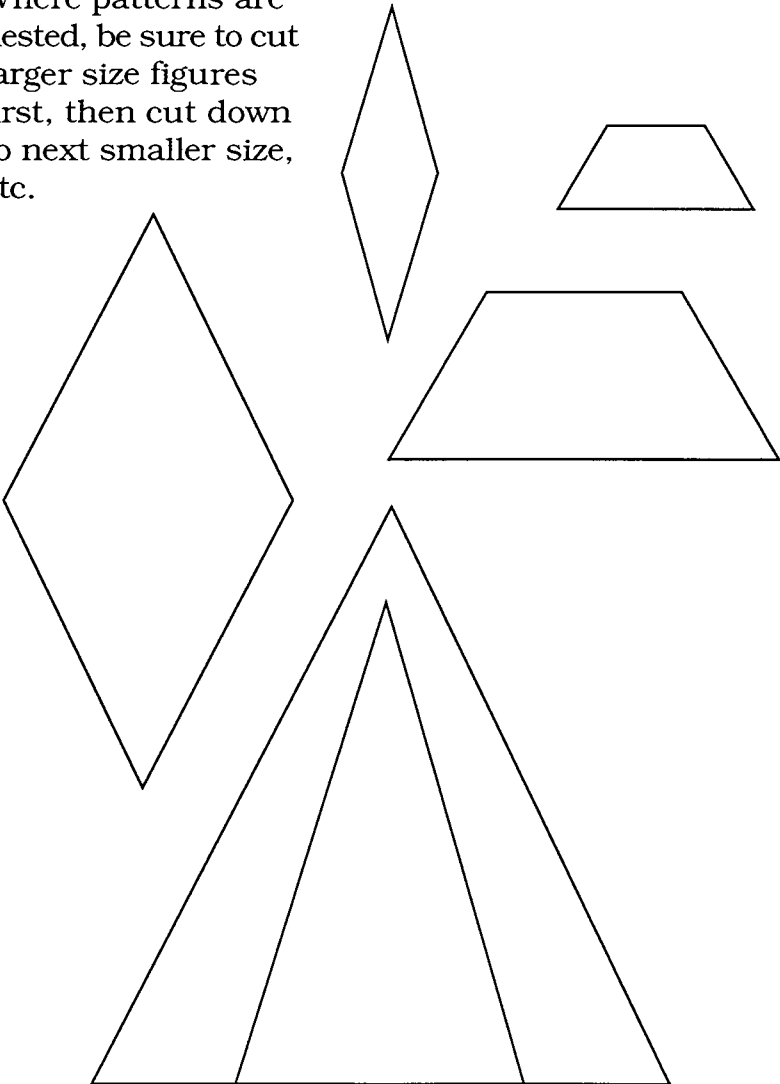
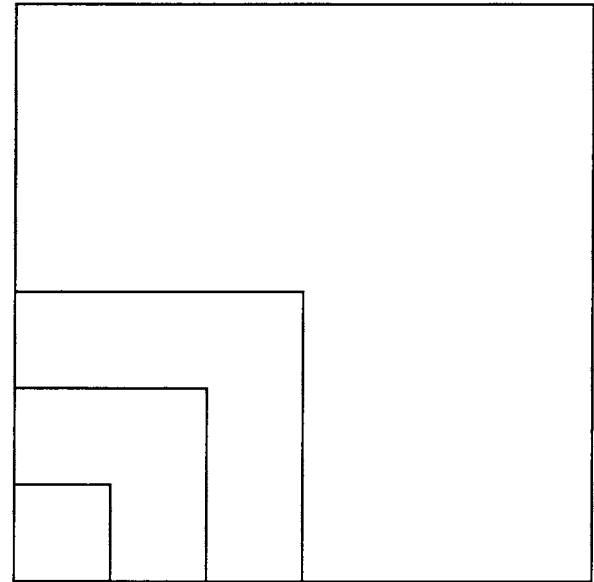
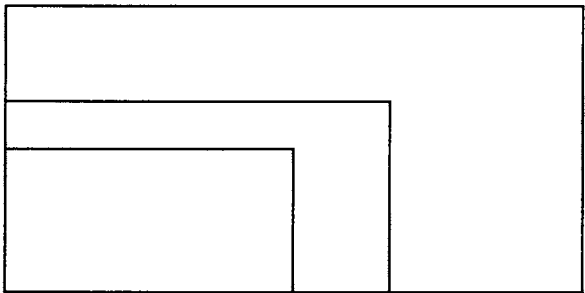




0				
1				
2				
3				
4				
5				



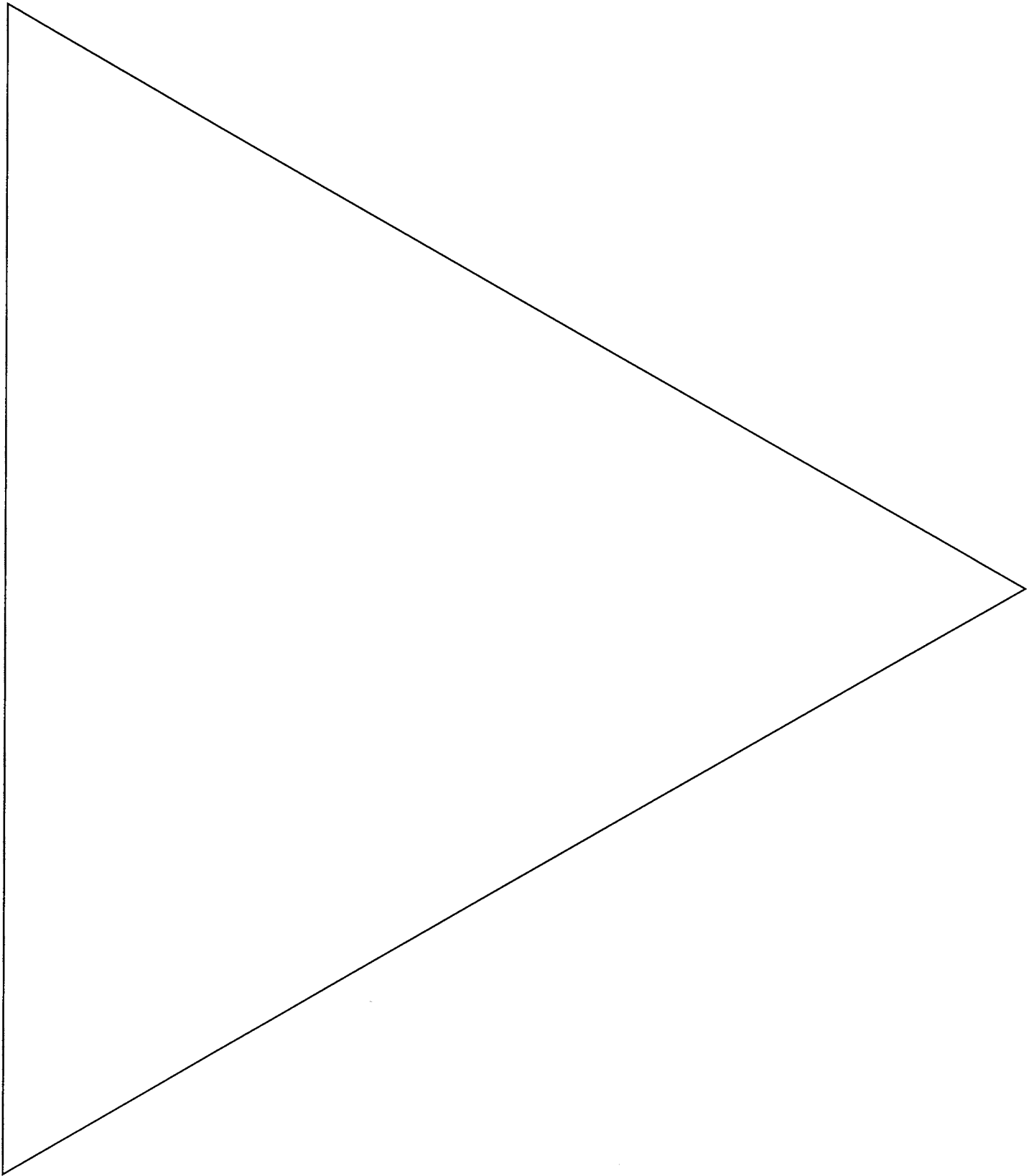
Where patterns are nested, be sure to cut larger size figures first, then cut down to next smaller size, etc.



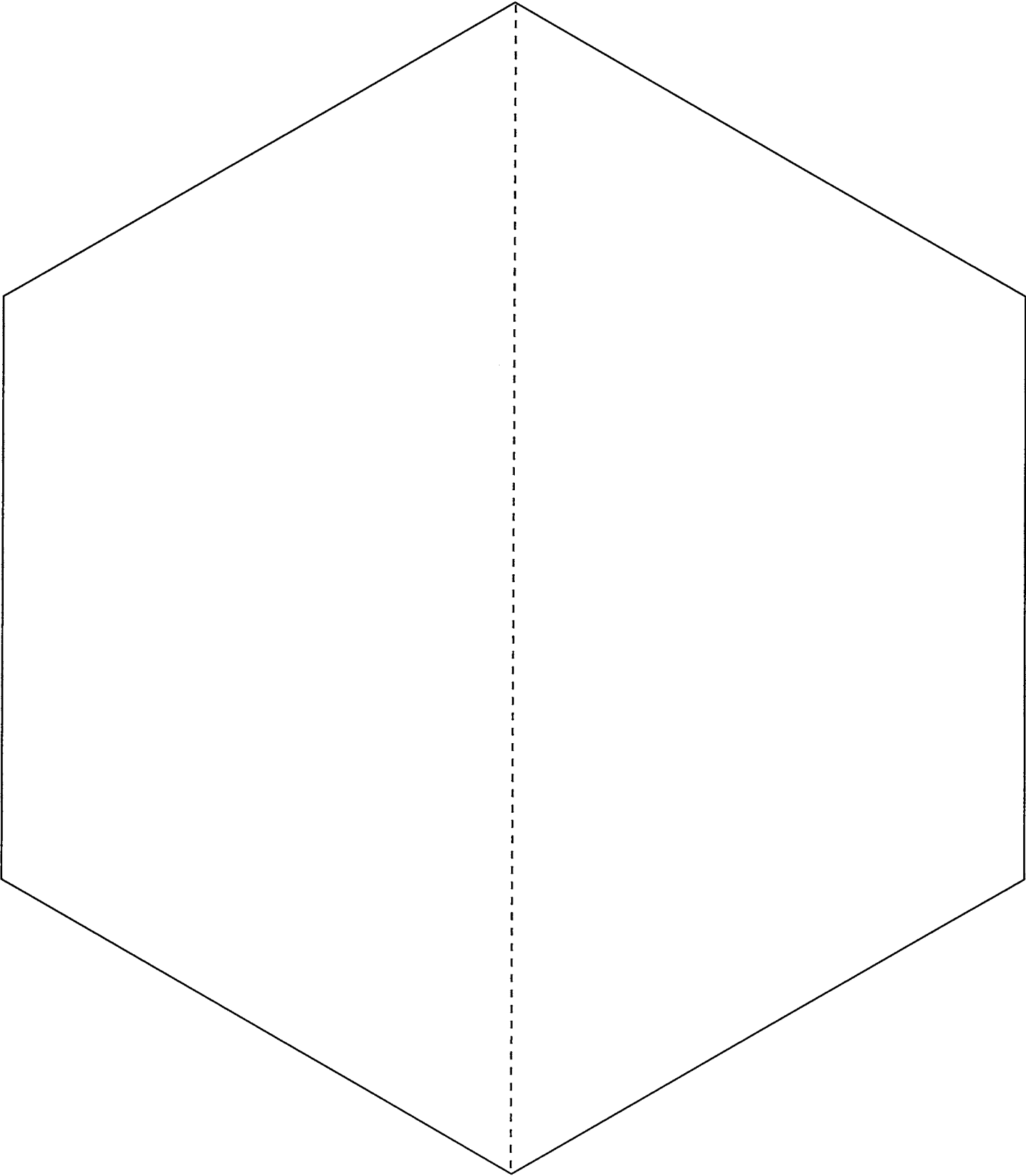


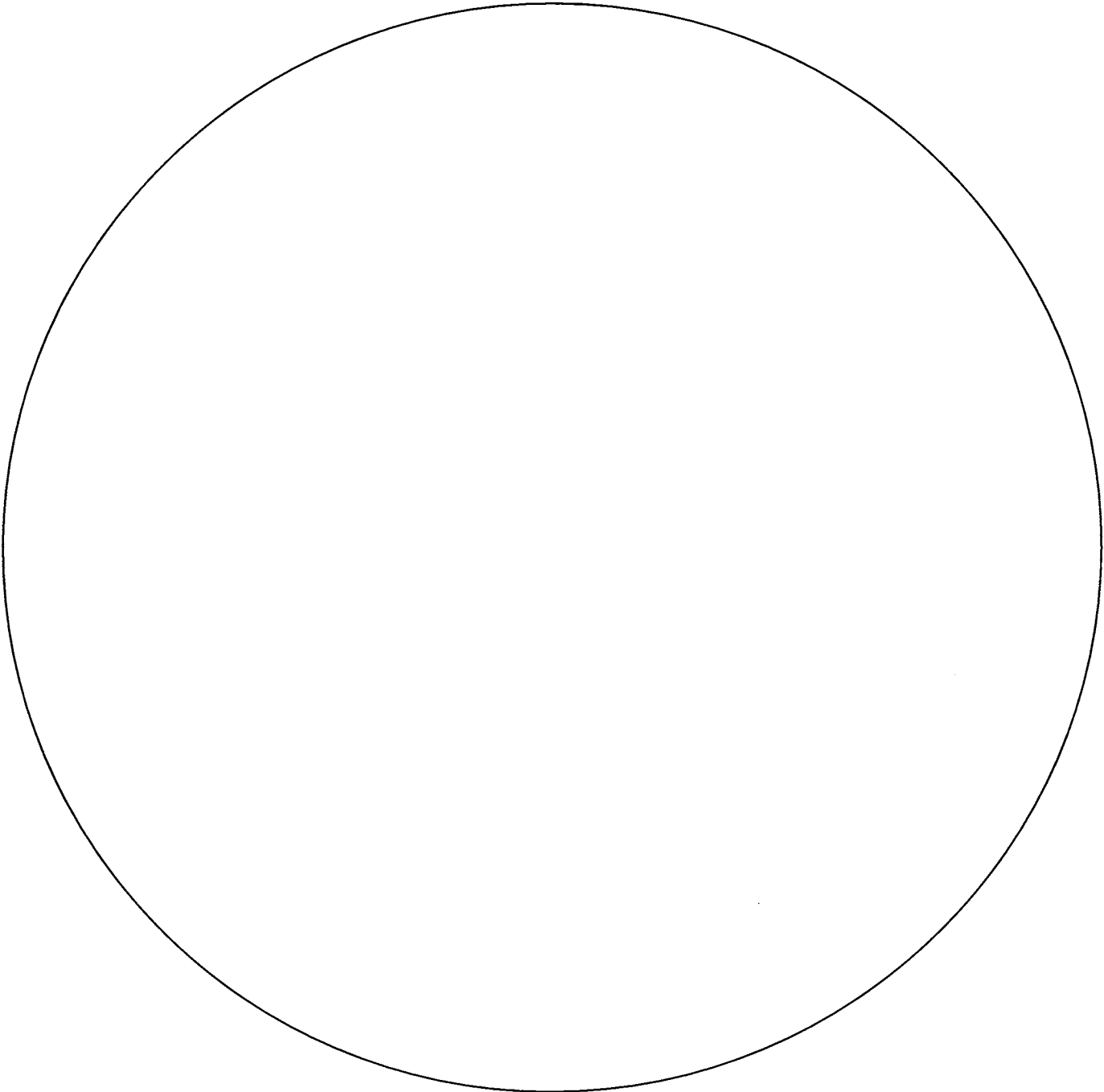
**Making Instructions:**

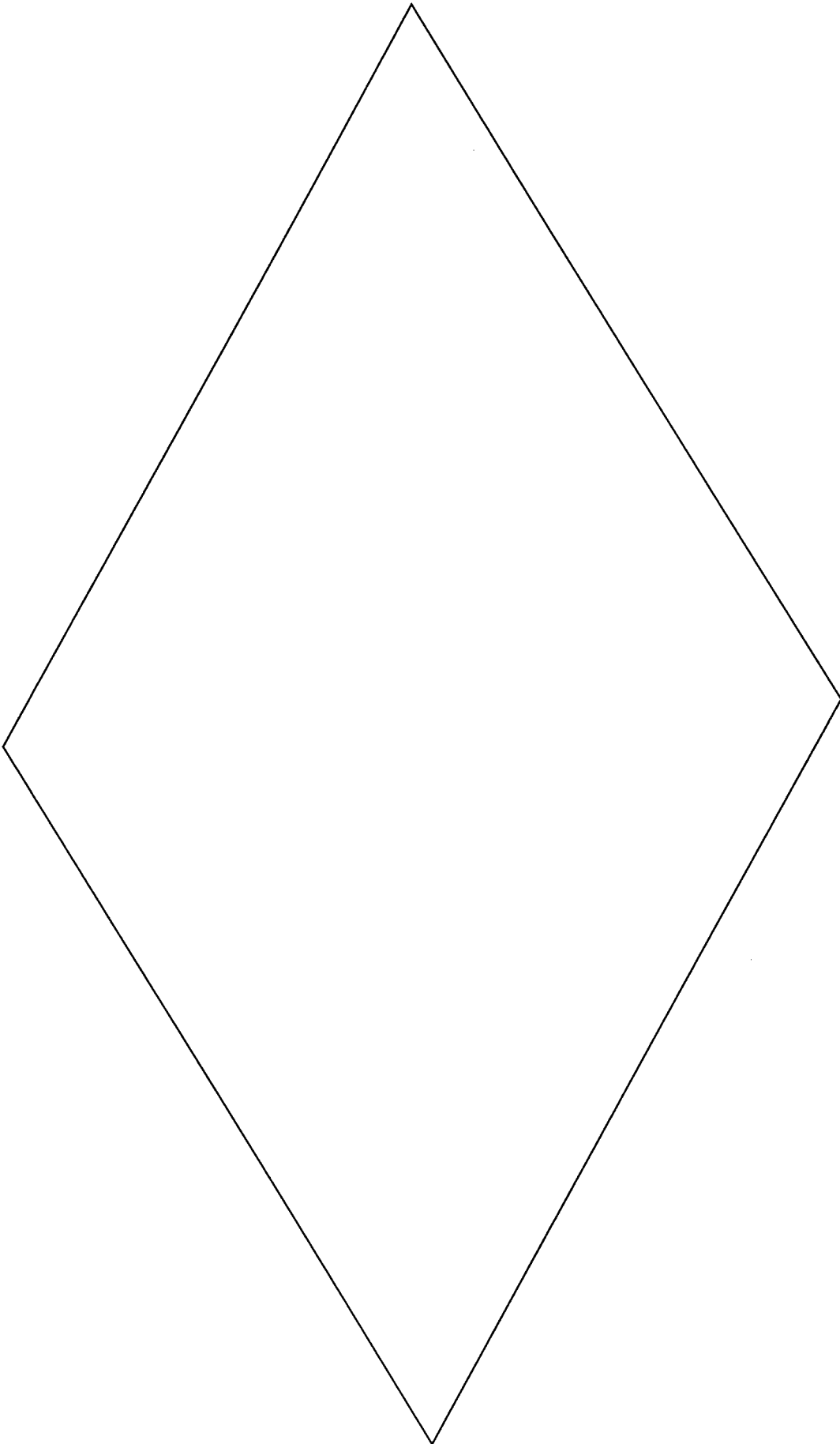
Using Blacklines 46 through 52, cut eight large shapes, each from a different color of construction paper. Mount each shape on a white 9 X 12 piece of construction paper.

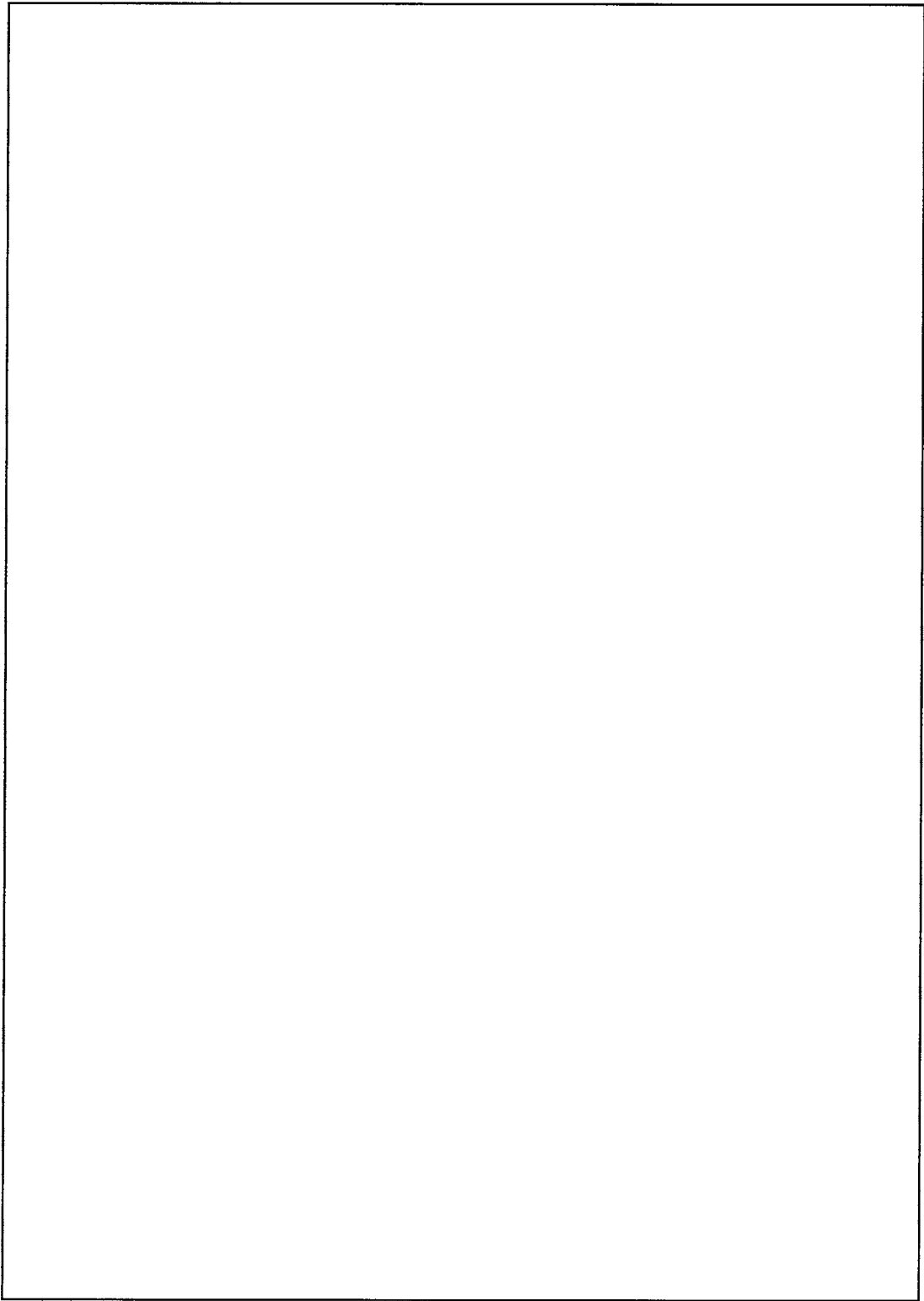


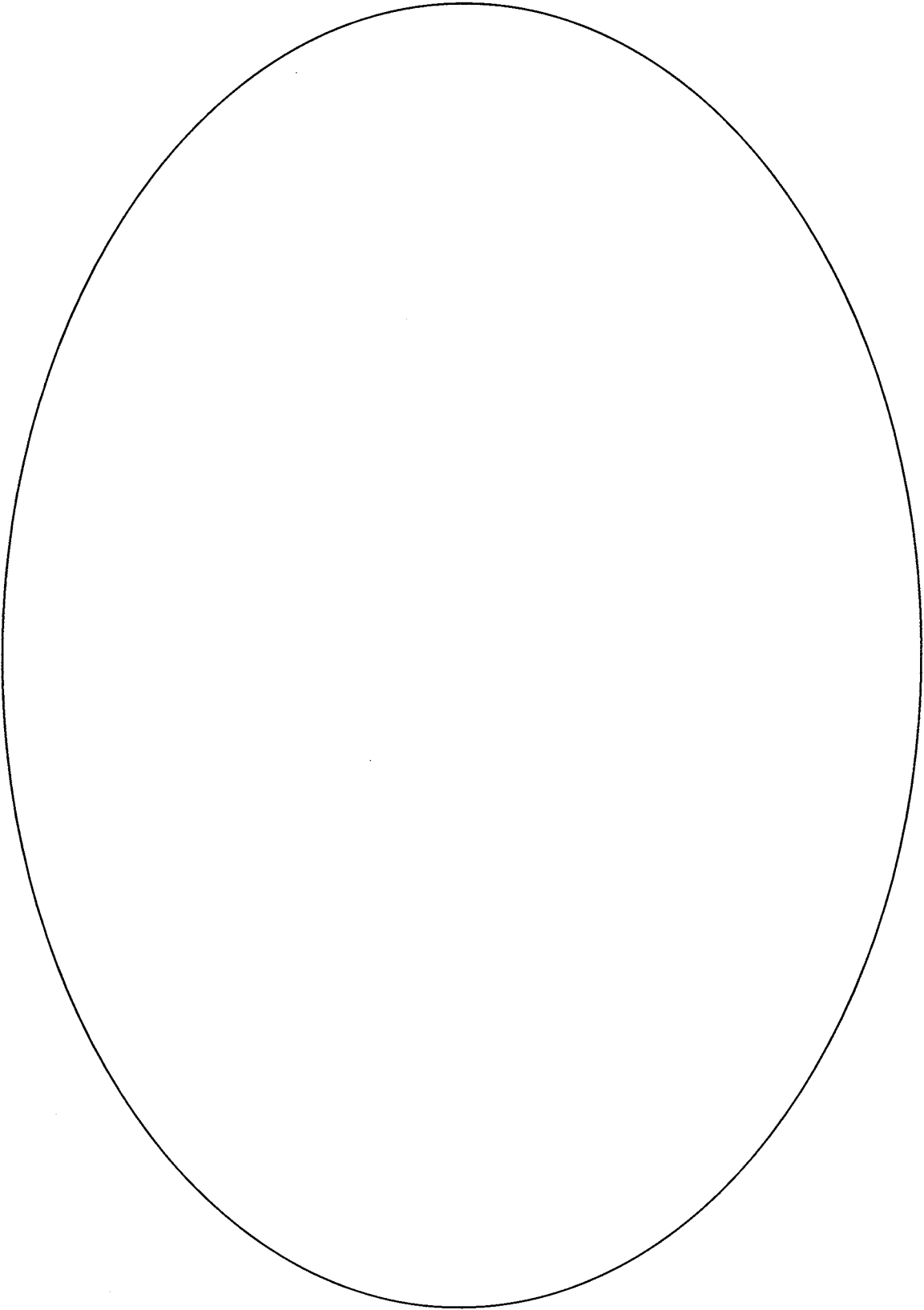
To cut trapezoid, fold  
hexagon pattern in half  
on dotted line.

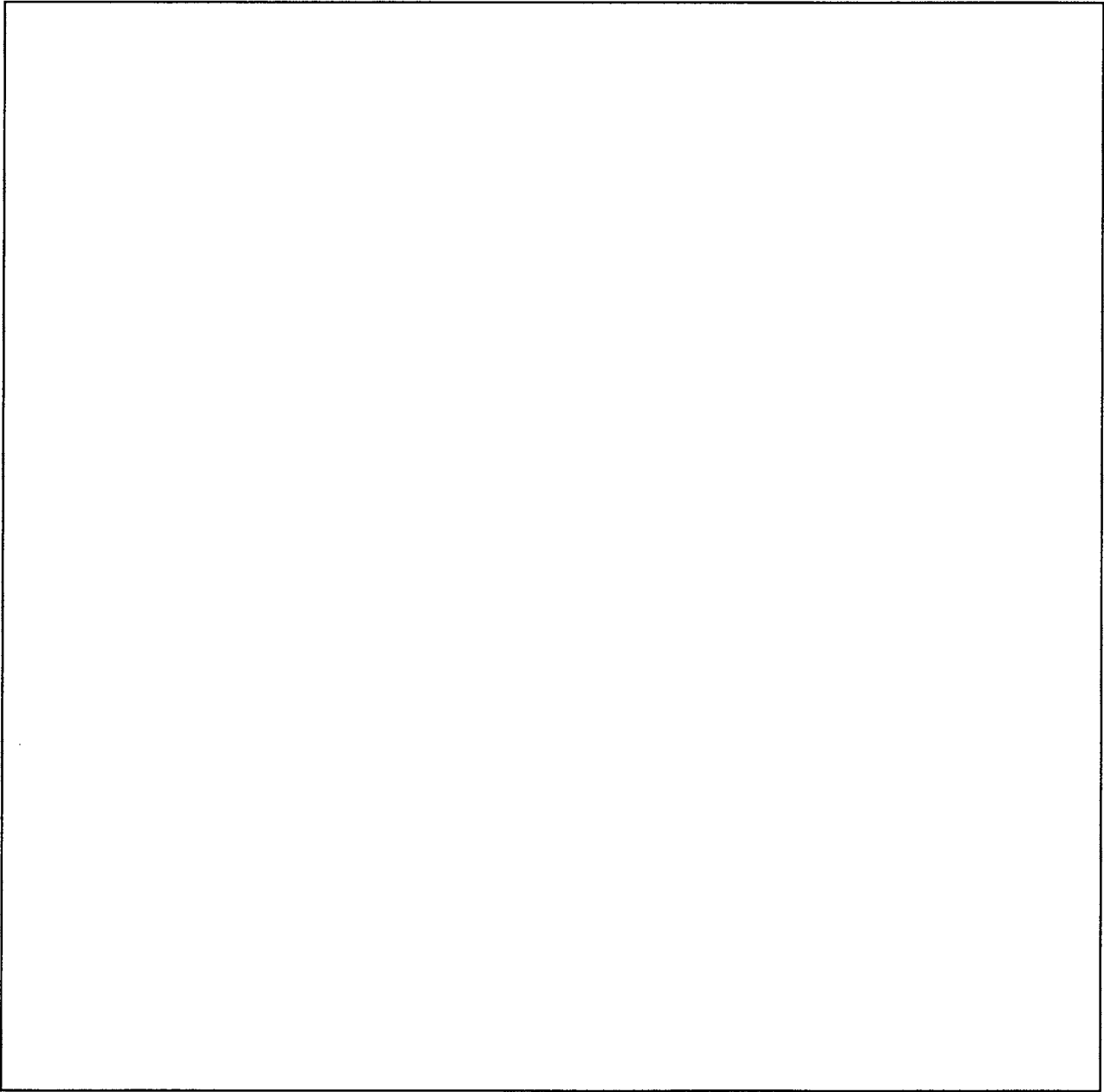






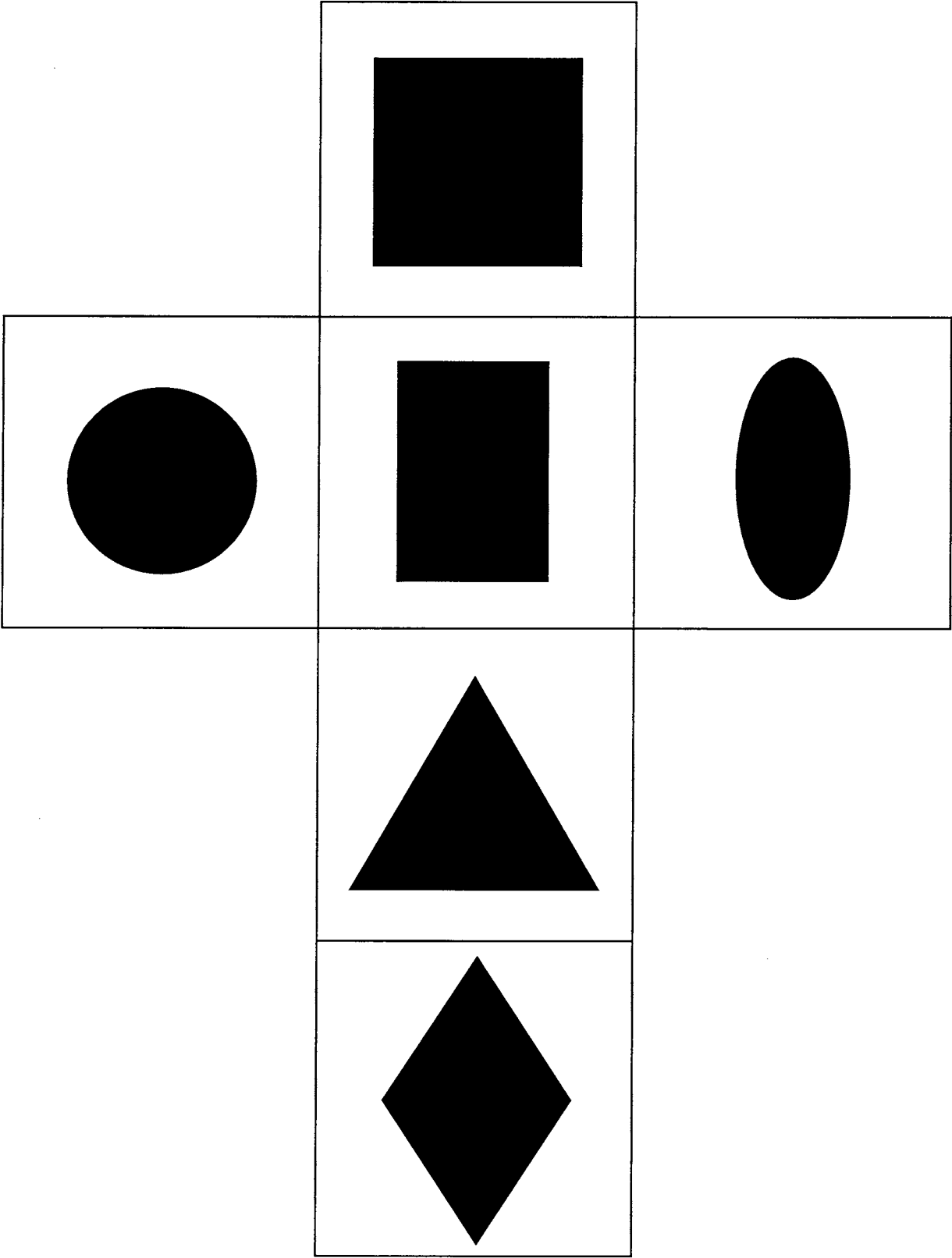




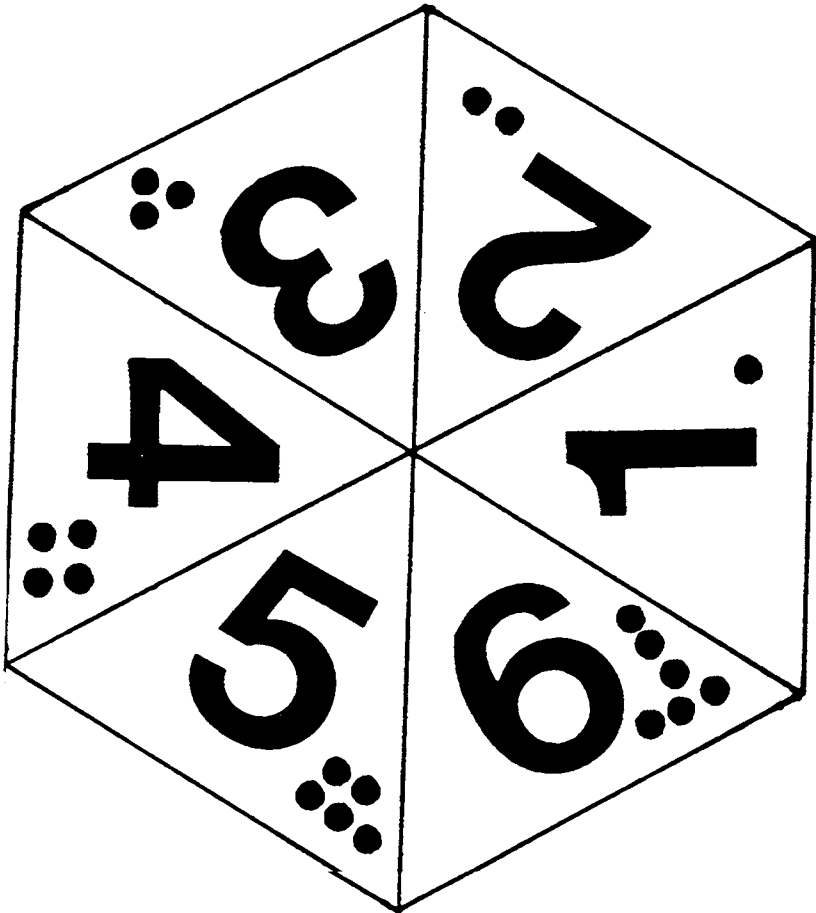
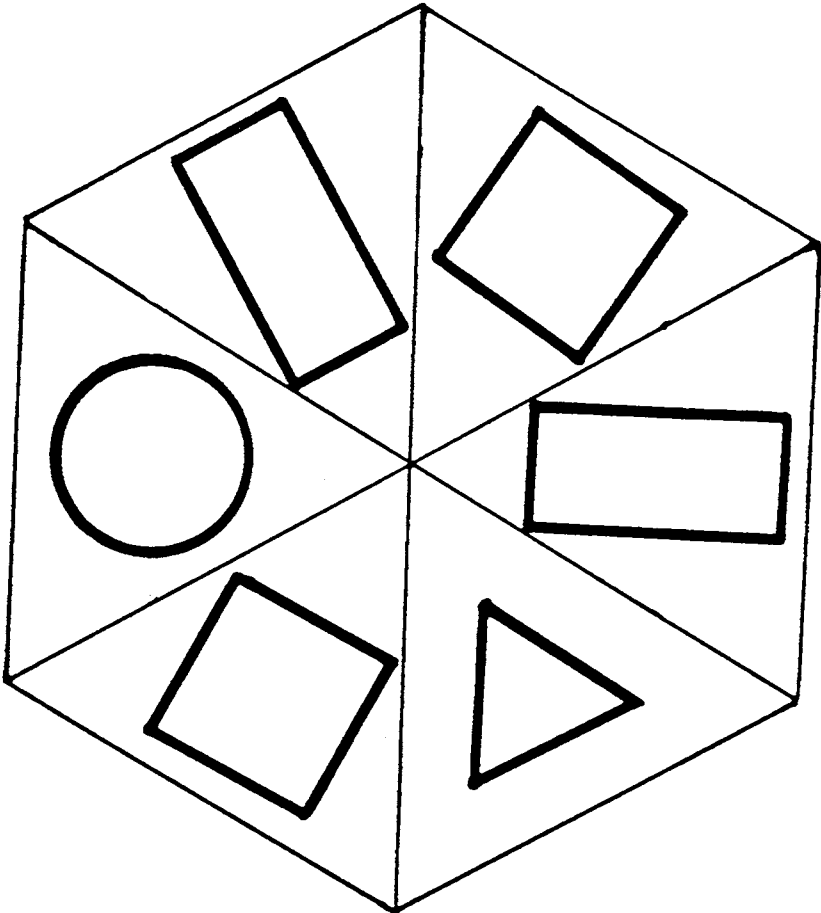


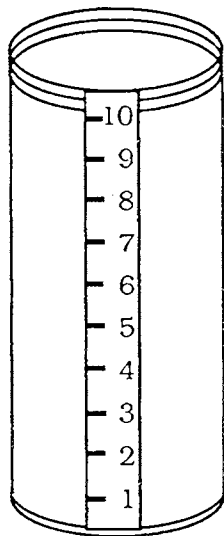
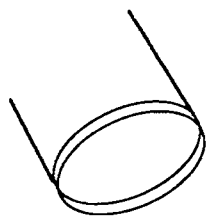
**Shapes Die**

Run on cardstock, fold  
into a cube, tape edges  
together.

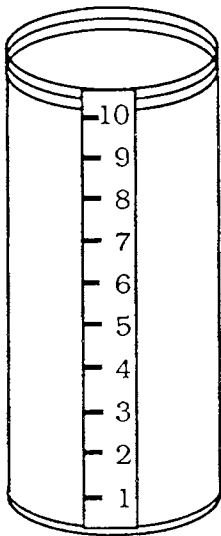




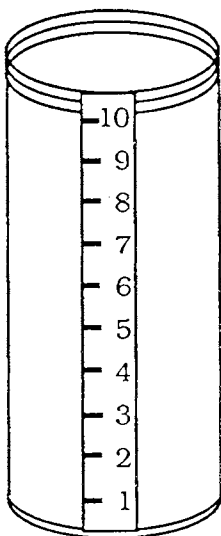
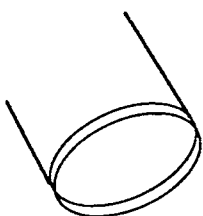




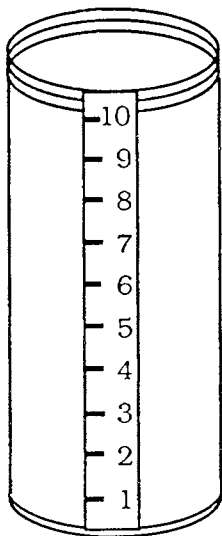
GUESS



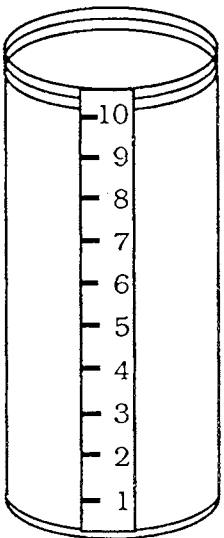
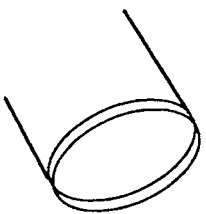
CHECK



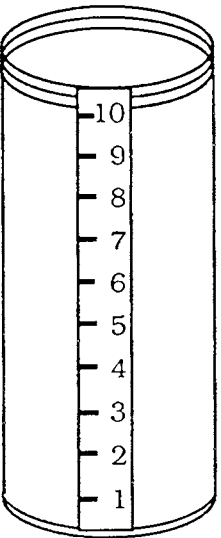
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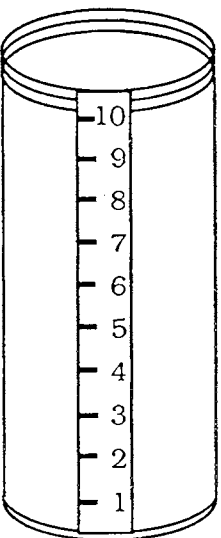
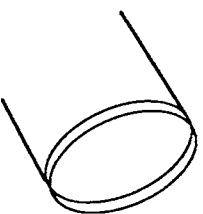
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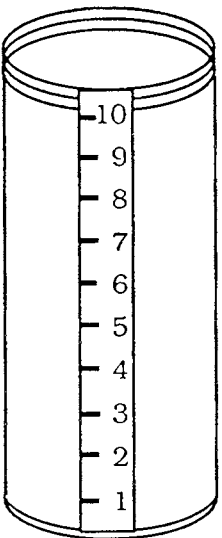
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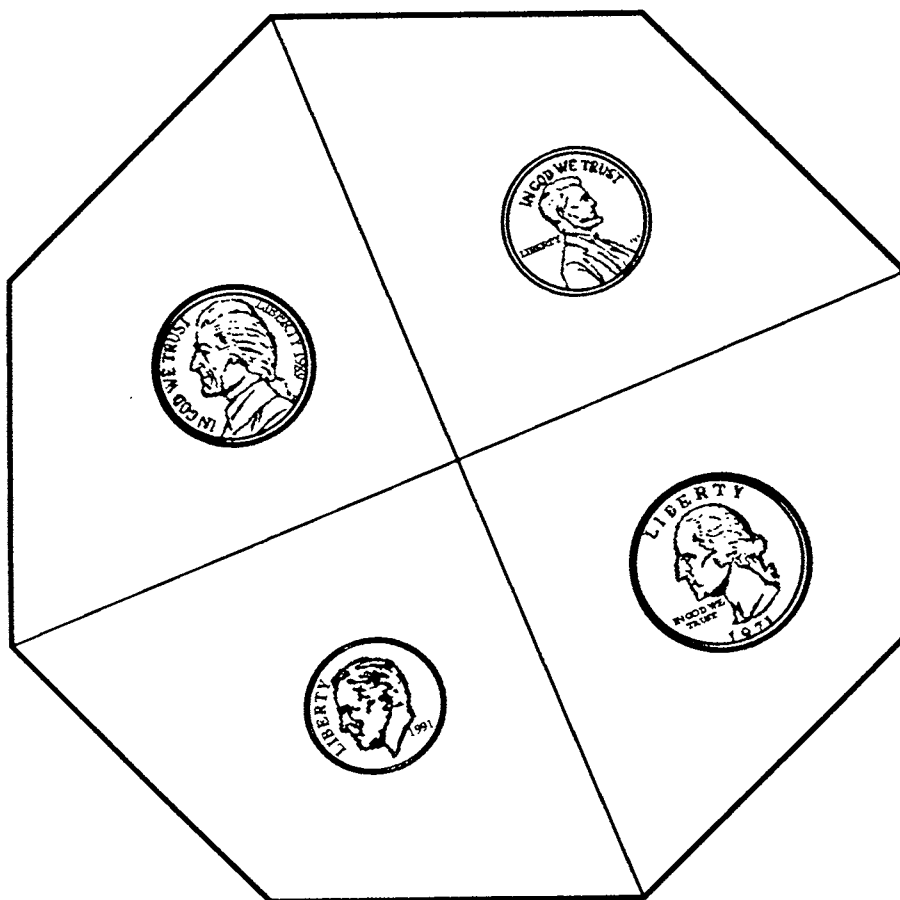
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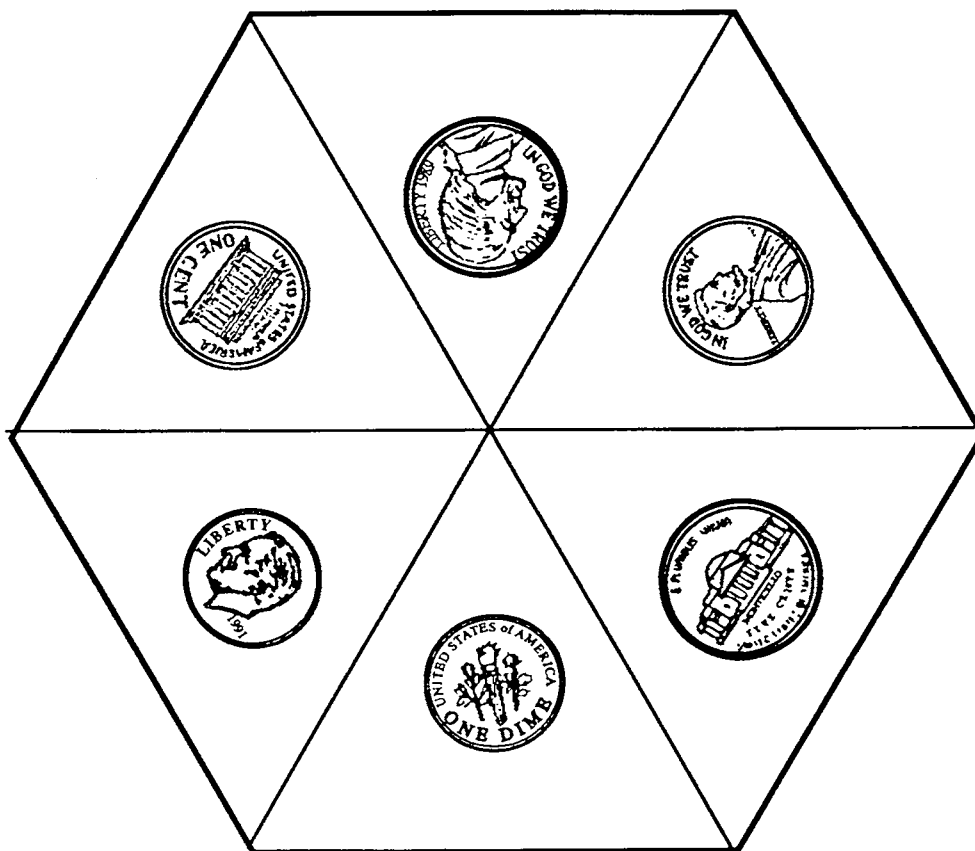
CHECK

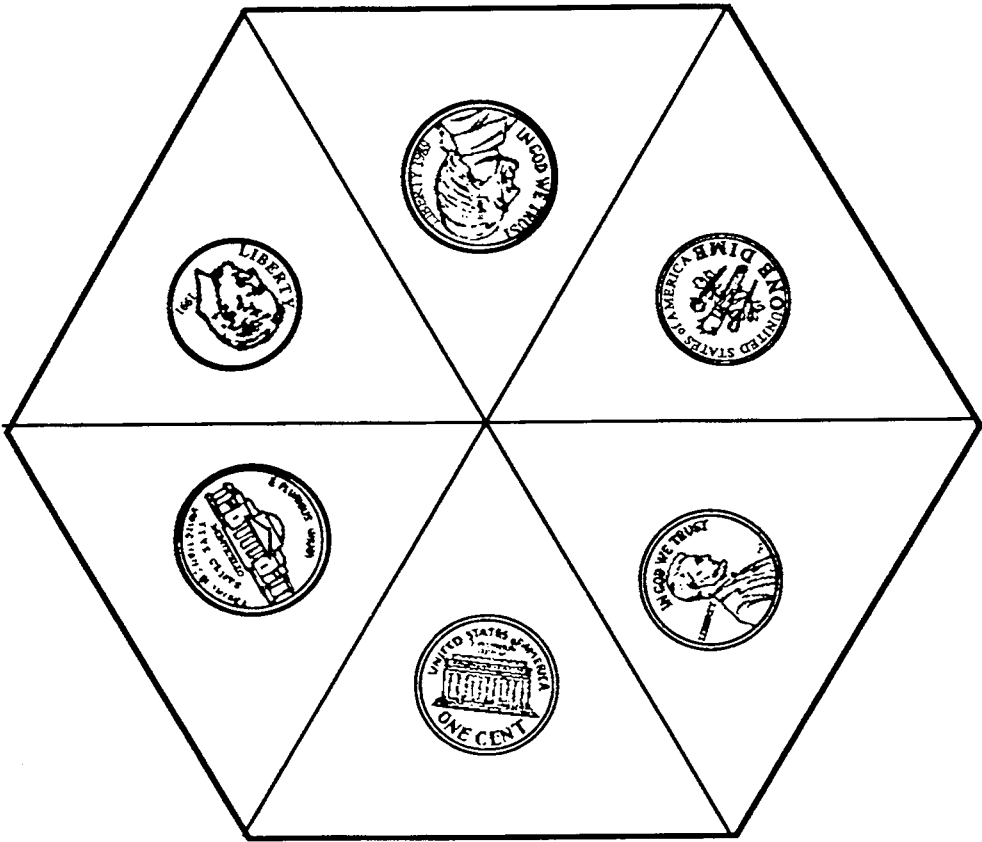
<div>1¢ </div>	<div>5¢ </div>	<div>10¢ </div>	<div>25¢ </div>

Paste on real coins.



**Spin A Half Dollar Spinner**





# Pattern



*These bears are going to a party  
2 little bears, 2 big bears, 2  
little bears*

## BOX IT OR BAG IT MATHEMATICS

Practice & Enrichment Boxes

**Donna Burk • Allyn Snider  
Paula Symonds**

Published by The Math Learning Center

**Box It or Bag It Mathematics, Practice & Enrichment Box:  
Pattern**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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# Getting Started

*Once you've introduced Pattern through a variety of group lessons, (be sure to see Box It or Bag It Mathematics Teachers Resource Guide, PATTERN), you will want children to practice and extend their understanding using the activities in this packet. Here are a few things we've found helpful for a successful Independent Practice Time.*

*Provide no more than 8–12 boxed activities at one time for a class of 30. Too many activities create more than tolerable chaos. Each Box is designed to be used by 1–4 children.*

*Model each activity thoroughly until children can tell you what to do, step by step. You'll find "box ingredients" and "playing instructions" for each activity in this packet. We use clear Contact paper to put them in our box lids so WE can remember what goes in each Box and how each game is played! Reading the directions would be too difficult for most primary children.*

*Resist the temptation to put out all your challenging Boxes at once—provide a balance of easy and hard. (If you set out too many difficult Boxes, all the children will need you at once and the noise level will be almost unbearable as your children try to cope with the stress of too many difficult tasks.)*

*As you construct these Practice and Enrichment Boxes, cover your box tops with the same design contact paper. That way, you'll be able to pull your Pattern Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from The Math Learning Center in four sizes: standard (9 X 12 X 2), half size (9 X 6 X 1-7/8), junk (4 X 7 X 1-1/8), and mini (3-1/2 X 4 X 1-1/8). See the Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.*

*Remember the Boxes themselves can be used for group instruction. They are ideal for use by an aide or parent with small groups. Some of them can be easily adapted for use with your whole group.*

*During Independent Practice Time, it's critical that you be available and in circulation to make sure things go smoothly. Once routines even out, you'll have opportunities to observe individuals which are not afforded when you conduct group instruction. You can spot children with problems and see children with understandings beyond your predictions. See the next page for some Observation guidelines.*

*Be sure to see the Box It or Bag It Mathematics Teachers Resource Guide, INTRODUCTION, for more implementation strategies.*

### Copies patterns

Verbalizes patterns in a variety of ways

### Patterns by attributes other than color (size, shape, texture, position)

Creates simple patterns  
(2 elements)

**Creates complex patterns  
(3 or more elements)**

Translates auditory or visual patterns to math materials

Works cooperatively

## Shares materials

Helps others

---

## Playdough Patterns (1–4 children)

---

**Box ingredients→** four children's rolling pins or 6-inch lengths of 1" doweling  
homemade playdough (recipe follows) divided and stored in four airtight containers  
6–12 small cookie cutters  
four plastic placemats (store these on classroom tools shelf)  
standard box for storage

### PLAYING INSTRUCTIONS

1. Choose two or three cookie cutters.
2. Roll out playdough.
3. Cut "cookies" using chosen cutters.
4. Arrange your cookies in a pattern on your placemat.
5. Show your completed work to a friend and tell them about your pattern.

### MAKING INSTRUCTIONS

#### Recipe for Homemade Playdough

Thoroughly mix these dry ingredients:

- 2 cups white flour
- 1 cup salt
- 1 tablespoon powdered alum (available in spice section of most grocery stores)

#### Boil:

- 2 cups water
- 2 tablespoons salad oil
- food coloring
- (Lemon or other flavor extract is nice—add it just before pouring water into flour mixture)

Pour boiling water over flour mixture. Stir until well mixed. (Ignore lumps.) Let it cool until easy to handle. Knead a few minutes until smooth and elastic. Let it cool until room temperature (otherwise it gets sticky). Seal into airtight containers.

---

## Unifix Cubes Patterns (1–4 children)

---

**Box ingredients→** starter cards      half box for storage  
tub of unifix cubes

### PLAYING INSTRUCTIONS

1. Choose a starter card.
2. Can you copy the pattern?
3. Can you make it even longer?
4. Can you invent some patterns of your own?

### MAKING INSTRUCTIONS

#### Starter Cards

1. Color simple patterns on starter cards. Be sure colors match your cubes.
2. Laminate cards and cut apart.

---

## Alphabet Stamps (1–4 children)

---

**Box ingredients→** rubber alphabet stamps in half box

ink pads

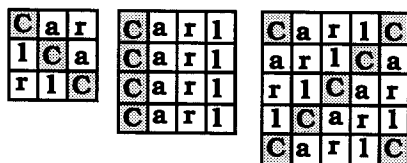
4 X 18 newsprint strips

1"-square graph paper cut into 3 X 3, 4 X 5, 5 X 5, and  
6 X 6 grids

standard box for storage

### PLAYING INSTRUCTIONS

1. Choose two or more stamps and stamp out an alphabet pattern.
2. Use stamps to create a word or two. Stamp your word pattern over and over.
3. Stamp your name over and over on newsprint strips or graph paper grids. It's fun to stamp your first name on a grid, leaving no spaces, and to color the first letter, as illustrated below.



### MAKING INSTRUCTIONS

#### Alphabet Stamps

If you plan to provide a full set of these, it works best to set them up in a divided box (glue in cardboard sections with a glue gun) in alphabetical order with each letter labeled in bottom of box.

#### Ink Pads

Buy these in any stationery store—they even come in various colors. Replacement ink comes in roll-on bottles so the pads can last for years. Your school may even have them available.

---

## Tile Patterns (1–4 children)

---

**Box ingredients→** tub of 1"-square ceramic tiles

starter cards in half box

### PLAYING INSTRUCTIONS

1. Select a starter card.
2. With tiles, copy the pattern on the card and extend it.
3. Can you invent tile patterns of your own?

NOTE: You may wish to have children occasionally record these patterns. Cut construction paper squares the size of your tiles. Children paste onto construction paper strips.

### MAKING INSTRUCTIONS

#### Starter Cards

Locate in cardstock portion of packet. Color to match your tiles. Laminate and cut apart. Store in half box to be set out in tile container.

---

## Coin Patterns (1–4 children)

---

**Box ingredients→** junk box or mini box of real coins  
silver and brown crayons  
starter cards  
newsprint strips  
coin stamps and ink pad  
standard box for storage

### PLAYING INSTRUCTIONS

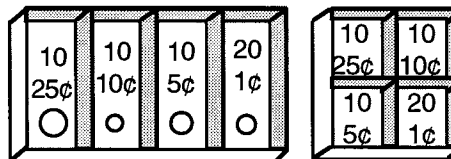
1. Choose a starter card or use your own idea.
2. Lay out a pattern of real money.
3. Stamp out your pattern on a newsprint strip.
4. Color and label your pattern.

Sometimes older children who are very good at counting money like to count up how much they've used in their patterns. You'll need to model this.

### MAKING INSTRUCTIONS

#### Junk Box of Coins

1. Cut cardboard strips to create dividers inside your box. Glue the dividers in with tacky glue or a glue gun.
2. Use coin stamps to label each section and also write in bottom of box how many of each coin per section. (We choose "bankers" to check each box for correct amounts at the end of each work session.)



#### Coin Stamps

These can be purchased from The Math Learning Center. One or two sets will be plenty.

#### Newsprint Strips

Cut 12 X 18 newsprint into 4 X 18 strips to record pattern. Keep a generous supply of these in a box or basket on your classroom tools shelf; that way they won't get crunched and you don't have to worry about frequent refills.

#### Starter Cards

Locate in cardstock portion of the packet, color, laminate and cut apart. Make a tagboard pocket to hold cards.

---

## Pattern Blocks and Mirrors (1–4 children)

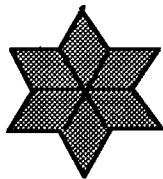
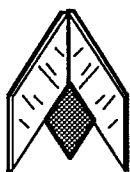
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**Box ingredients→** tub of pattern blocks

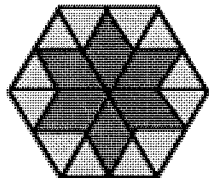
four hinged mirrors in a junk box (This Pattern box is to be placed in a tub of pattern blocks.)

### PLAYING INSTRUCTIONS

1. Set out one pattern block, any shape.
2. Close a hinged mirror around the block until the block fits snugly into the corner.
3. Build what you see in the mirror beside your mirror.



4. Add another block or two. Don't move the mirror. Build what you see now.

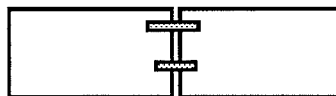


5. Continue to add new blocks into the design, one or two at a time, and build the resulting reflection.

### MAKING INSTRUCTIONS

#### Mirror

Hinge two small mirrors (available from The Math Learning Center) at the back with two pieces of strapping tape, leaving about 1/4" between them. Make four of these hinged mirrors.

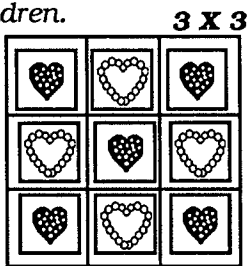


# Sticker Patterns (1-4 children)

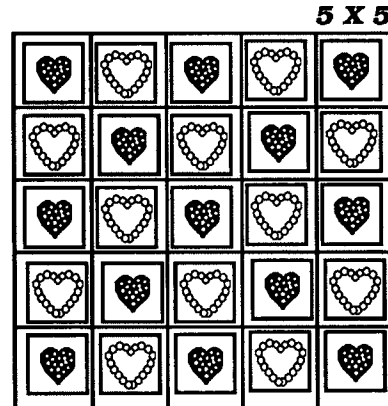
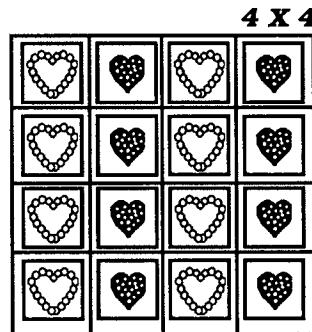
**Box ingredients→** sticker cards  
mats for layout

mini boxes to hold each set  
standard box for storage

*Note the horizontal, vertical and diagonal patterns and how they change on different sized grids. Be sure to model this for the children.*



*The same squares arranged on grids*



*Squares arranged in a linear pattern*



## PLAYING INSTRUCTIONS

1. Choose a box of sticker cards.
2. Sort your cards so you know what you have for your pattern.
3. Plan your pattern and set it up in a line.
4. What happens when you set it up on one of the grids? Is it the same on every mat?

set has, the more challenging it will be to use. You'll want two or three different sets. Laminate and cut apart. It's smart to have each set on a different color of poster board so it's easier to clean up properly.

Box these sets in mini boxes inside a standard box.

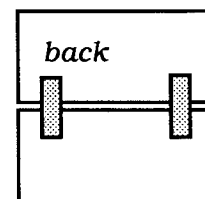
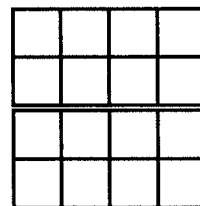
## MAKING INSTRUCTIONS

### Sticker Cards

Purchase packages of stickers and mount them on sheets of 10 X 12 board which you've marked with 2 X 2 squares. You'll need about 20 of each kind of sticker. Each set should have two, three or four kinds; for example, one set might have 20 smiling jack-o-lanterns and 20 frowning jack-o-lanterns; another set might have 20 red hearts, 20 frilly hearts and 20 checkered hearts. The more variables the

### Mats

Make two 3 X 3, 4 X 4 and 5 X 5 grids from tagboard and draw a grid to fit the size of your sticker cards.





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## Clock Patterns (1-2 children)

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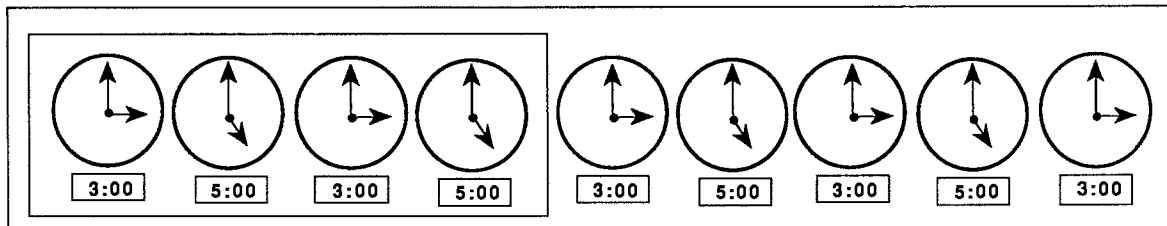
**Box ingredients→** 8-10 small clocks                      starter cards

standard box for storage

*Optional:*

rubber clock stamp and ink pad

newsprint strips



### PLAYING INSTRUCTIONS

1. Choose a starter card.
  2. Read the time shown on each clock face on the card.
  3. Use some small clocks to keep the pattern growing (see illustration above).
- Optional:
4. Use the clock stamp to stamp the pattern on newsprint strip.
  5. Draw in the hands on each clock and write the time on your record strip.

### MAKING INSTRUCTIONS

#### Starter Cards

Locate in cardstock portion of packet. Laminate and cut apart. Make a tagboard pocket to hold cards.

#### Clock Stamp

These are available from The Math Learning Center if you don't already have some at your school.

#### Small Clocks

Check to see if your school has available a kit of little wooden clocks. Otherwise construct some of your own from poster board and brass fasteners.

#### Newsprint Strips

Cut 12 X 18 newsprint into 4 X 18 strips. Keep extras in a box or basket on your classroom tools shelf; that way they won't get crunched.

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# Calendar Patterns (1-4 children; first and second grade)

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**Box ingredients→**    calendar grids (2)                      Days of week cards (2 sets)  
                                 Month cards (2 sets)  
                                 record sheets                      templates  
                                 ziplock bags or mini boxes of calendar shapes  
                                 standard calendar for current year  
                                 standard box for storage

## PLAYING INSTRUCTIONS

1. Lay out the calendar grid.
2. Set out the name of the month you've chosen.
3. Set out the days of the week.
4. Decide which calendar pieces you want to use in your pattern. Set those out in the pattern space.
5. Look at this year's calendar. Find out what day was the first day of your month. Begin setting out your calendar pattern on that day.
6. How many days are in your month? Be sure to end your pattern on the correct day.
7. Show your teacher your hard work.

Optional: (making a record to take home)

1. Leave your calendar all set up.
2. Find the template to match your pattern.
3. Get a blank calendar paper to record your pattern.
4. Use the template to draw your pattern.
5. Can you write the numbers on your calendar?
6. Show your teacher your very hard work.

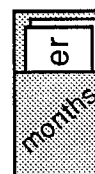
## MAKING INSTRUCTIONS

### Calendar Grid

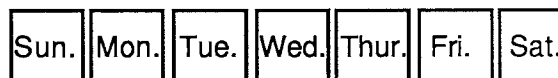
Locate in cardstock portion of packet. Laminate or contact for durability. Hinge together with tape on back side so it will fold to fit into your box.

### Month Names

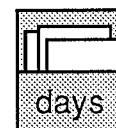
Cut 12 strips of 2 X 10 poster board for month names. Laminate. Place in tagboard pocket. Make two sets.



### Days of Week Cards



Cut 2 X 2 squares of poster board for day names. Place in tagboard pocket. Make two sets.

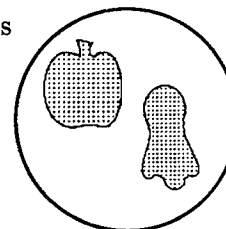


### Pattern Pieces

1. Locate colored Calendar Pattern sheets for pattern shapes and cut out the shapes.
2. Put each set in a ziplock bag or mini box.

### Templates

Cut templates in *clear* lids from Cool Whip, large margarine tubs, large coffee cans, etc. (see blacklines for patterns). Cut all shapes for a set in one lid with small scissors. If you trim the edges off the lids so they set flat on both sides, these templates will be easier for children to use and fit into your box more easily.



### Record Sheets

Locate in blacklines and run ditto copies. Hinge on black with two pieces of scotch tape.

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## Pattern Blocks (1-4 children)

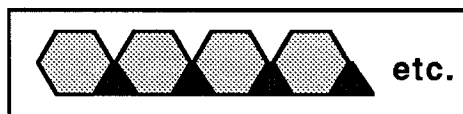
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**Box ingredients**→ starter cards (stored in half box covered with your  
Contact paper for Pattern boxes)

tub of pattern blocks

### PLAYING INSTRUCTIONS

1. Choose a starter card.



2. Build the pattern, repeating it over and over.  
(It is fun to have your pattern stand up like a wall or fence.)



3. Can you invent some patterns of your own?

### MAKING INSTRUCTIONS

#### Starter Cards

1. Locate the two sheets of Pattern Block starter cards in cardstock portion of the packet. Color to match your pattern blocks. Laminate and store in half box. Cards will be used with tub of pattern blocks.

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## Template Patterns (1-4 children)

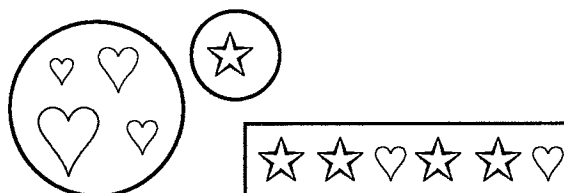
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**Box ingredients**→ plastic templates  
crayon and pencils

newsprint strips  
half for for storage

### PLAYING INSTRUCTIONS

1. Choose the templates you want to use.
2. Plan and draw your pattern using the templates on newsprint strips.
3. Color your pattern if you want.
4. Tell a friend about your work.



### MAKING INSTRUCTIONS

#### Templates

Locate blackline page for template ideas. We like to offer some templates with one item in several sizes, all cut into one template. (Cool Whip size lids work well as long as children can see through lid.) We also use small margarine lids for single items. Small scissors work well for cutting these.

Be sure to trim the edges off the lids to make them easier for children to use.

#### Newsprint Strips

Cut 12 X 18 newsprint into 4 X 18 strips. Keep these in a box or basket on your classroom tools shelf.

NOTE: Some of you may already have commercial stencils or templates which would work well here so you wouldn't need to cut more for this activity.

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## Rubber Stamp Patterns (1–4 children)

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**Box ingredients→** assorted rubber stamps (six are enough to start with—you can add to your collection over the years)

ink pads

rubber stamp grids

4 X 18 newsprint strips (store on classroom tools shelf)

### PLAYING INSTRUCTIONS

1. Choose your favorite stamps.
2. Plan a pattern.
3. Stamp your pattern on a strip.
4. Tell someone about your pattern.
5. Can you stamp your pattern on a grid? What do you see?

### MAKING INSTRUCTIONS

#### Newsprint Strips

Cut 4 X 18 strips. Keep these in a box or basket on your classroom tools shelf.

#### Rubber Stamp Grids

Make a grid master by dividing an 8-1/2 X 11 sheet of paper into 16 sections. Include a place for the student's name. Run copies to place in your box.

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## Geoboards, Nuts and Washers (1–4 children)

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**Box ingredients→** junk box of nuts and washers

four geoboards in tub or storage container

### PLAYING INSTRUCTIONS

1. Get a geoboard and box of nuts and washers to share with other workers.
2. Plan a pattern. Think about how it will go onto your geoboard.
3. Build your pattern.

NOTE: Some children build just the top and bottom row, others build around the outside, others build all rows. The pattern variations are endless here so take lots of time to model multiple patterning possibilities with your class, looking at the boards for horizontal, vertical and diagonal patterns.

### MAKING INSTRUCTIONS

#### Nuts and Washers

Cover a junk box with the contact paper of your pattern boxes. Make elastic tie-down. Fill with nuts and washers (the children could bring these). Place junk box in larger container with geoboards.

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## Mirror Patterns (1–4 children)

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**Box ingredients→** mirror cards                      two single mirrors  
two hinged mirrors                      junk box for storage

### PLAYING INSTRUCTIONS

1. Choose a card and mirror.
2. Fool around with your mirror on the card.  
What do you see? What happens when you move the mirror? Is it different with a single mirror than a hinged mirror?
3. Show a friend your wonderful discoveries.

The hinged mirrors are taped on the back side (two mirrors together). Children love opening and closing them for a variety of outcomes with cards.

### Mirror Cards

Locate in cardstock portion of packet. Laminate and cut apart.

### MAKING INSTRUCTIONS

#### Mirrors

Order these from The Math Learning Center. They are easily assembled with scotch tape.

NOTE: The symmetry children discover here is an element of pattern.

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## Feely Box Patterns (1–4 children)

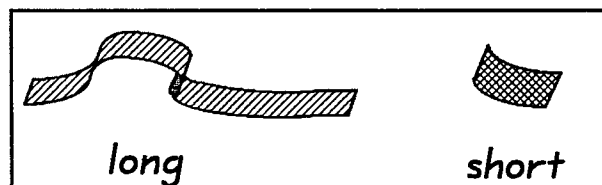
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See *Box It or Bag It Mathematics Teachers Resource Guide*, PATTERN, for group lesson.

**Box ingredients→** two Feely boxes of common items  
idea cards                      half box for storage

### PLAYING INSTRUCTIONS

1. Get a partner or two.
2. Each person needs a Feely box.
3. Choose an Idea card.



4. Reach into Feely boxes to create the pattern.  
Tell one another what you're adding as the pattern grows.

NOTE: Children can do this activity alone if they prefer.

### MAKING INSTRUCTIONS

#### Feely Boxes

Use tuna or cat food cans. If there are any rough edges on the rim, use a hammer to smooth them. Use a child's stretchy sock to go over each can.

#### Common Items

If you have a collection of junk boxes, take 30 or more items from them to fill your Feely boxes—items such as shells, buttons, screws, washers, bolts, plastic lids, fruit pits, bread fasteners, keys.

#### Idea Cards

Locate cards in cardstock portion of packet. Laminate and cut apart. Place in tag pocket.



2. Cut your Stitch Witchery and fabric into 9" squares. This allows for error.
3. Cut white poster board into 9" squares.
4. Make poster board, Stitch Witchery, fabric sandwich.
5. Iron with a steam iron (we found we didn't need a damp cloth) to make fabric adhere to board. (Follow manufacturer's direction—comes with Stitch Witchery—except for damp cloth.)
6. Using a paper cutter, trim ironed blocks to size indicated on fabric cutting guide (see blacklines). Now cut with paper cutter into squares and then triangles. (We ran ditto copies of the cutting guide and lightly glued them on the back side of the poster board. Cutting was very quick that way.)
7. We put complementary fabric colors together in ziplock bags or junk boxes in our game box to help children in choosing fabrics.

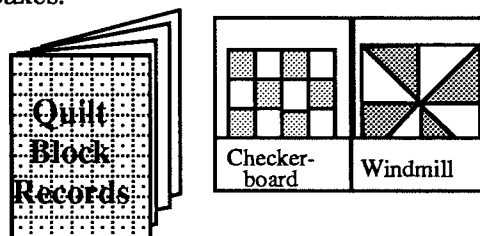
**NOTE:** Contact paper has become available in fabric. If you could share the cost of several rolls with a few friends, it would be easy to cut your triangles from squares of Contact paper adhered to poster board. Even regular Contact paper would work.

### Quilt Blocks Mats

Locate in cardstock portion of packet. Do not laminate mats, it makes them too slippery.

### Quilt Block Record Sheets

Locate in blacklines; run copies. For most efficient storage, these could either be in ziplock bags inside the box or in a folder set-up. For the latter, tape together three student folders with the pockets on the bottom. Cover the outside folder with the Contact paper of your Pattern baxes.



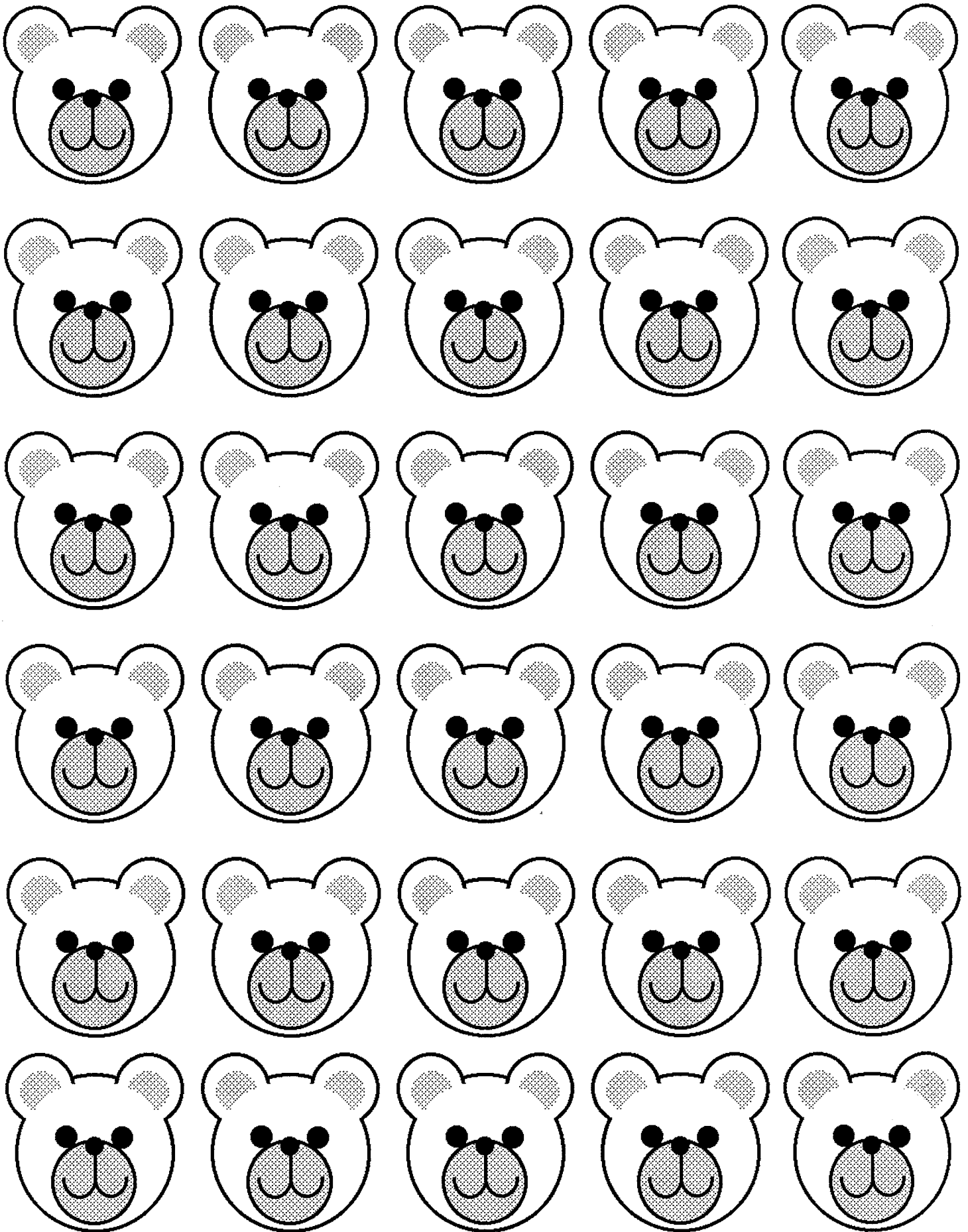
Be sure to model this activity with the children so they get the idea. Point out how corners are alike, etc. If you've never "played" with quilt blocks, play around with it yourself—it's lots of fun!

# Blacklines

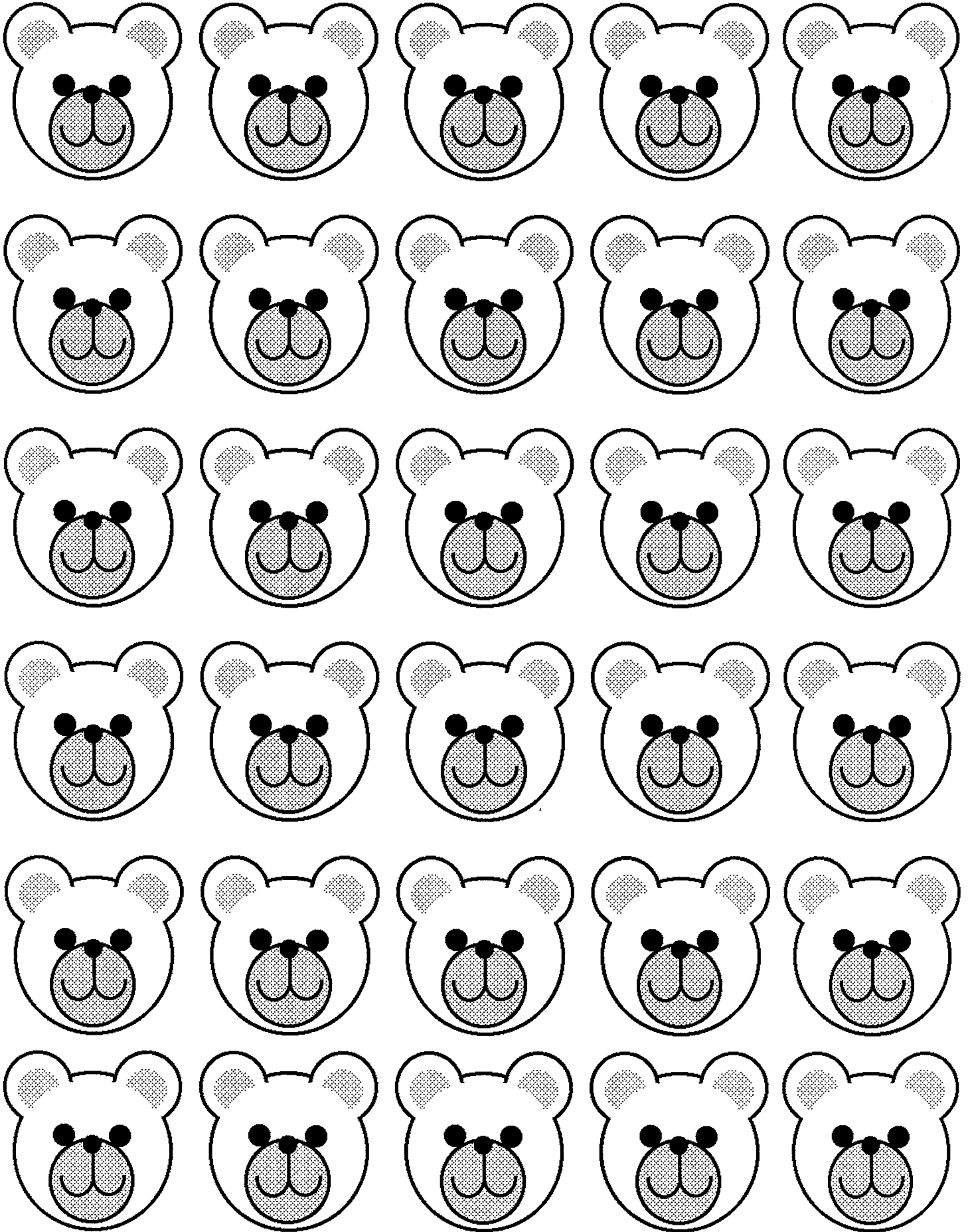
Patterns, cards, spinners, and other materials you'll make for the  
Practice & Enrichment Boxes described in this packet.



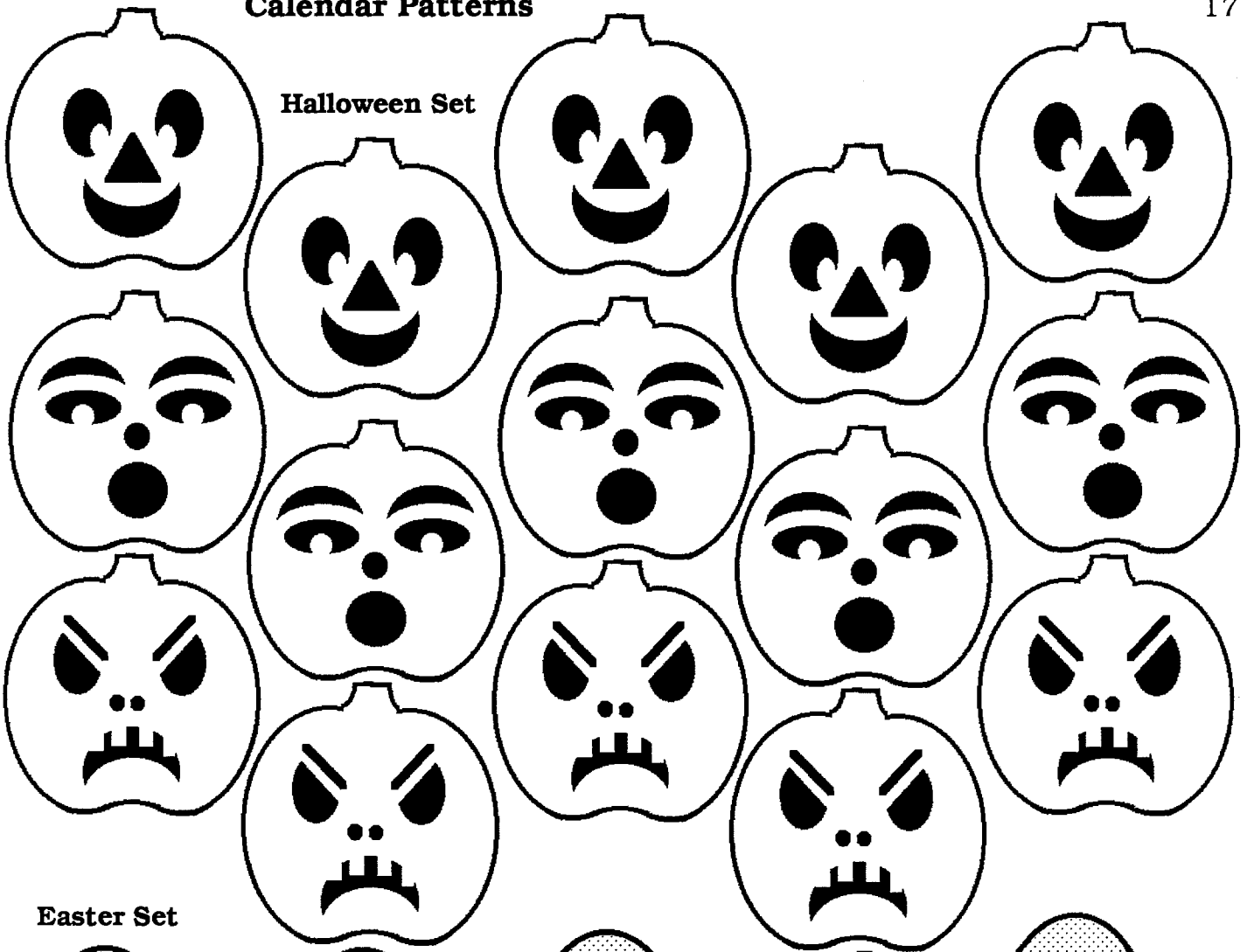
Bears



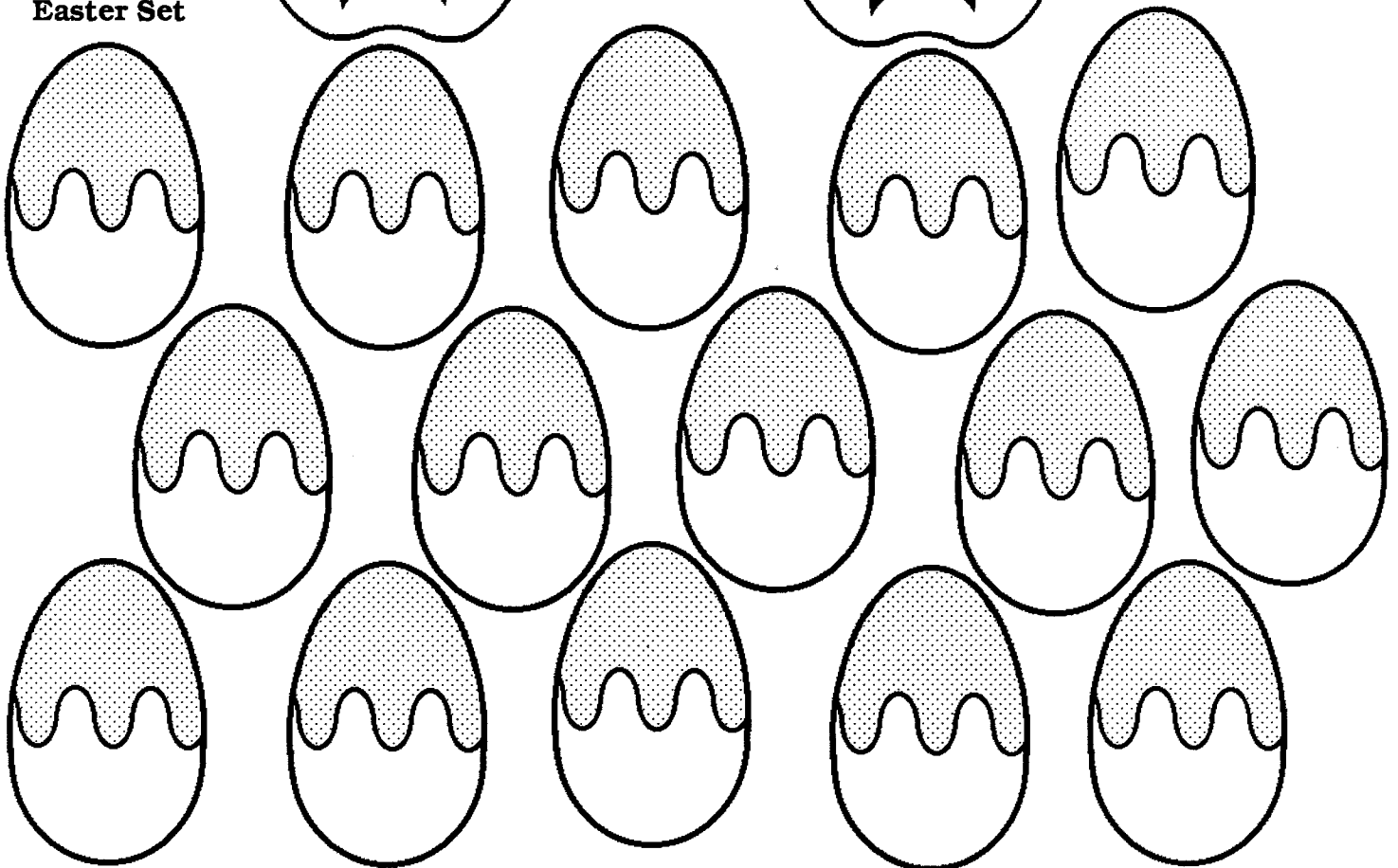
Bears



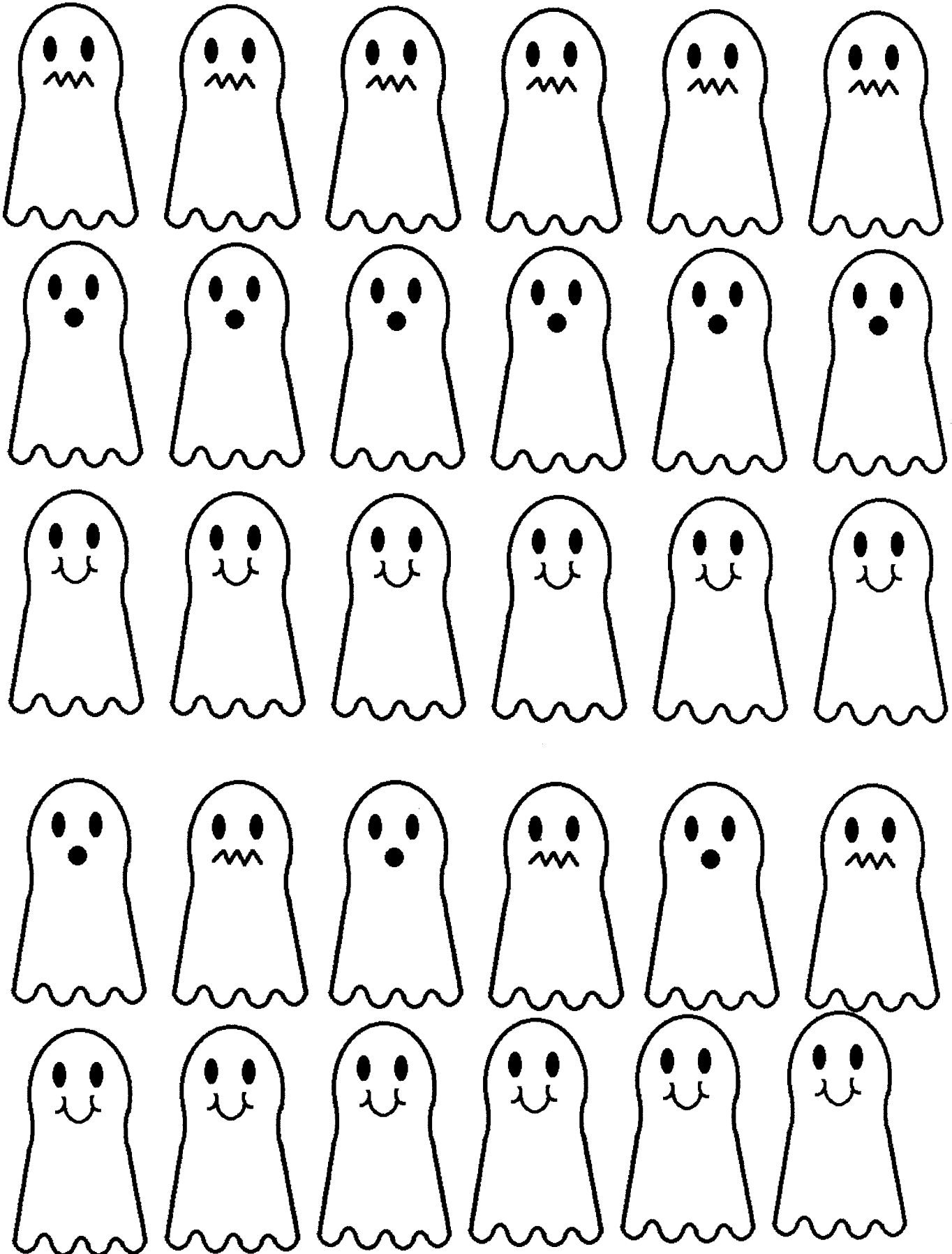
Halloween Set



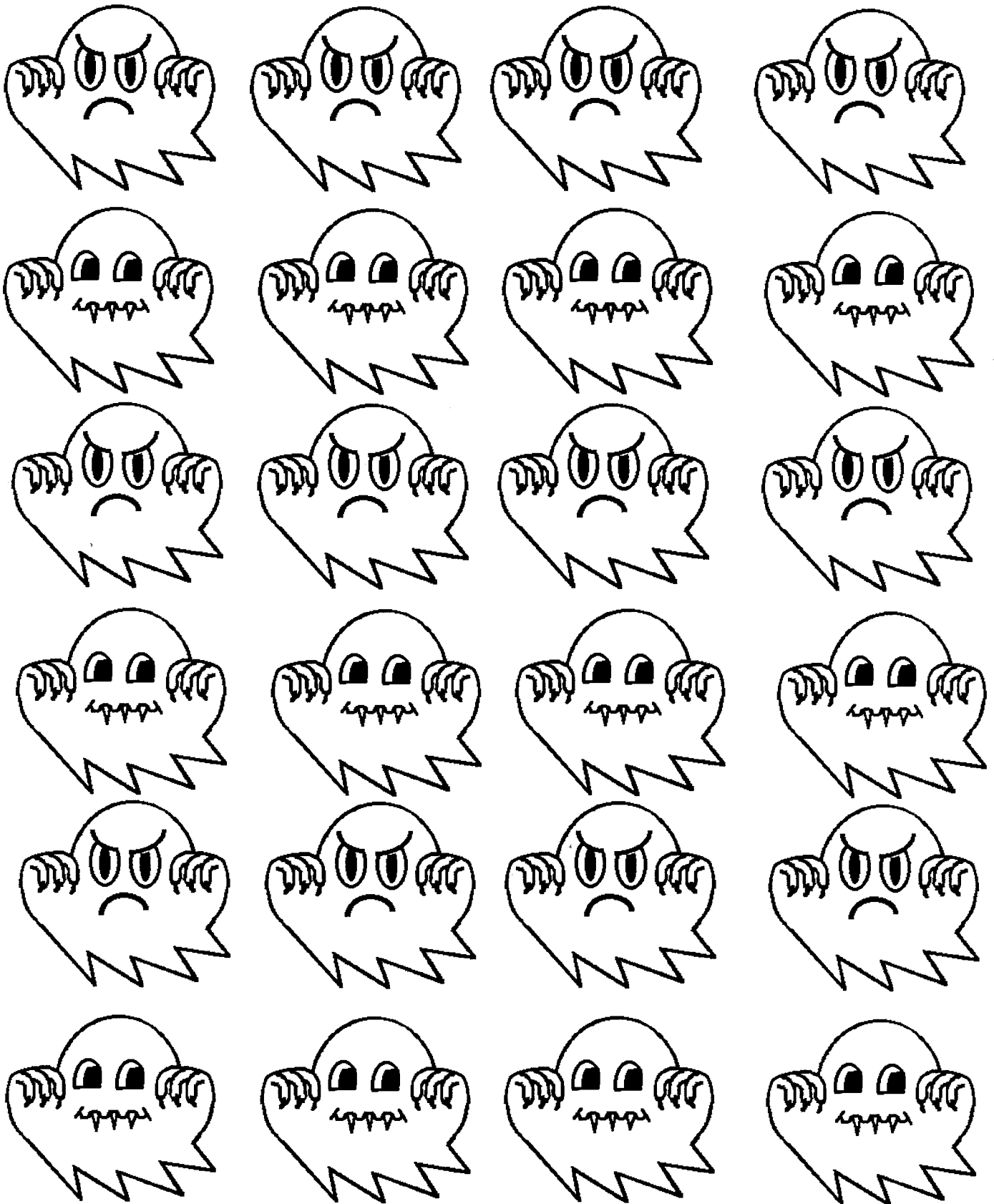
Easter Set



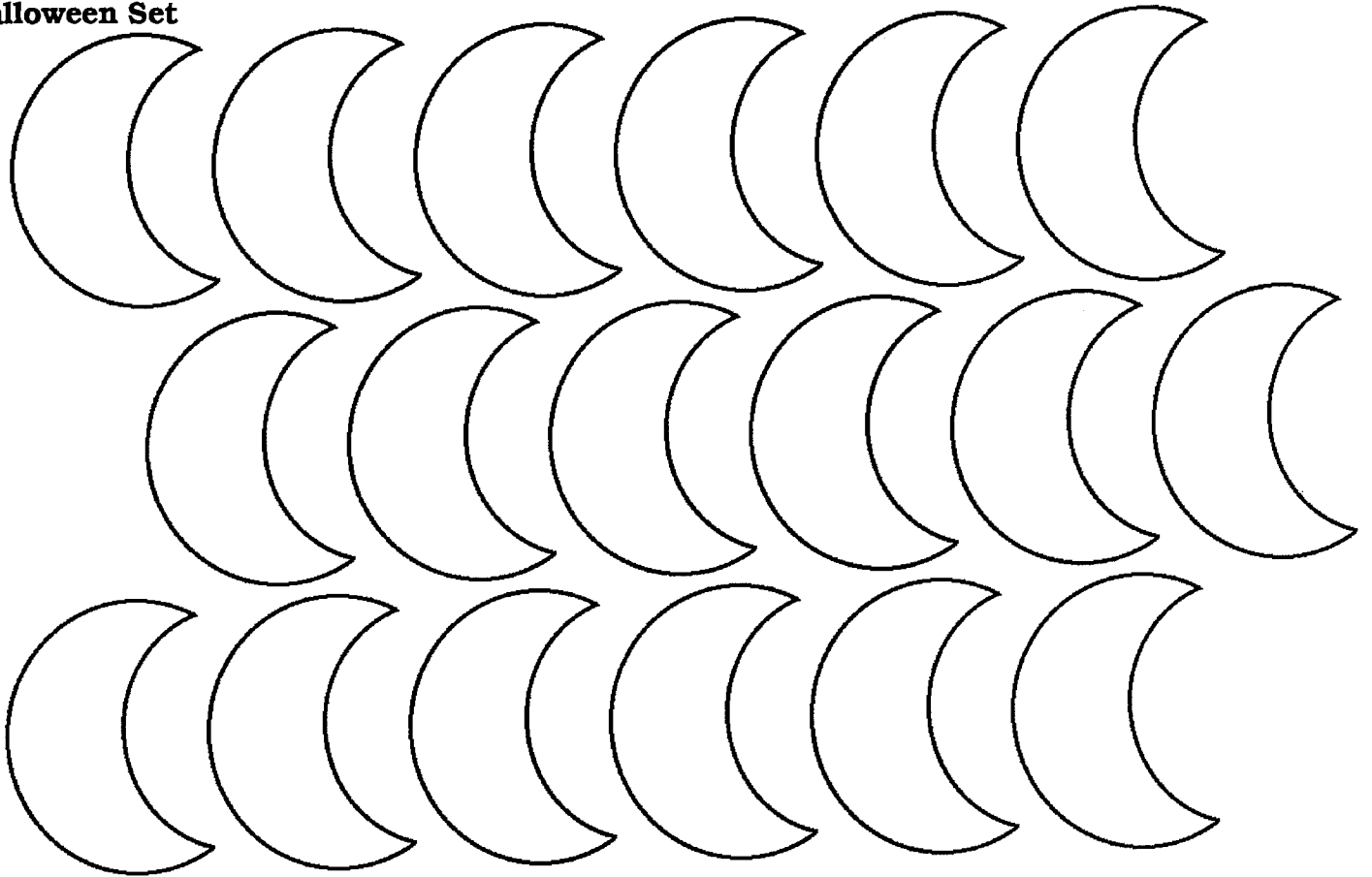
## Halloween Set



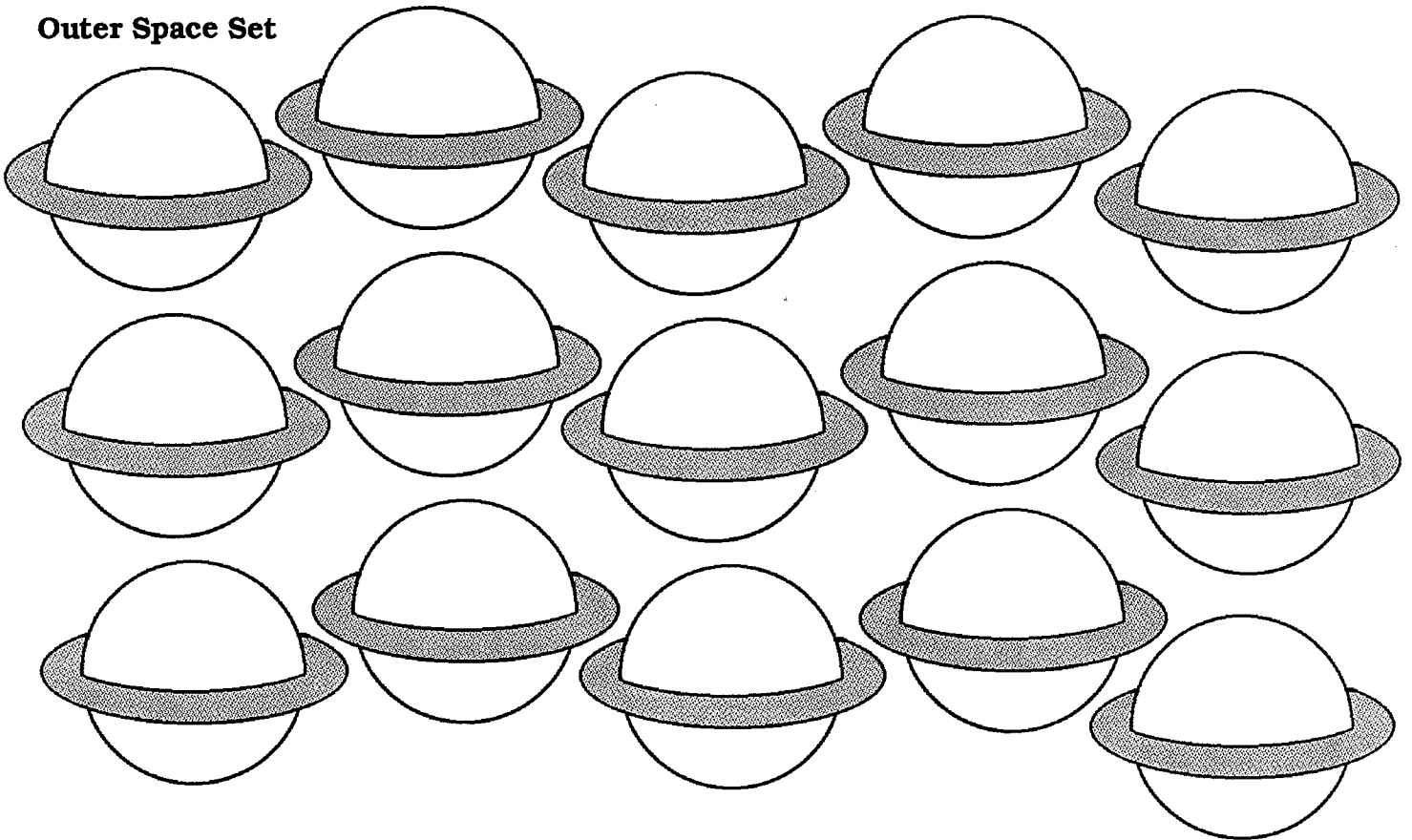
Halloween Set



Halloween Set



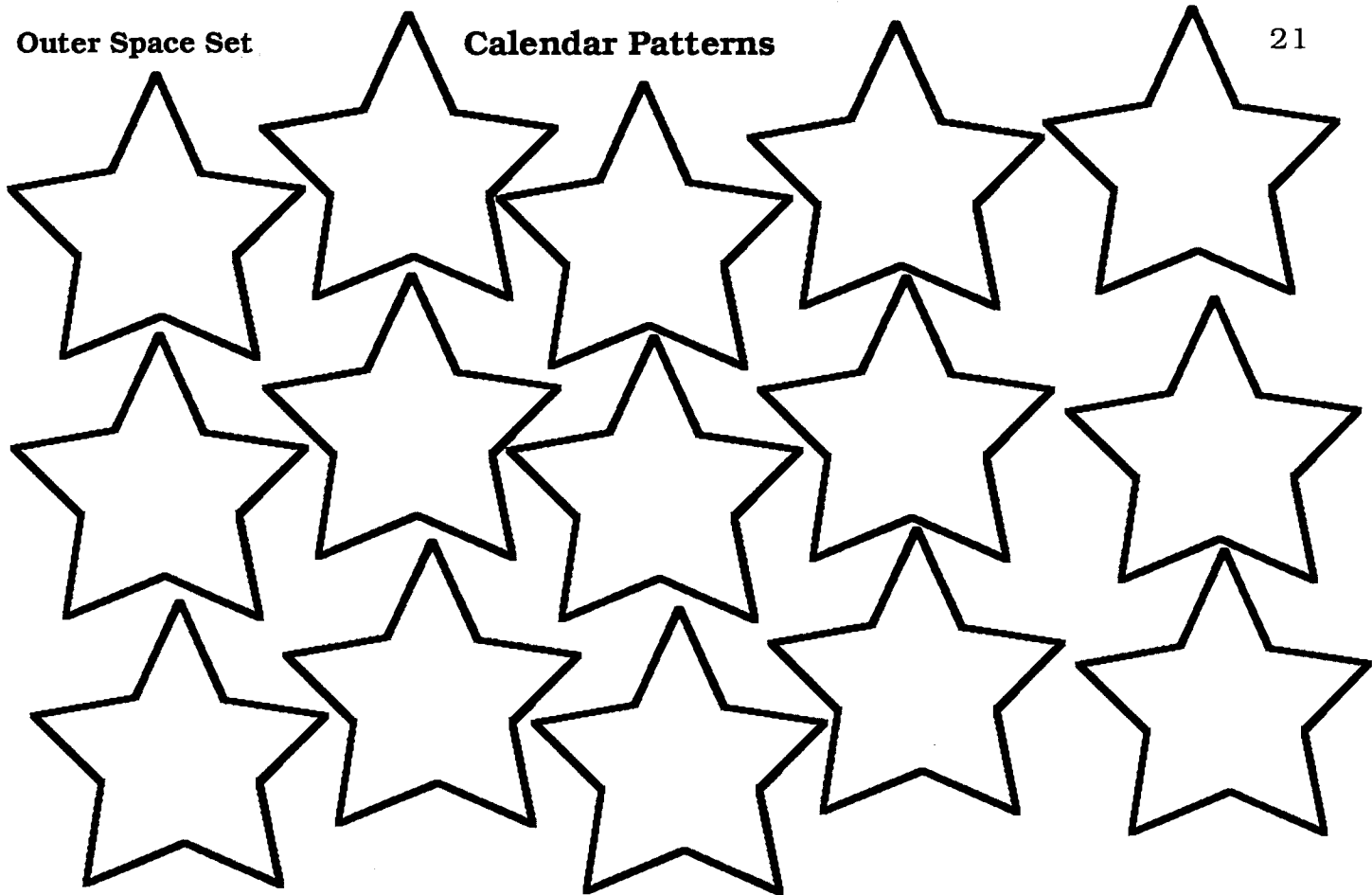
Outer Space Set



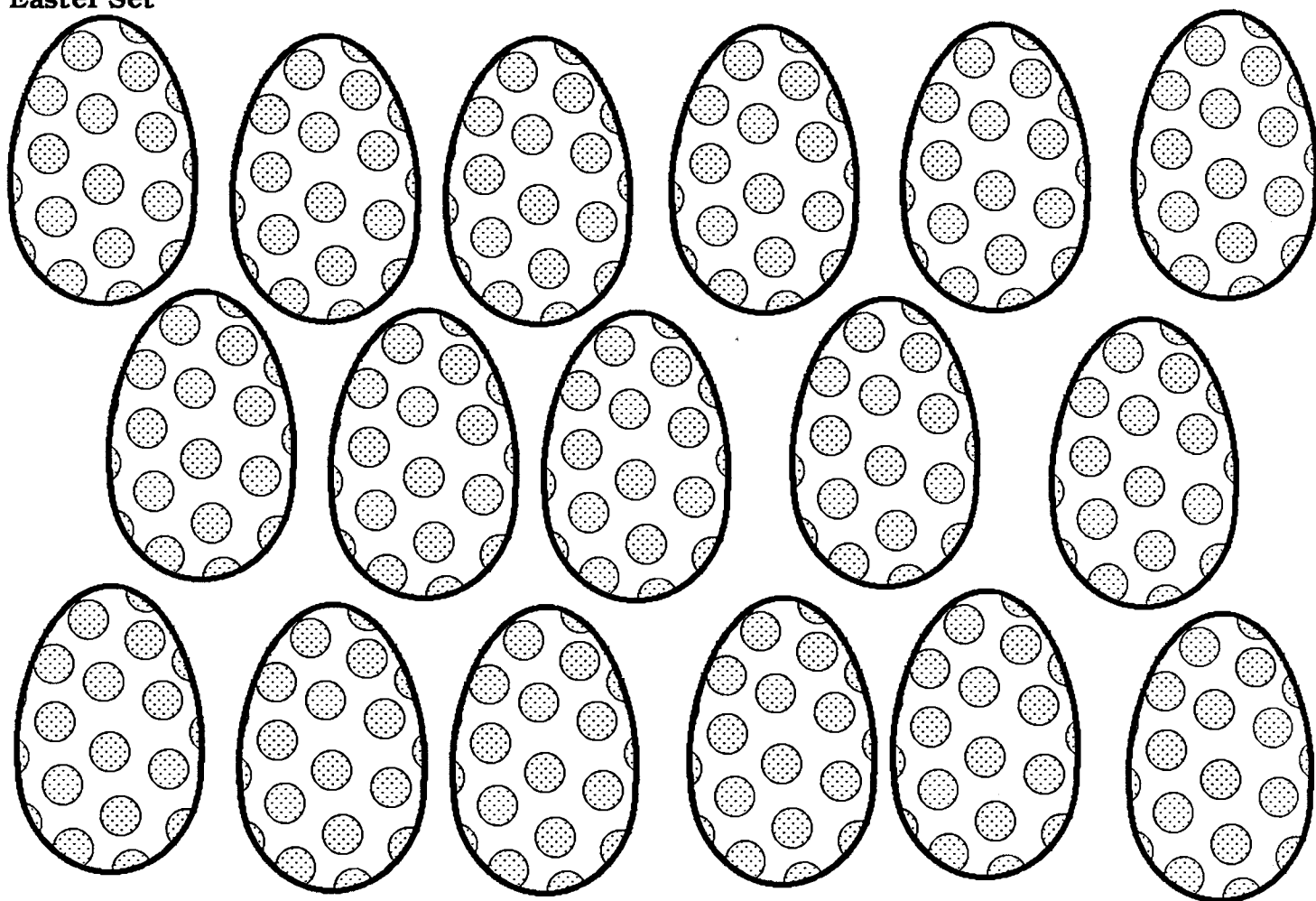
**Outer Space Set**

**Calendar Patterns**

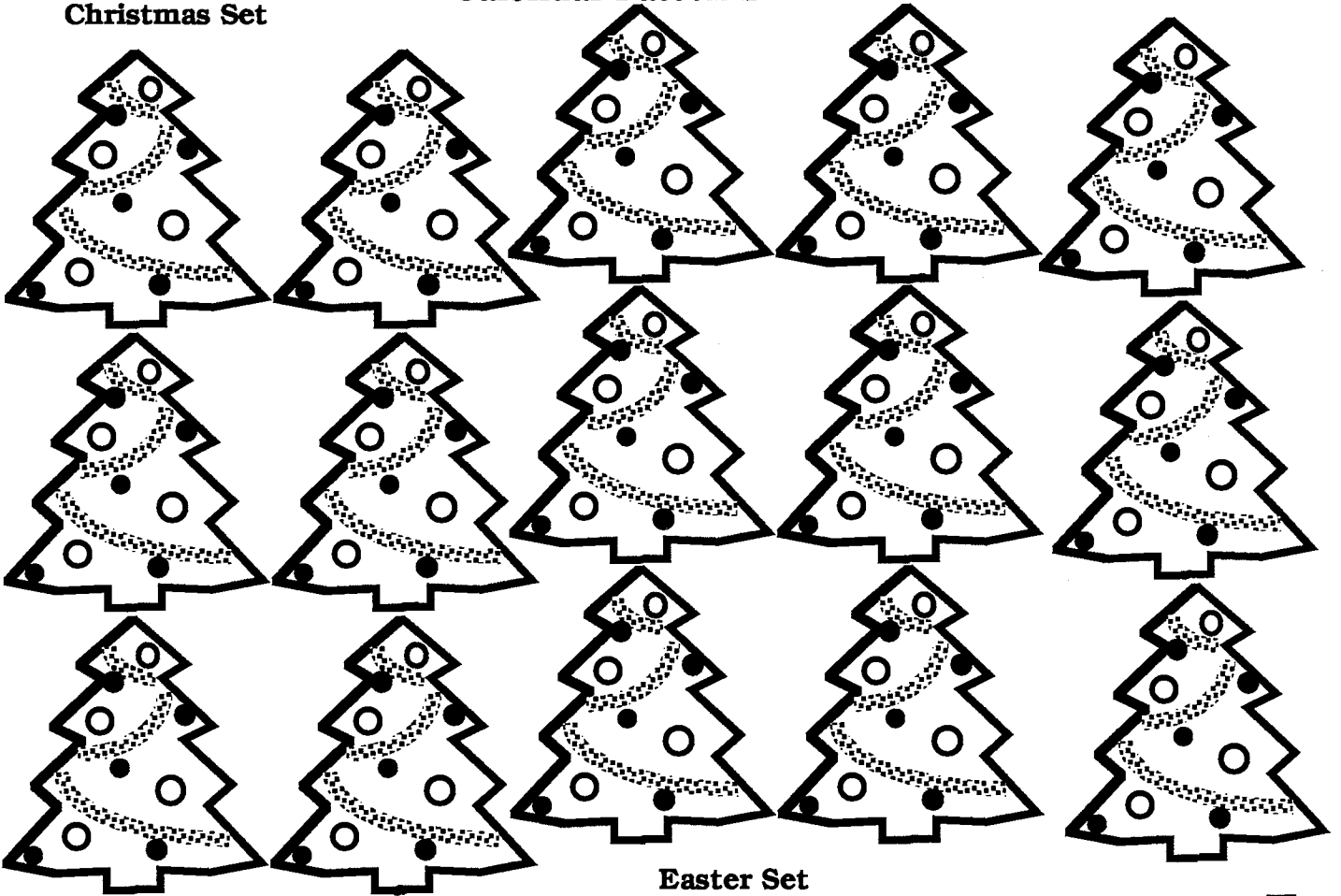
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**Easter Set**



Christmas Set



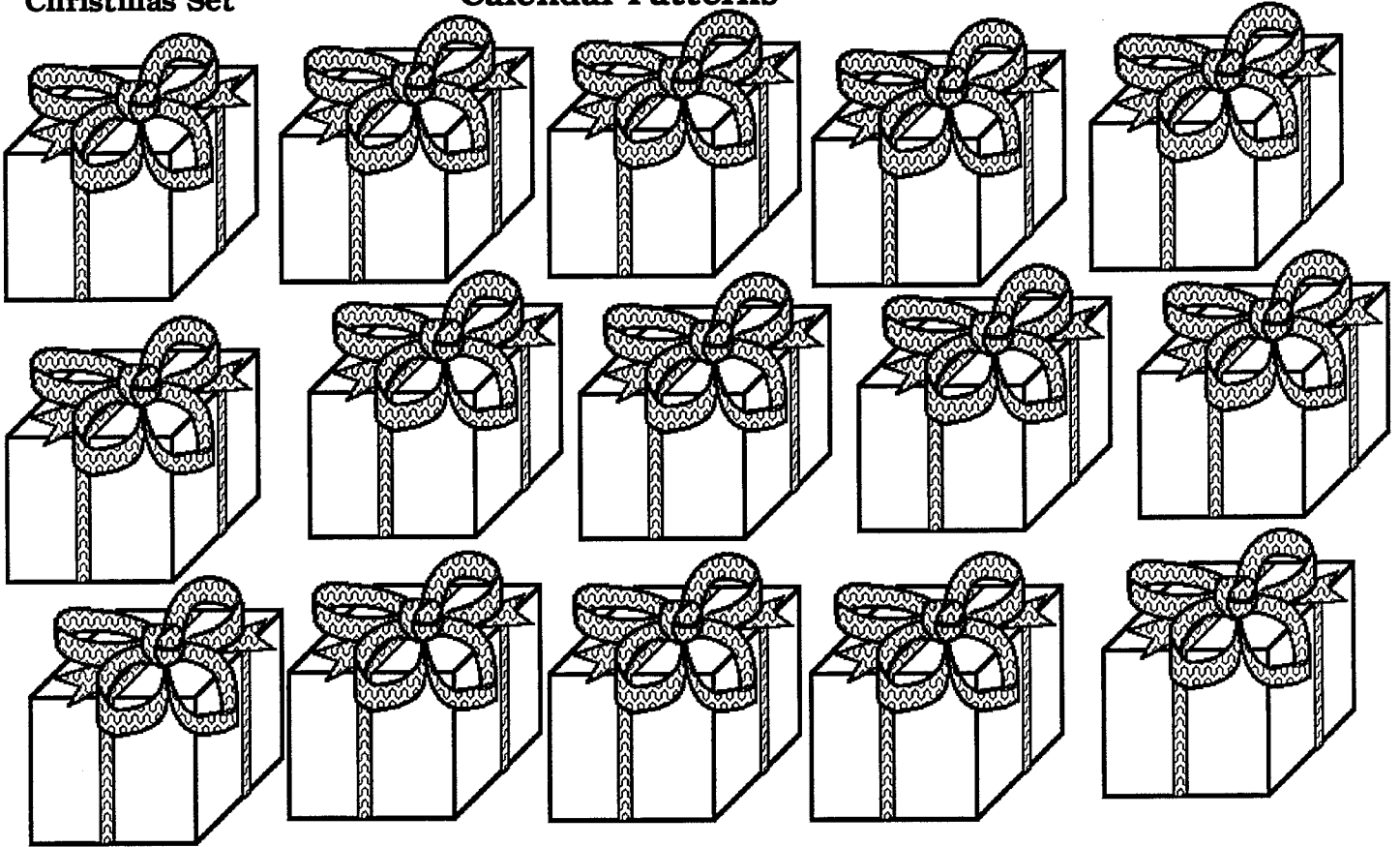
Easter Set



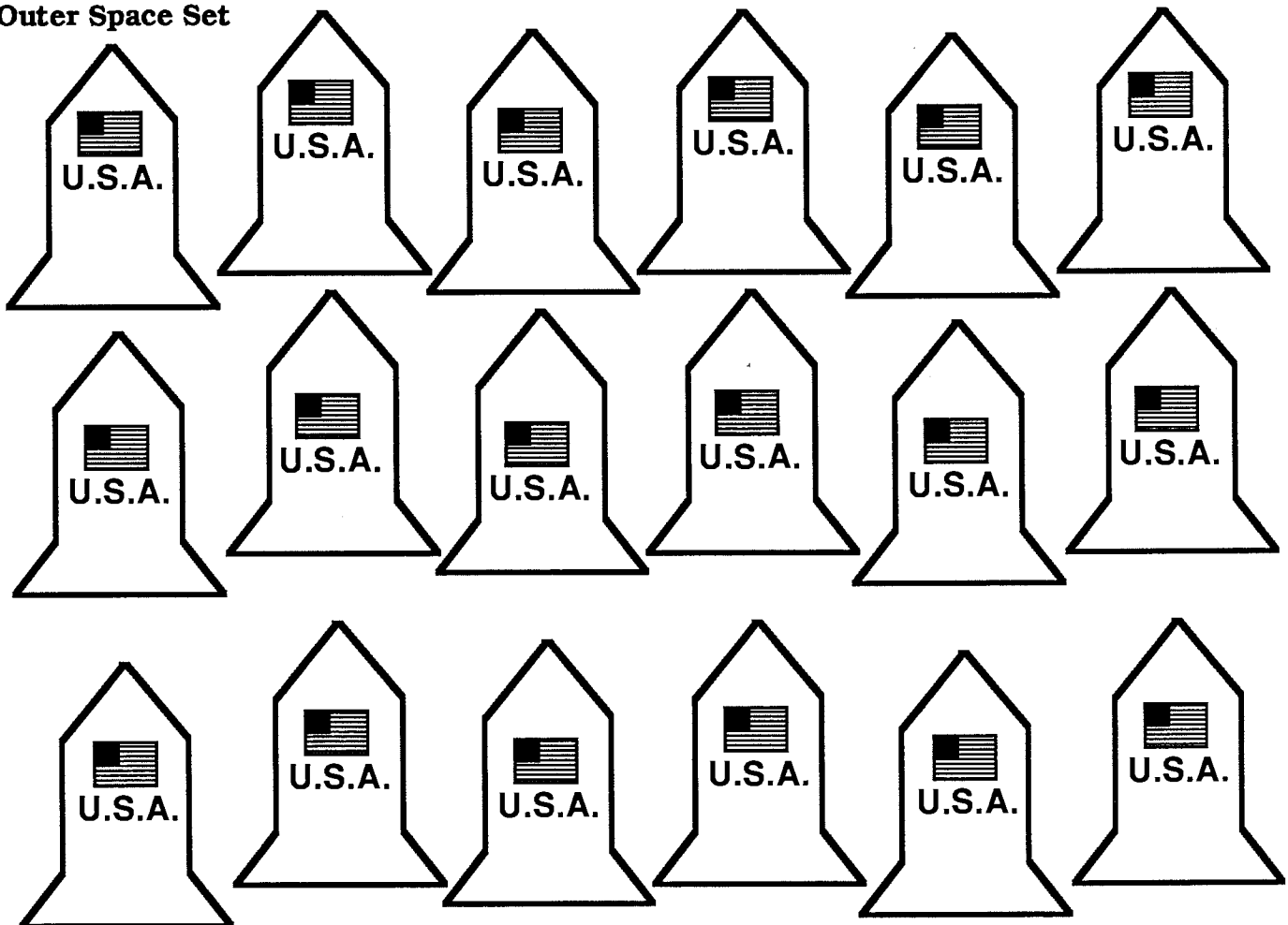


**Christmas Set**

**Calendar Patterns**



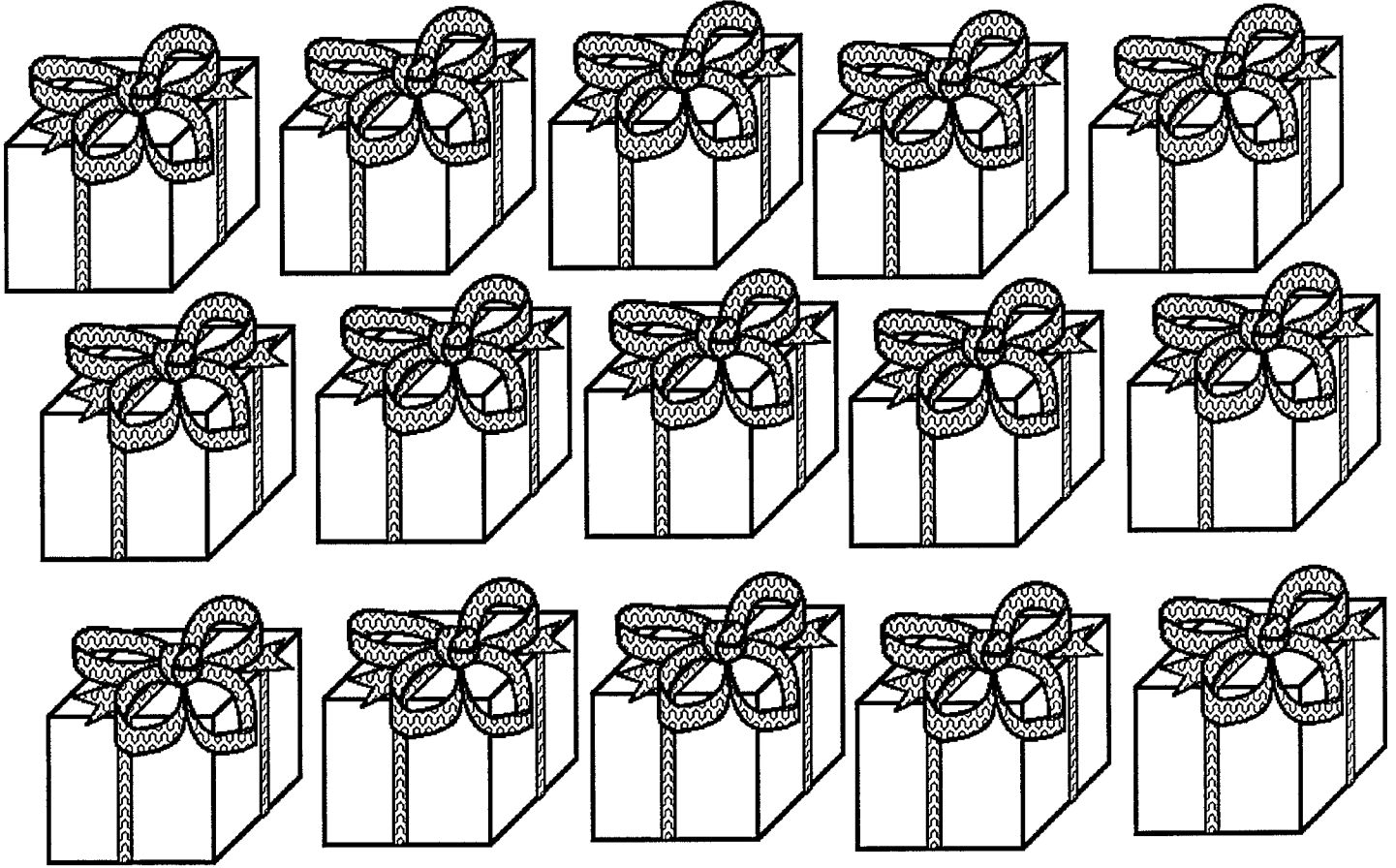
**Outer Space Set**



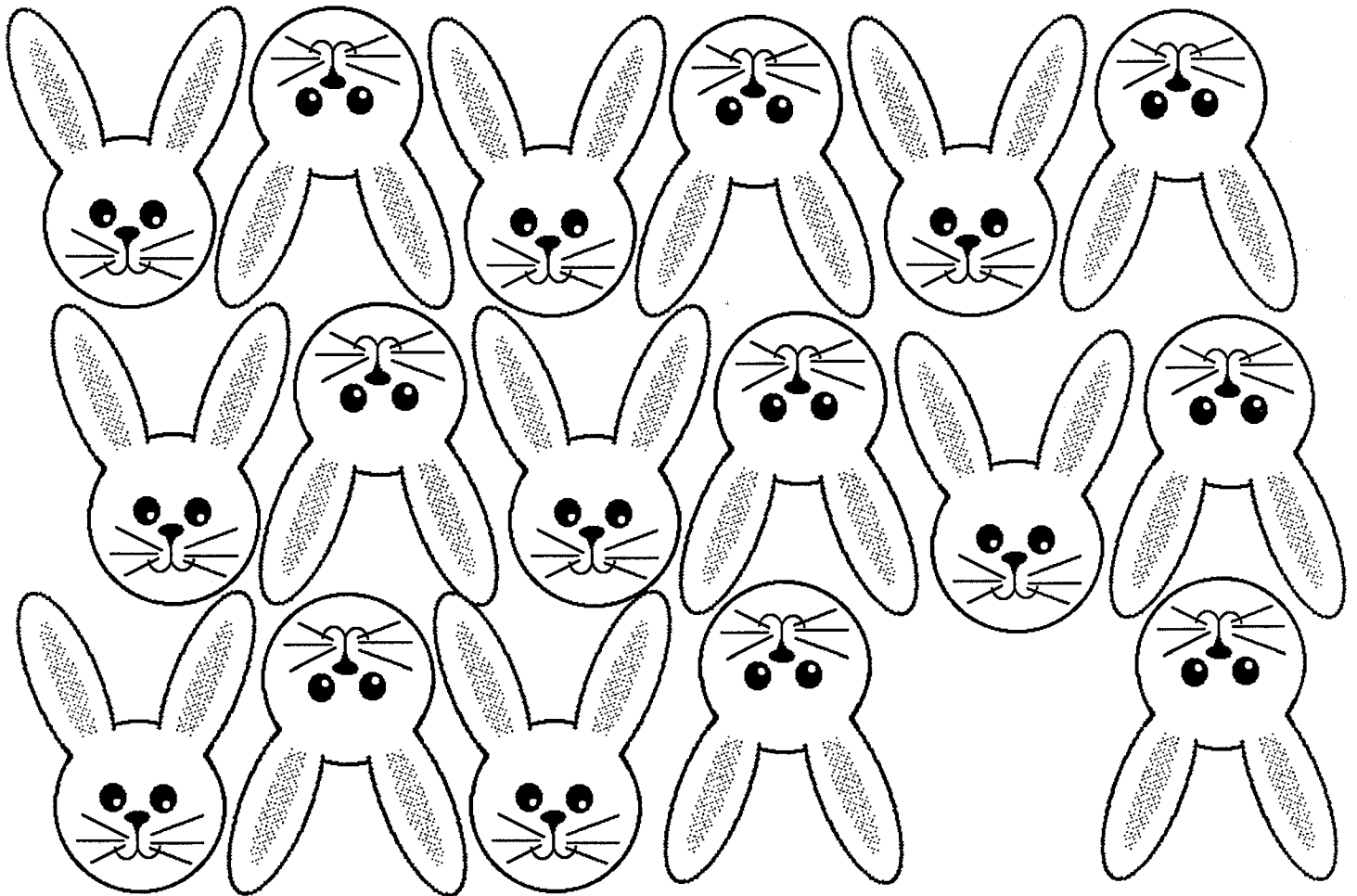
**Christmas Set**

**Calendar Patterns**

24

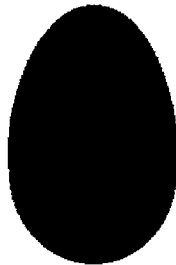
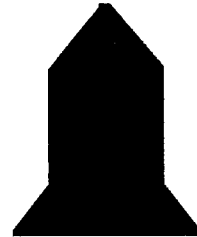
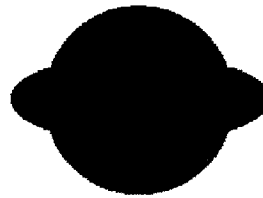
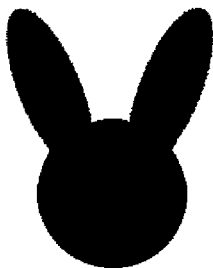
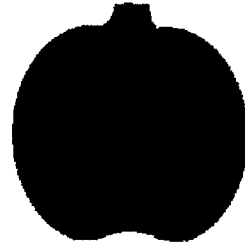
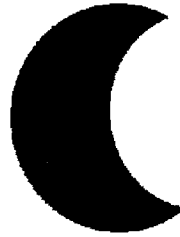
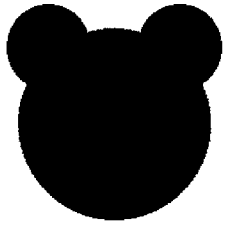


**Easter Set**



**Templates Shapes for Margarine Lids  
for Calendar Patterns**

25

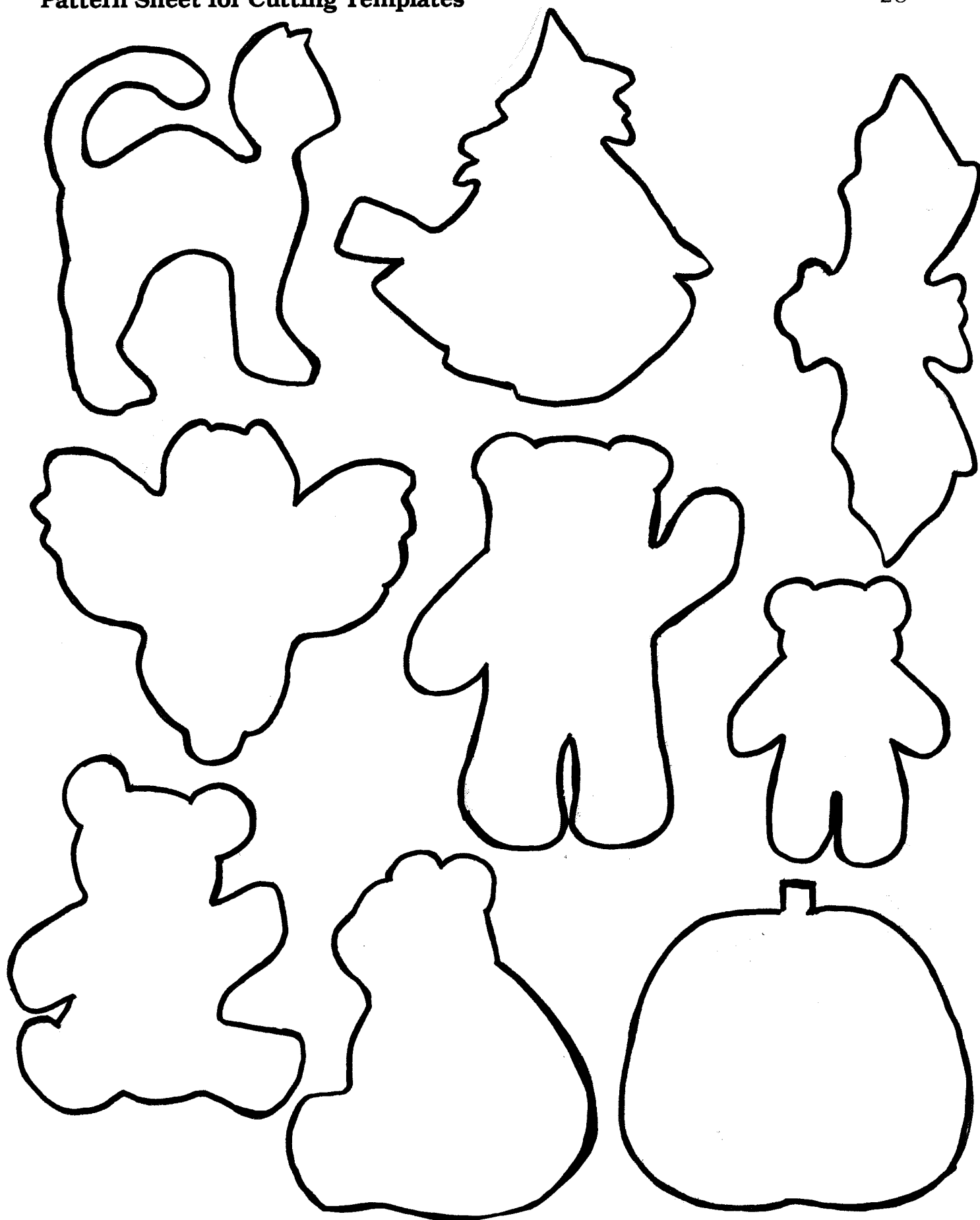


month

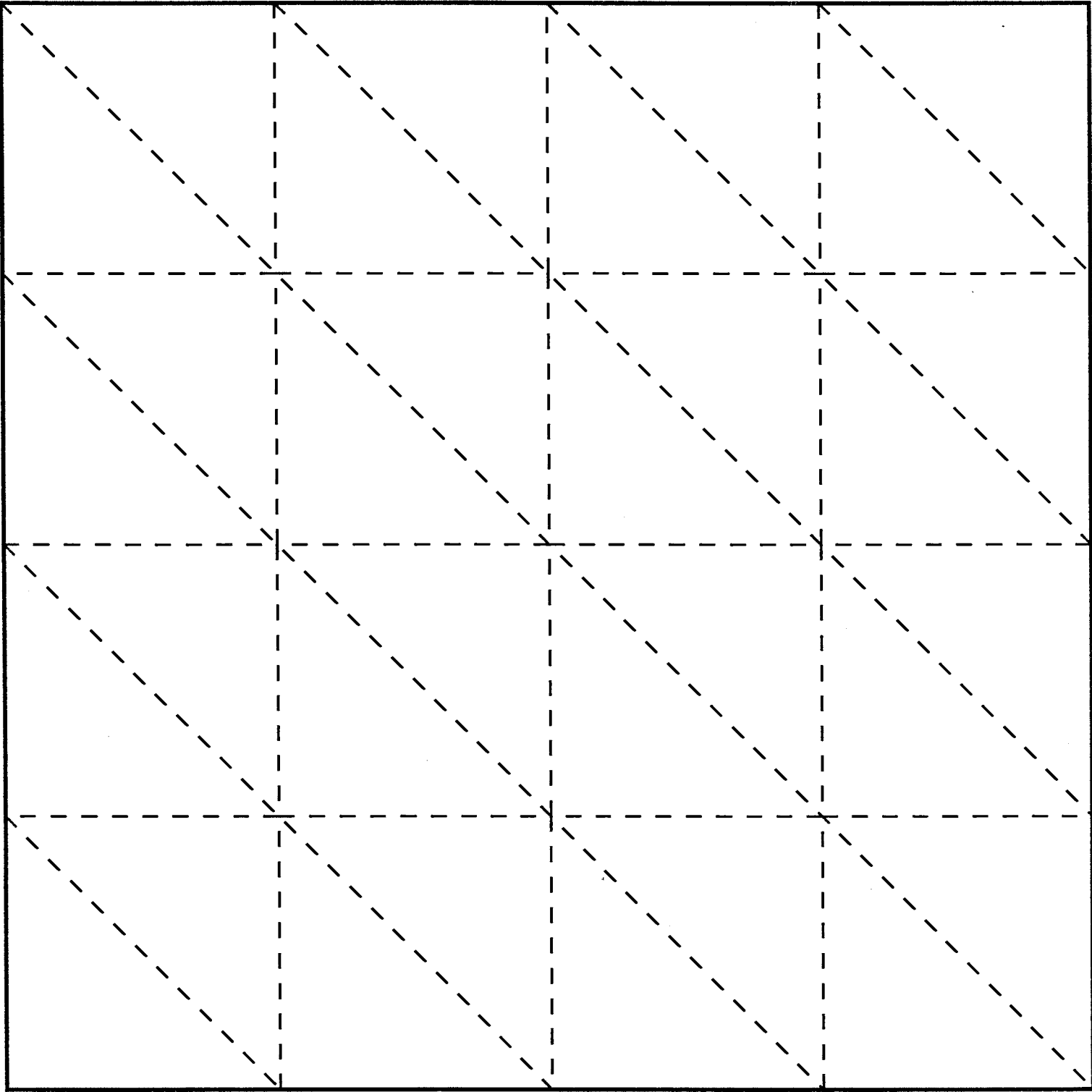
pattern

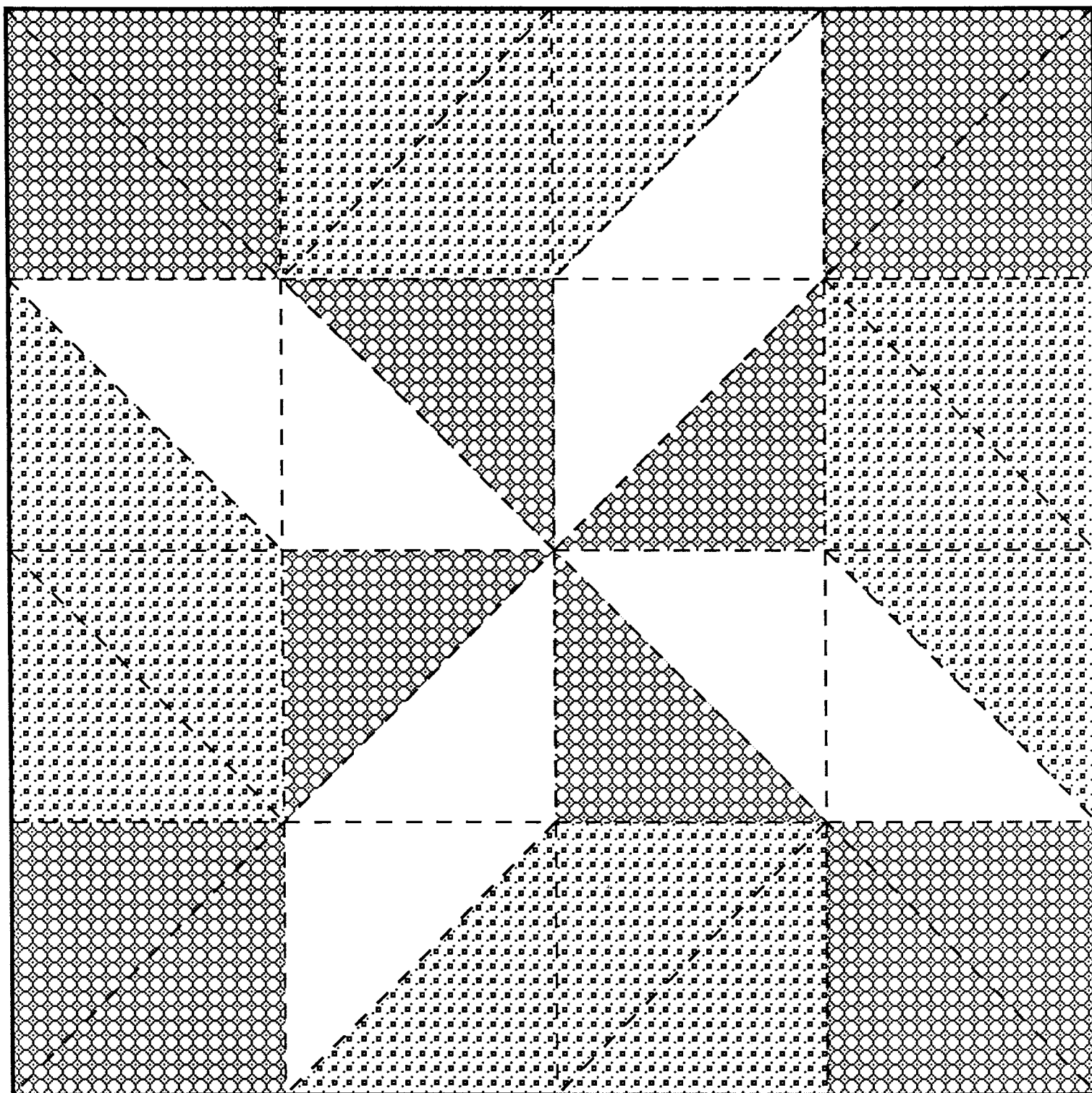
Sunday	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	





Children also enjoy hearts of varying sizes.

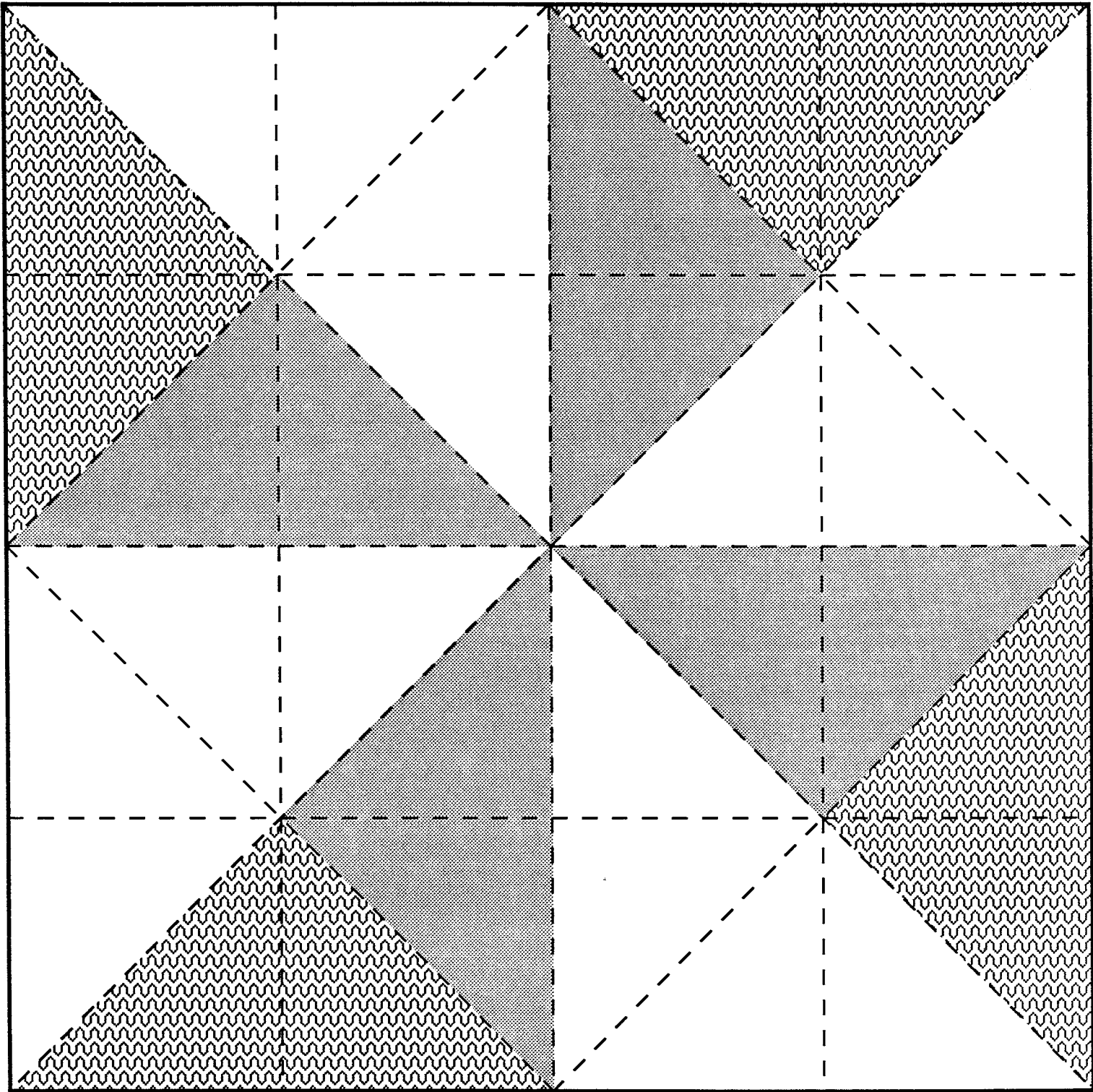




**Clay's Choice**

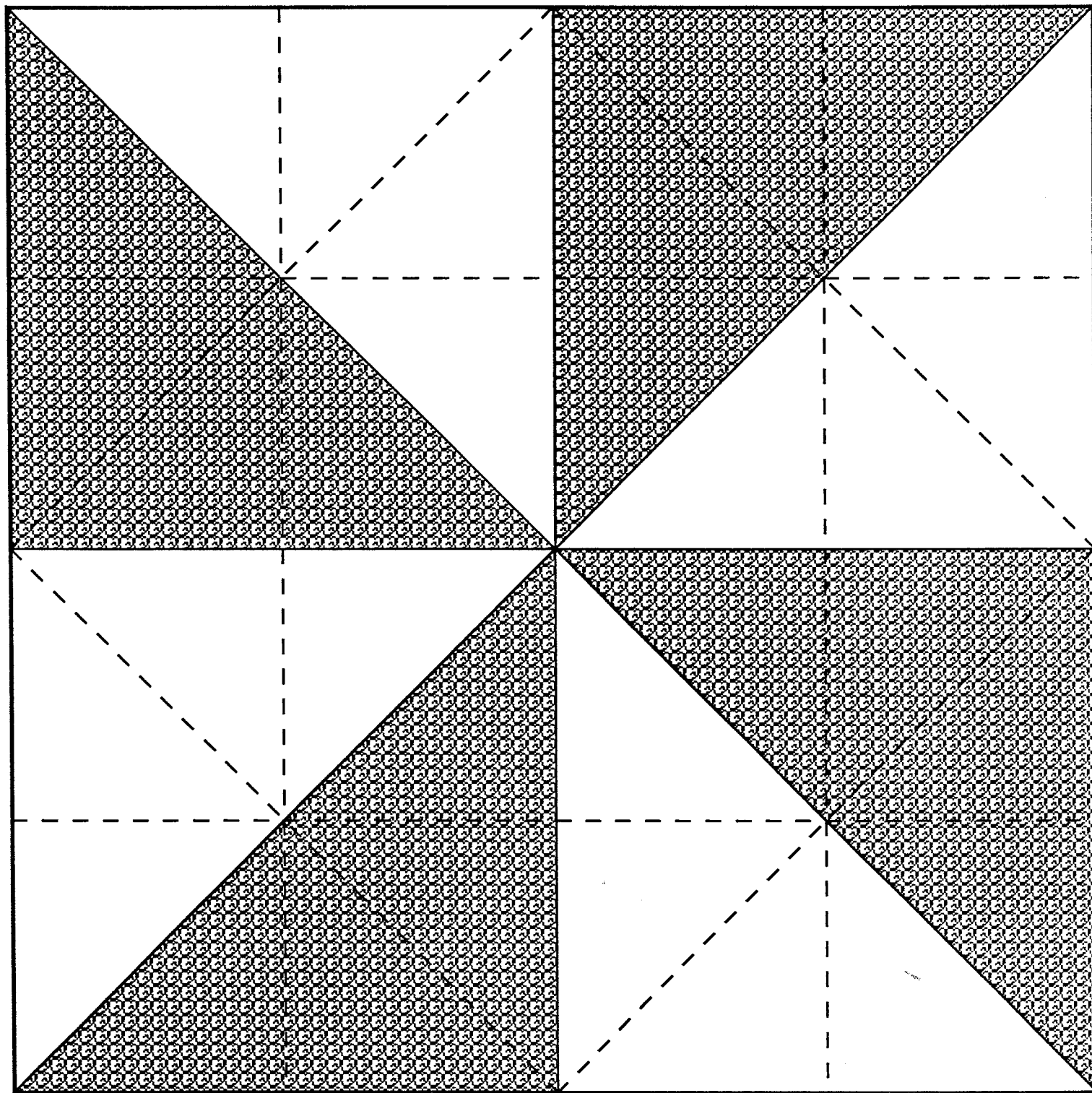
Name \_\_\_\_\_





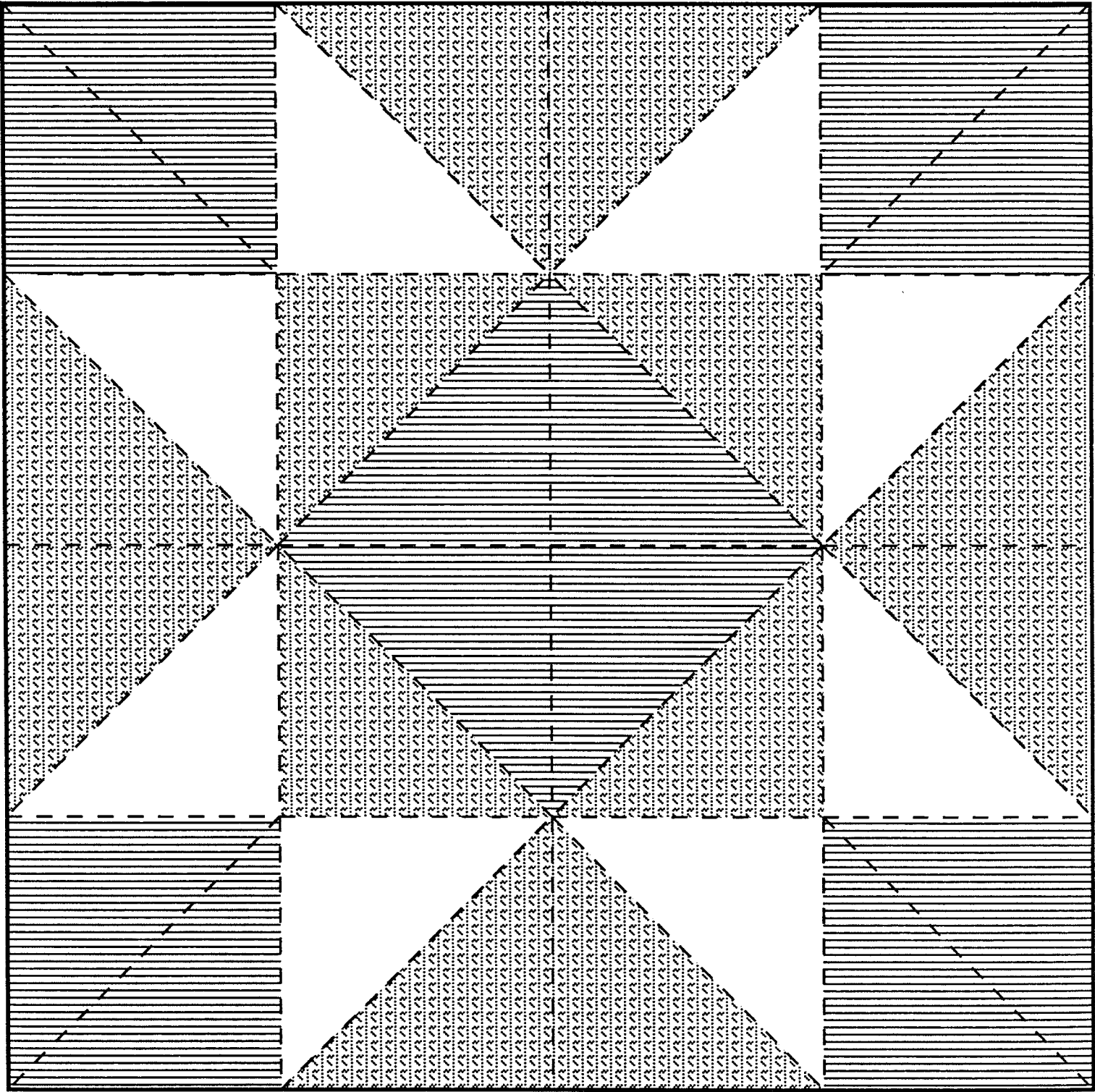
**Whirligig**

Name \_\_\_\_\_



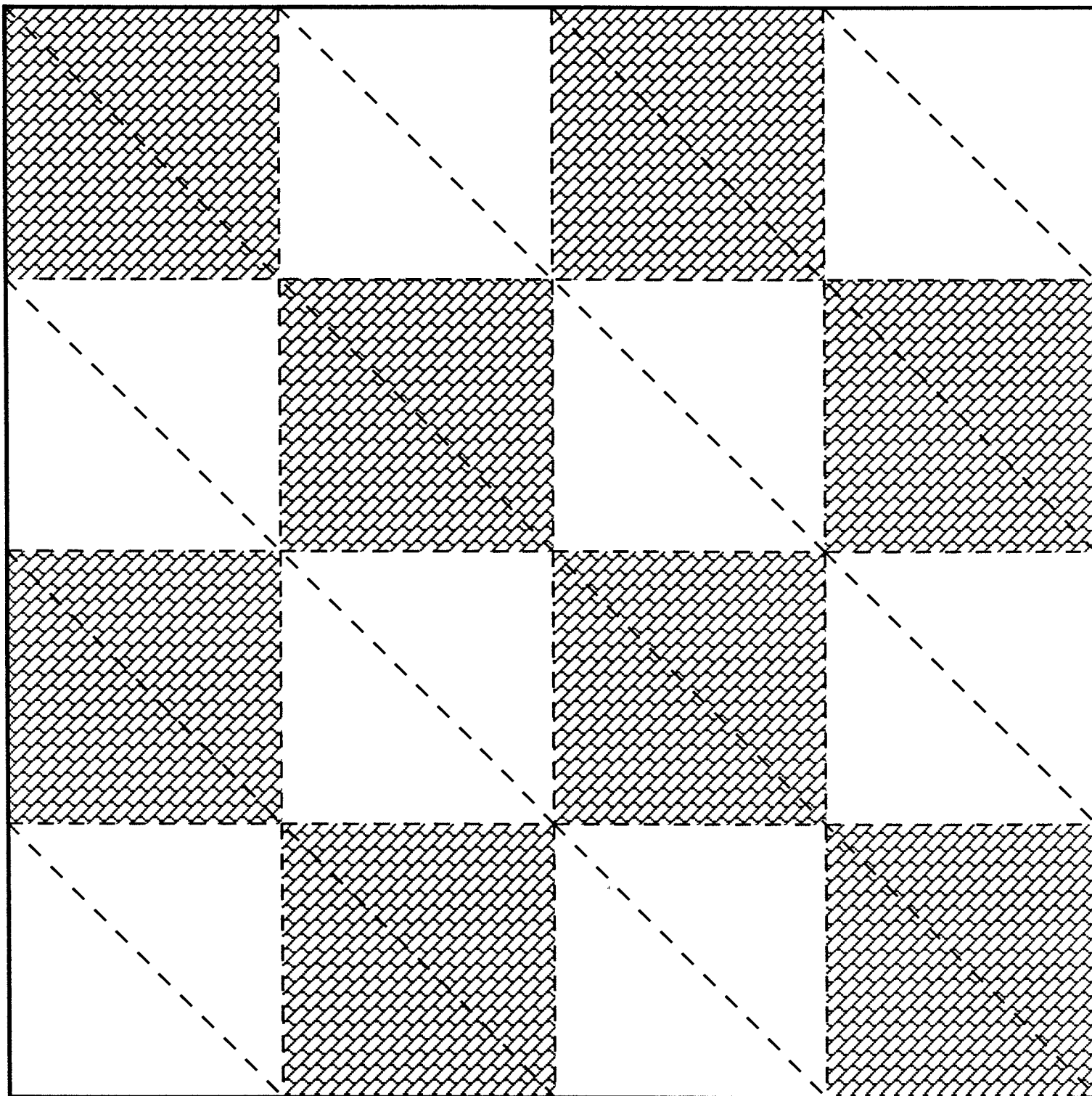
**Windmill**

Name \_\_\_\_\_



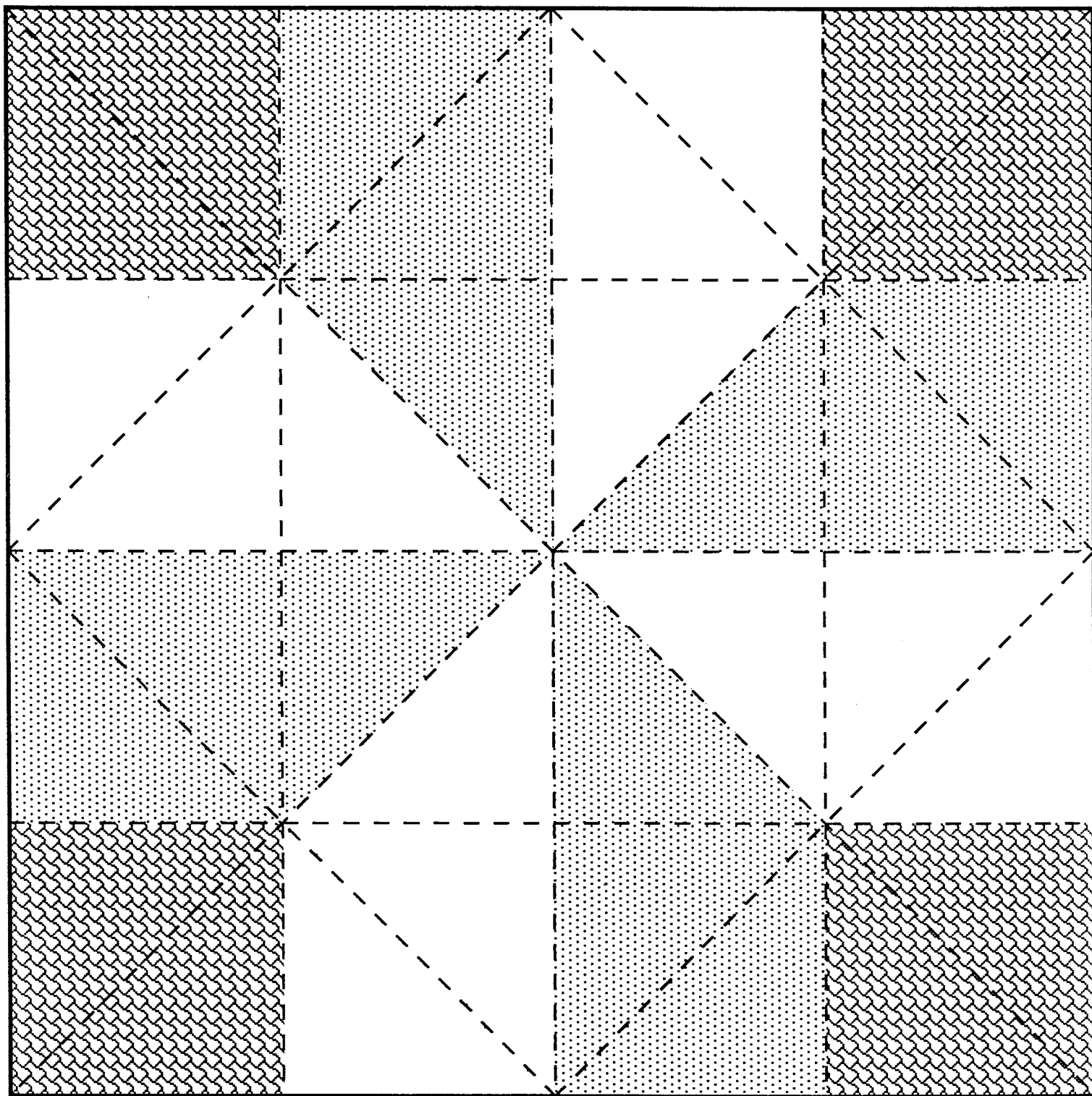
**Evening Star**

Name \_\_\_\_\_



**Checkerboard**

Name \_\_\_\_\_



**Nelson's Victory**

Name \_\_\_\_\_

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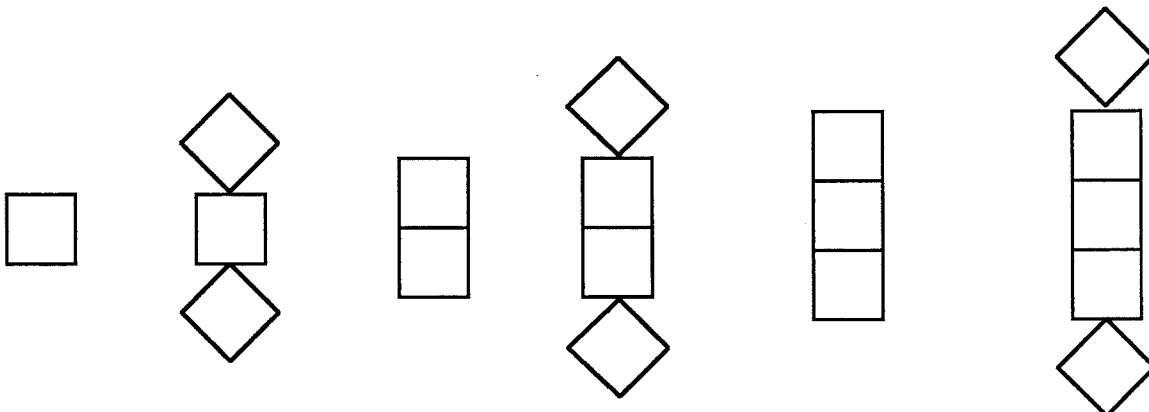
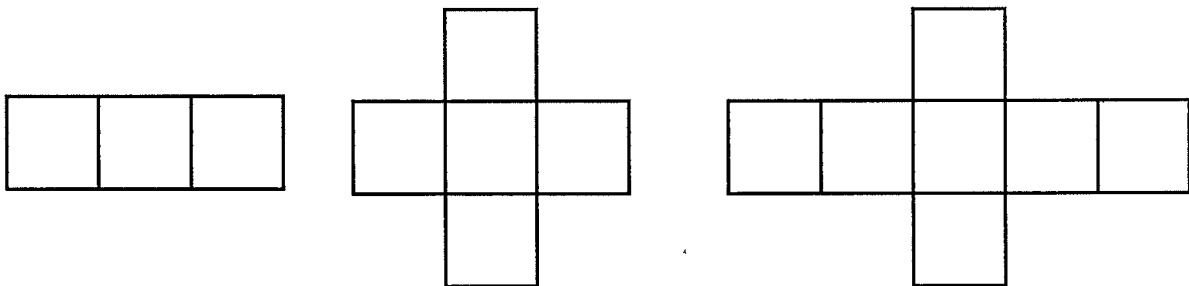
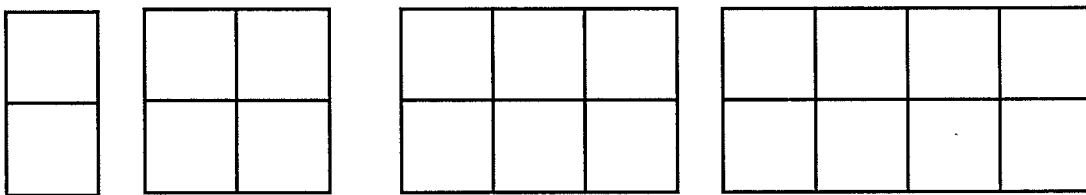
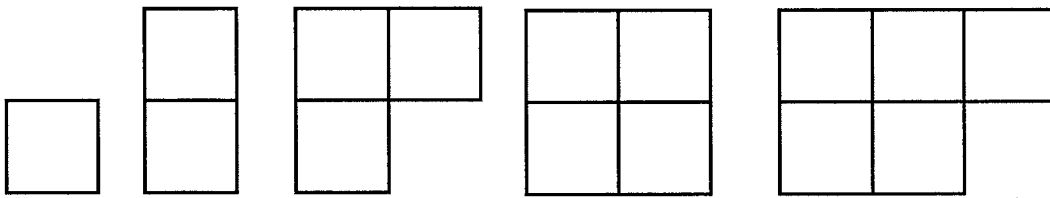
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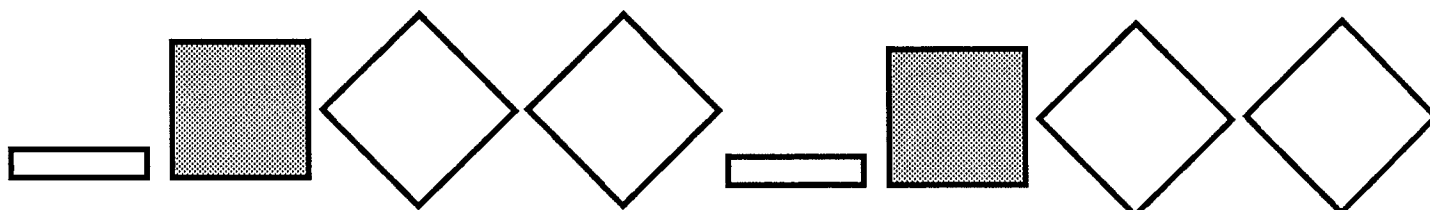
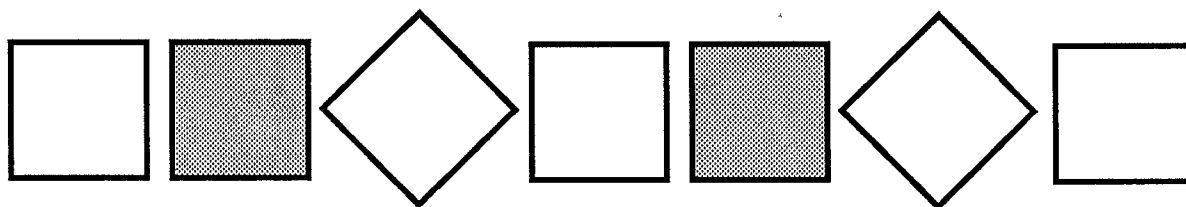
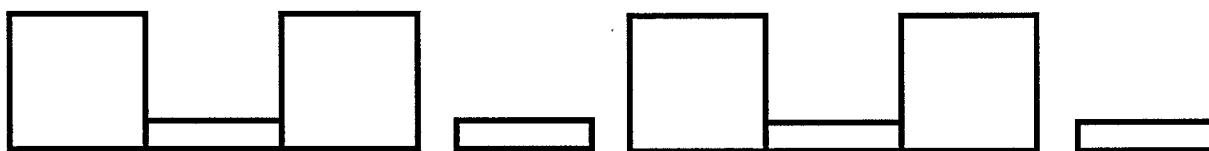
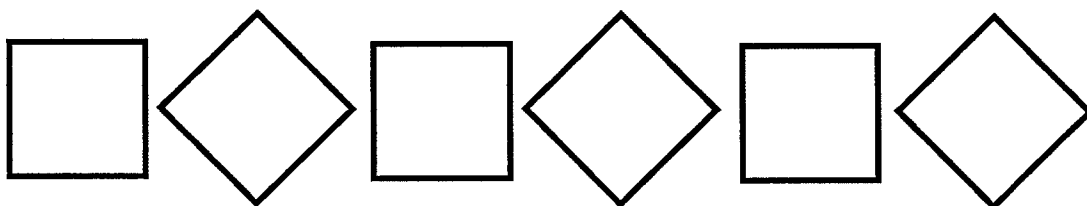
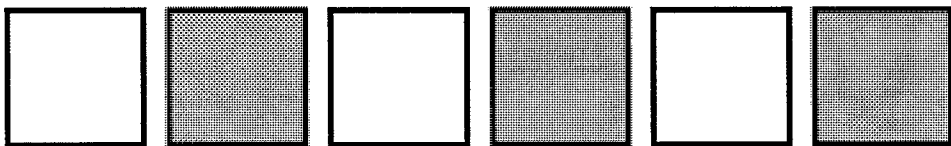
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[illegible]







2 4 6 8 →

1 4 9 16

1 2 4 7 11

1 2 3 4 →

1 3 5 7 9

3 6 9 12 →



1¢



10¢



1¢



10¢



1¢



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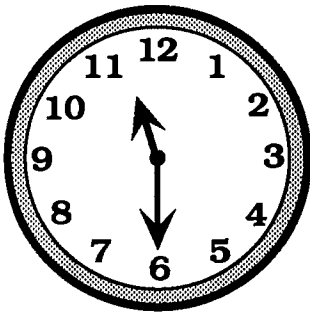
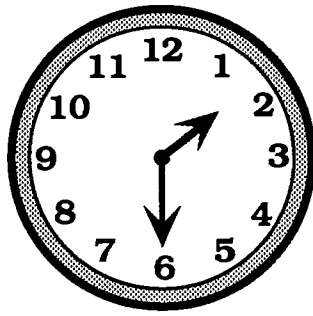
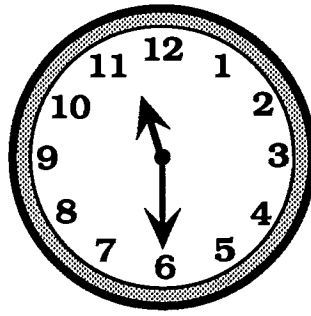
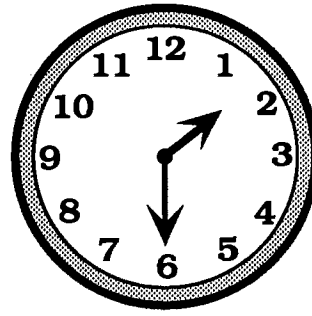
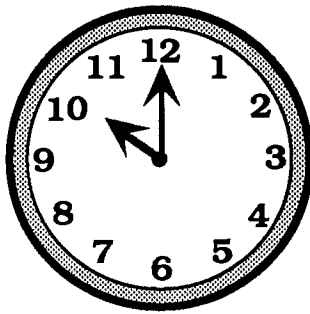
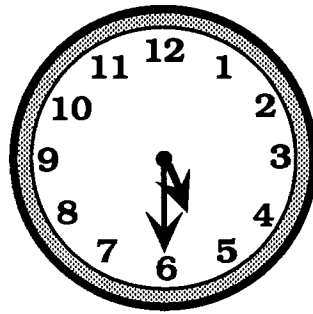
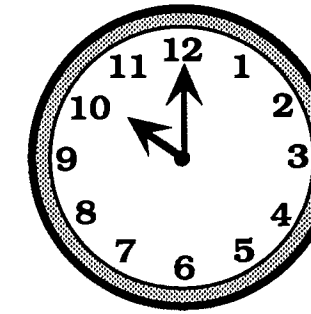
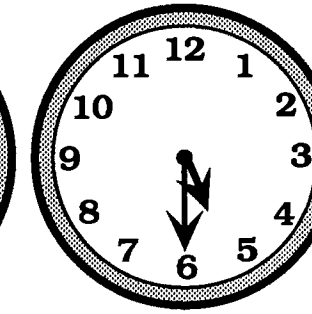
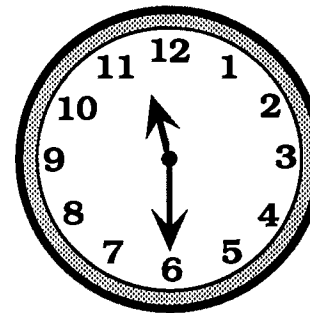
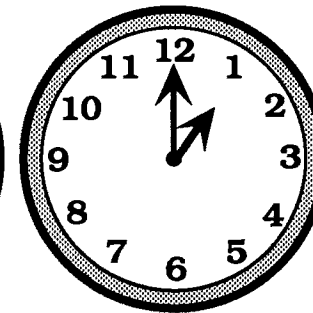
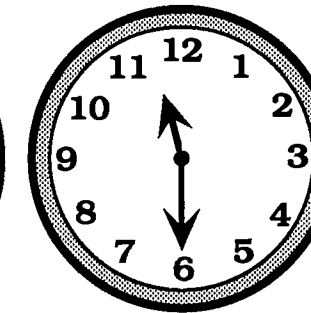
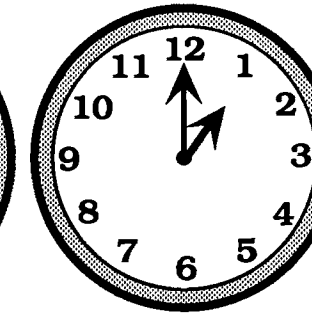
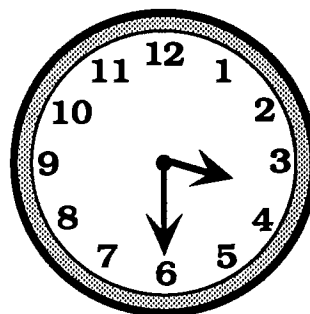
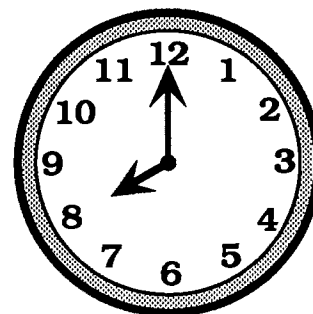
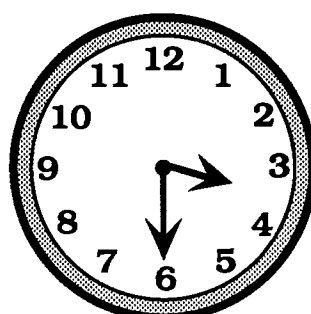
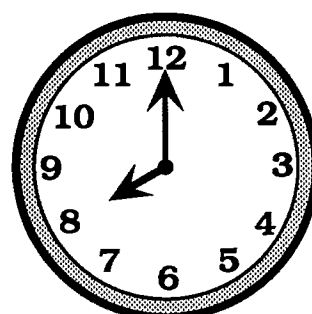
nickel

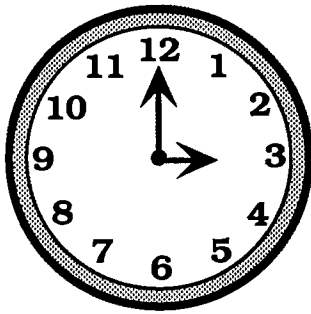
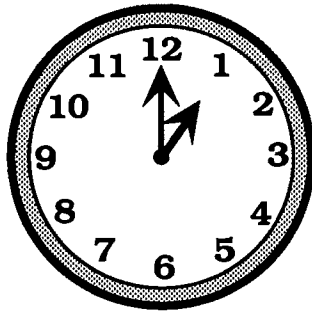
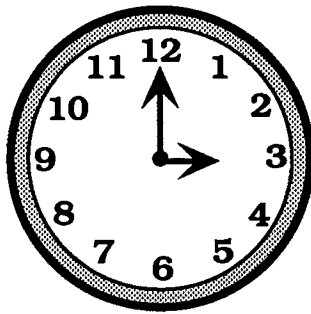
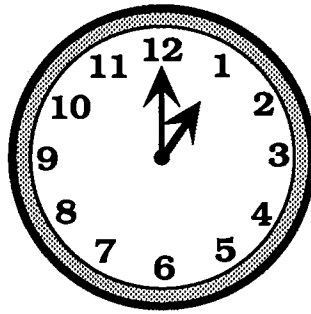
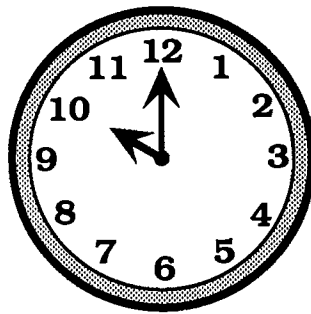
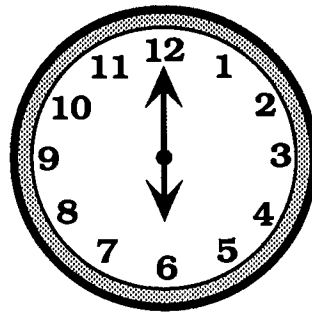
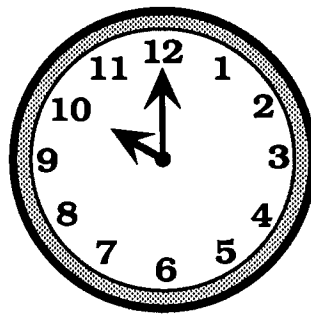
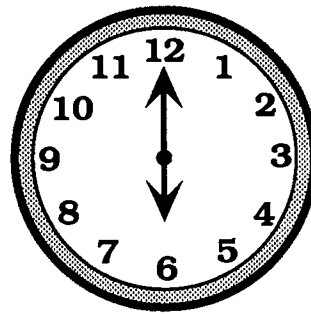
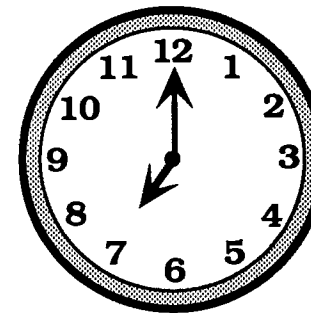
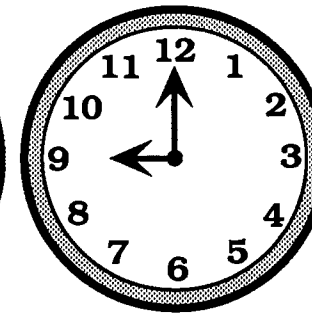
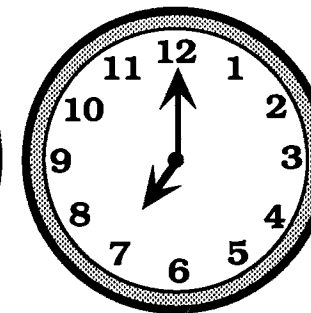
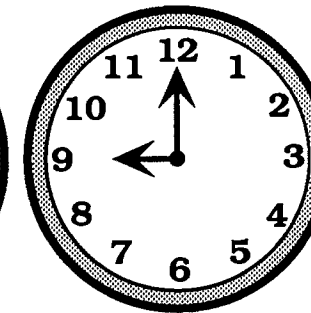
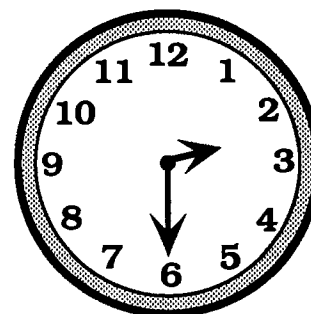
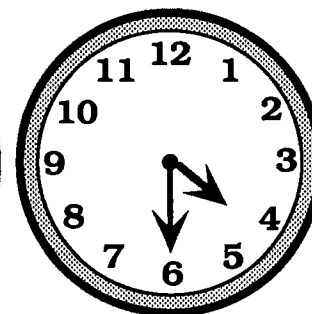
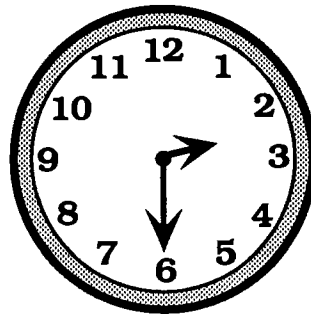
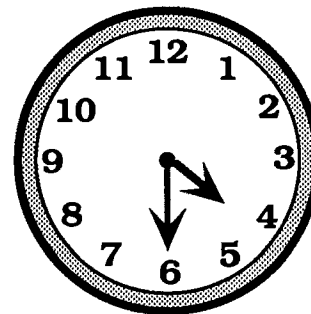


penny



nickel

**11:30****1:30****11:30****1:30****10:00****5:30****10:00****5:30****11:30****1:00****11:30****1:00****3:30****8:00****3:30****8:00**

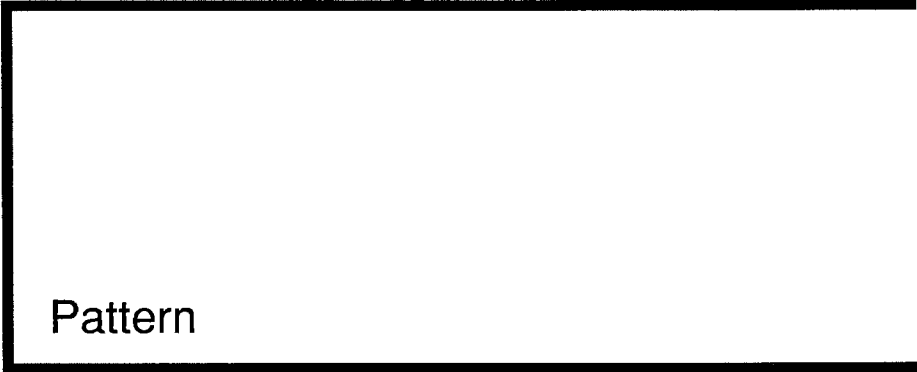
**3:00****1:00****3:00****1:00****10:00****6:00****10:00****6:00****7:00****9:00****7:00****9:00****2:30****4:30****2:30****4:30**



Days		

Cut along this line

Cut along this line



Days		

Cut along this line

Cut along this line

Cut along this line


Cut along this line

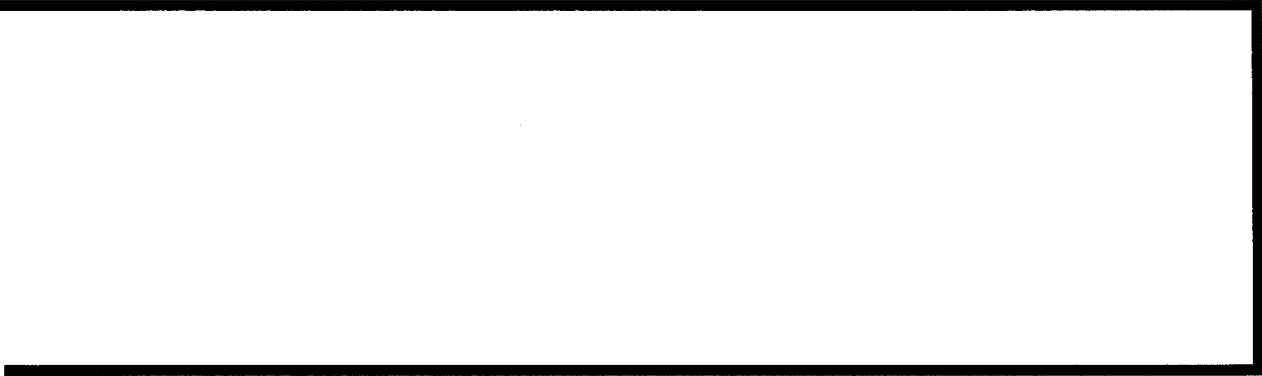


Cut along this line

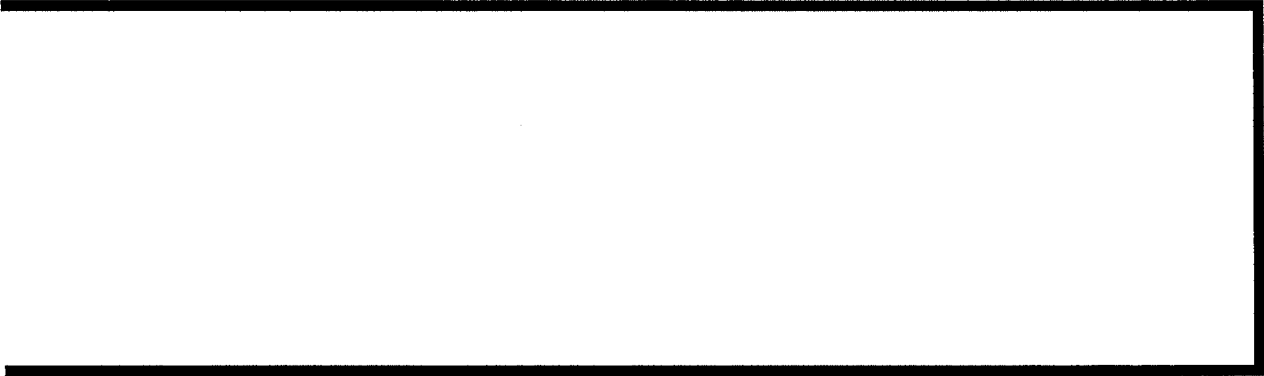

Cut along this line

Cut along dotted lines

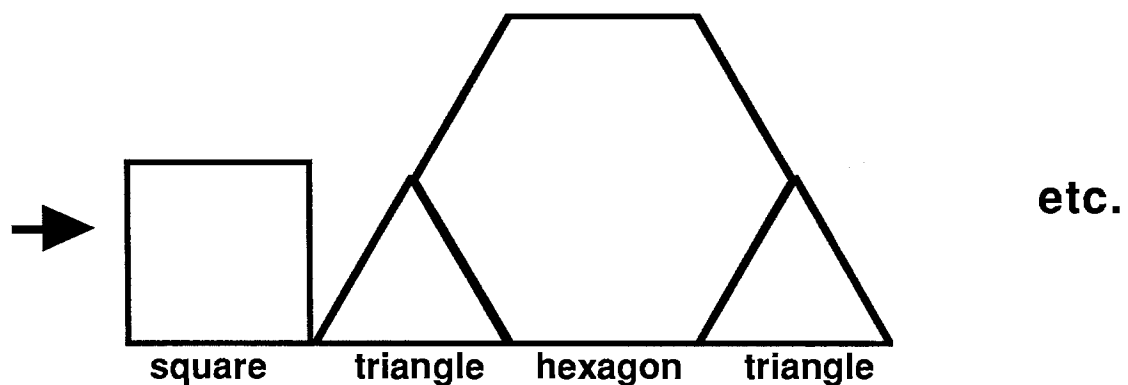
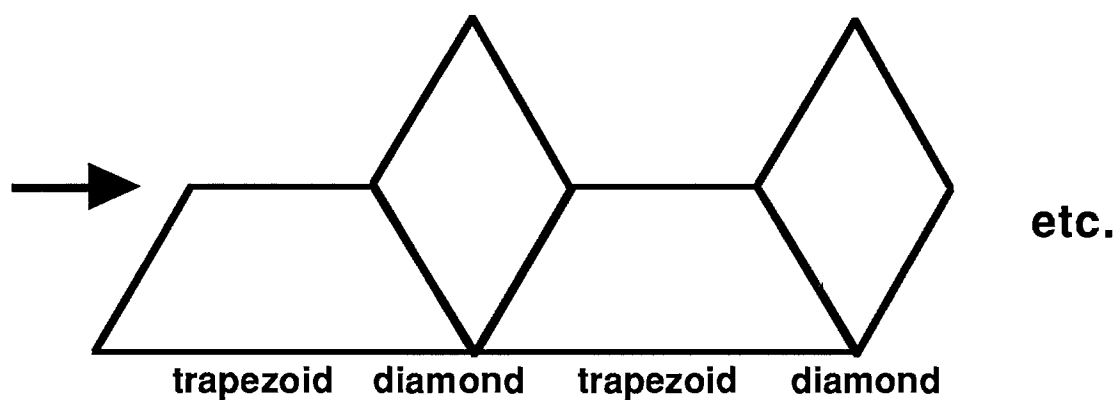
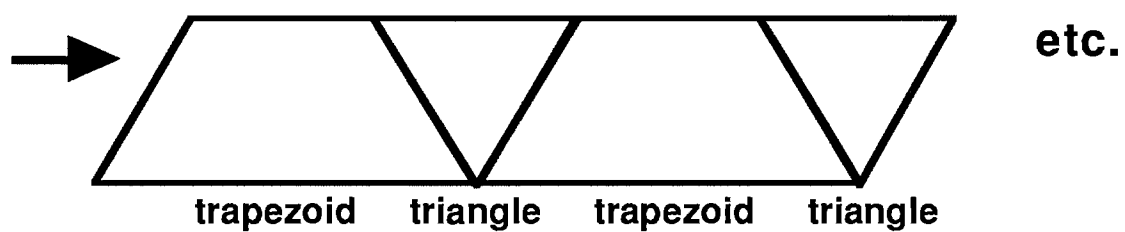
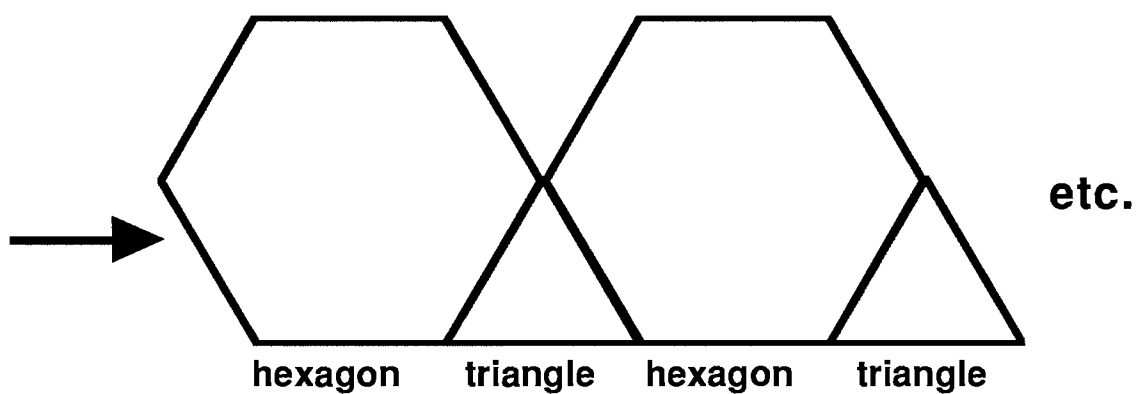

Cut along dotted lines

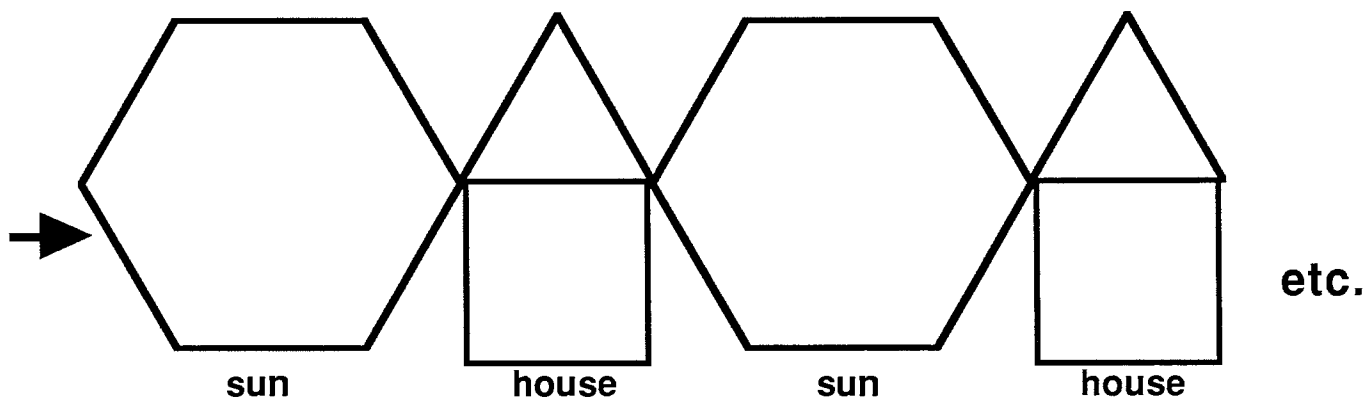
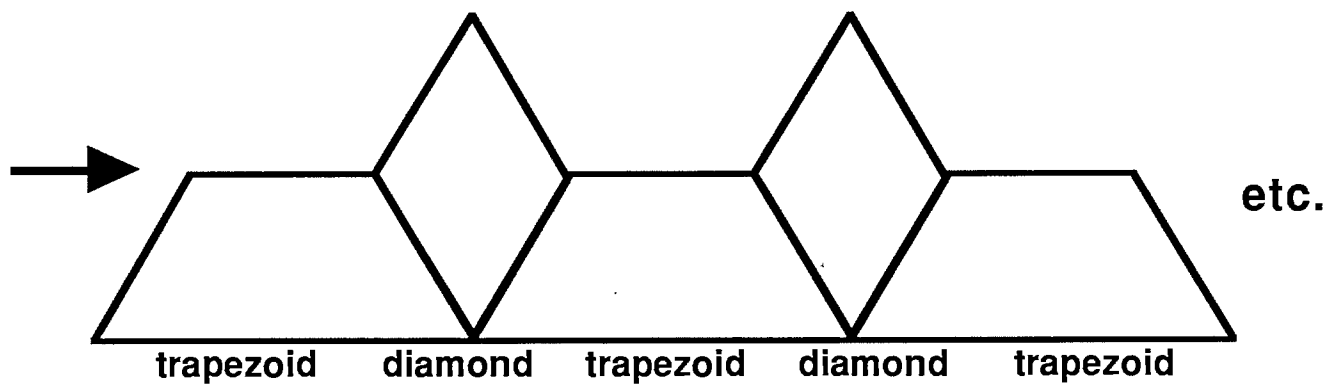
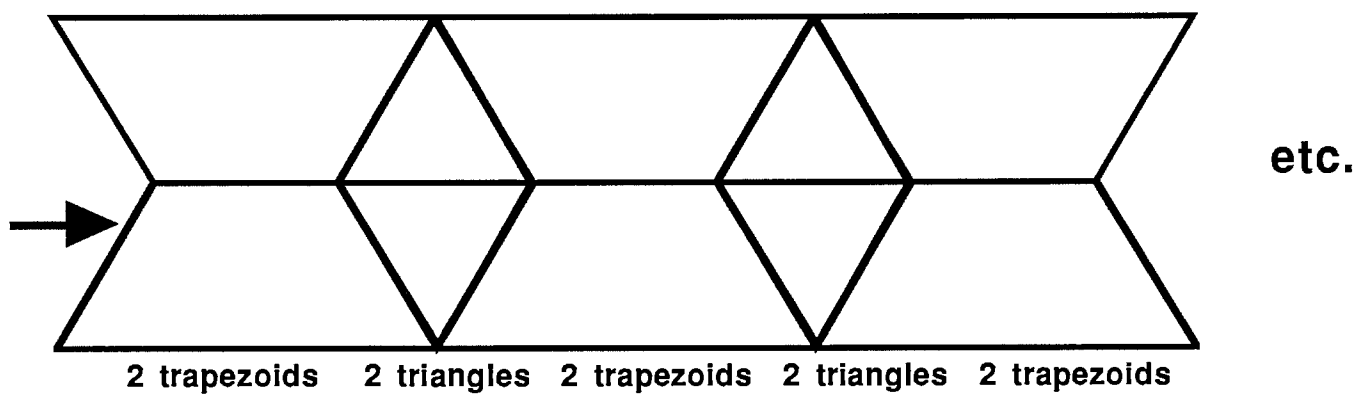
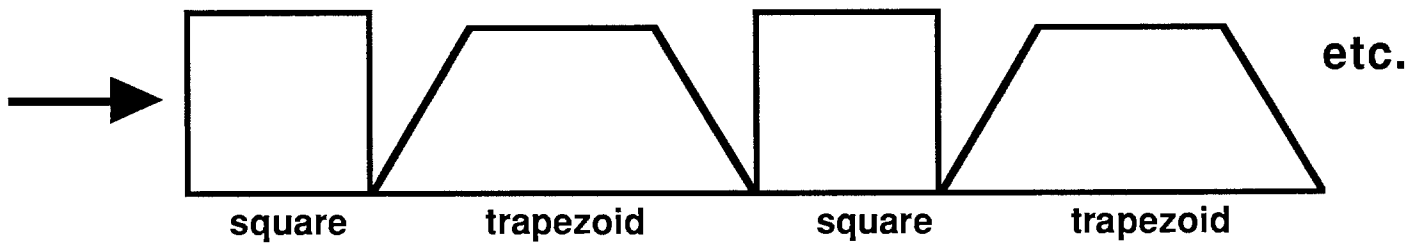




← Cut along this line and along left edge of calendar grid ↑




← Cut along this line and along left edge of calendar grid ↑





6

5

3

7

8

0



A


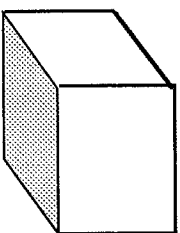

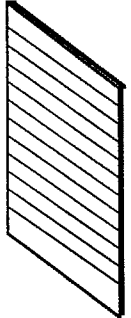
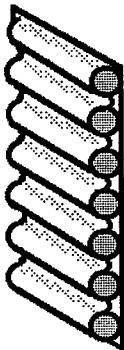
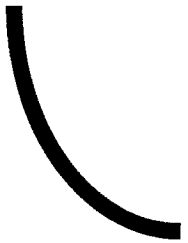

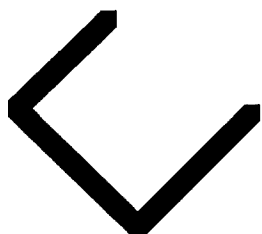
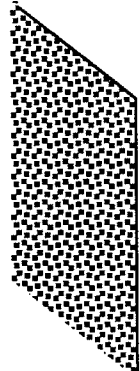

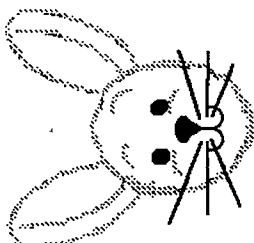
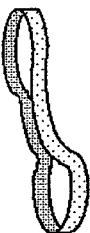



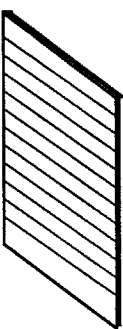

E

X

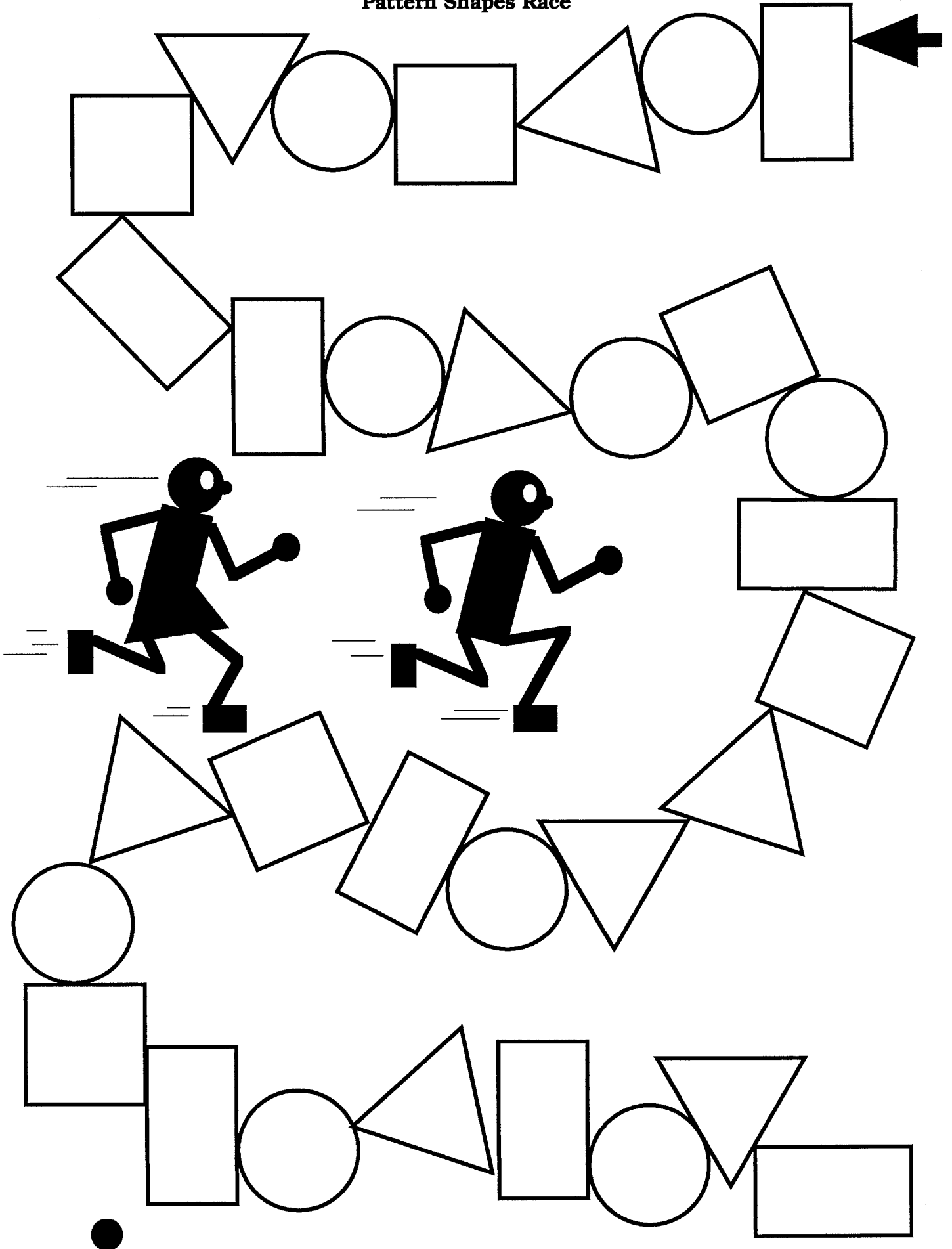
R

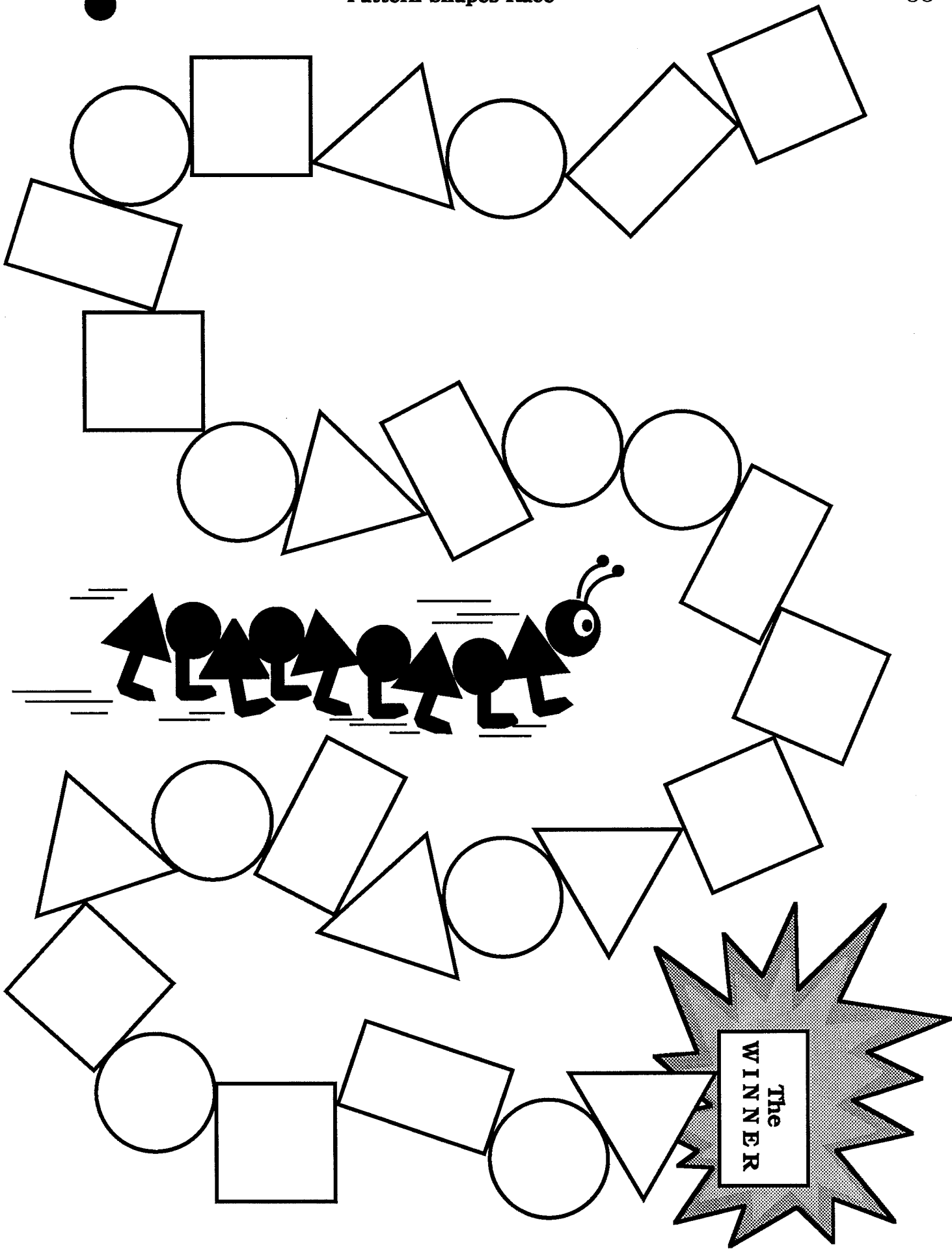
S

V

 <p>hard</p>	 <p>not flat</p>
 <p>squishy</p>	 <p>flat</p>
 <p>bumpy</p>	 <p>curved</p>
 <p>smooth</p>	 <p>corners</p>
 <p>scratchy</p>	 <p>metal</p>
 <p>soft</p>	 <p>not metal</p>
 <p>long</p>	 <p>metal</p>
 <p>short</p>	 <p>flat</p>
 <p>squishy</p>	

Pattern Shapes Race





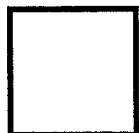
Get an extra turn



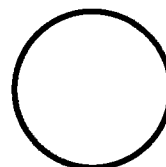
Go back 2 shapes



Move to the nearest



Move to the nearest



Go forward 1

Go back 1

Move to the nearest



Move to the nearest



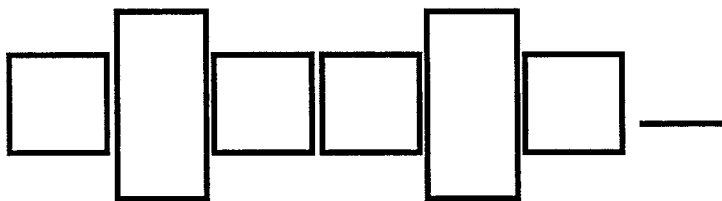
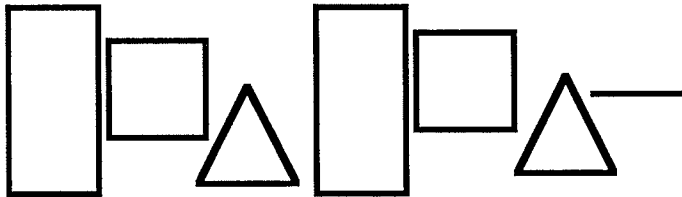
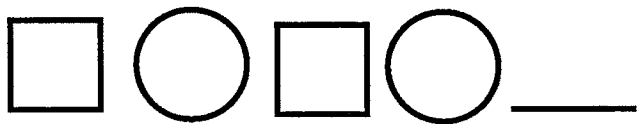
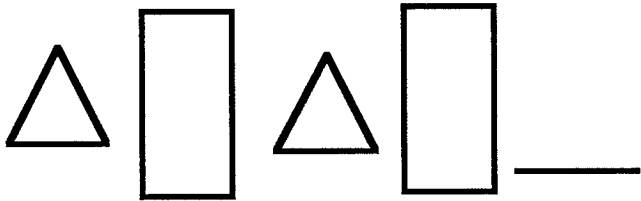
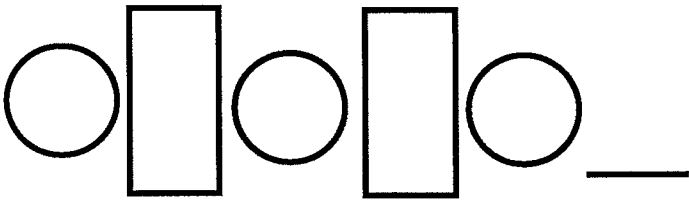
Lose a turn

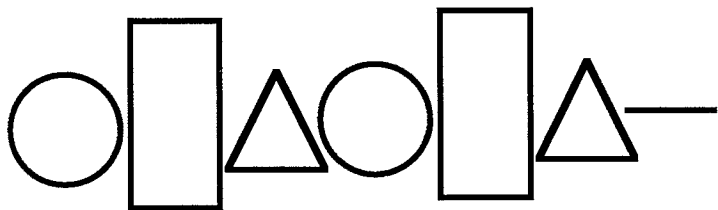
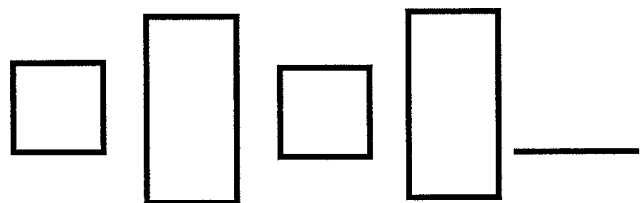
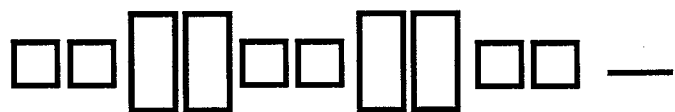
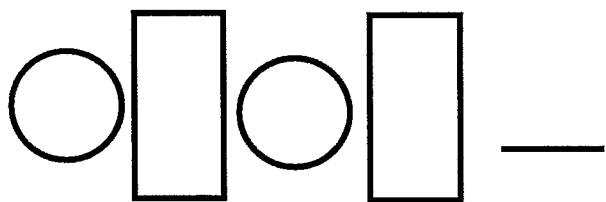


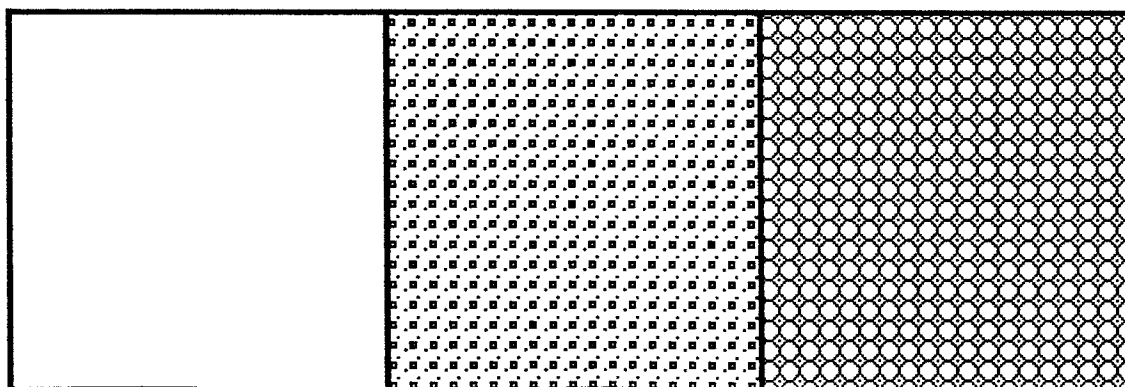
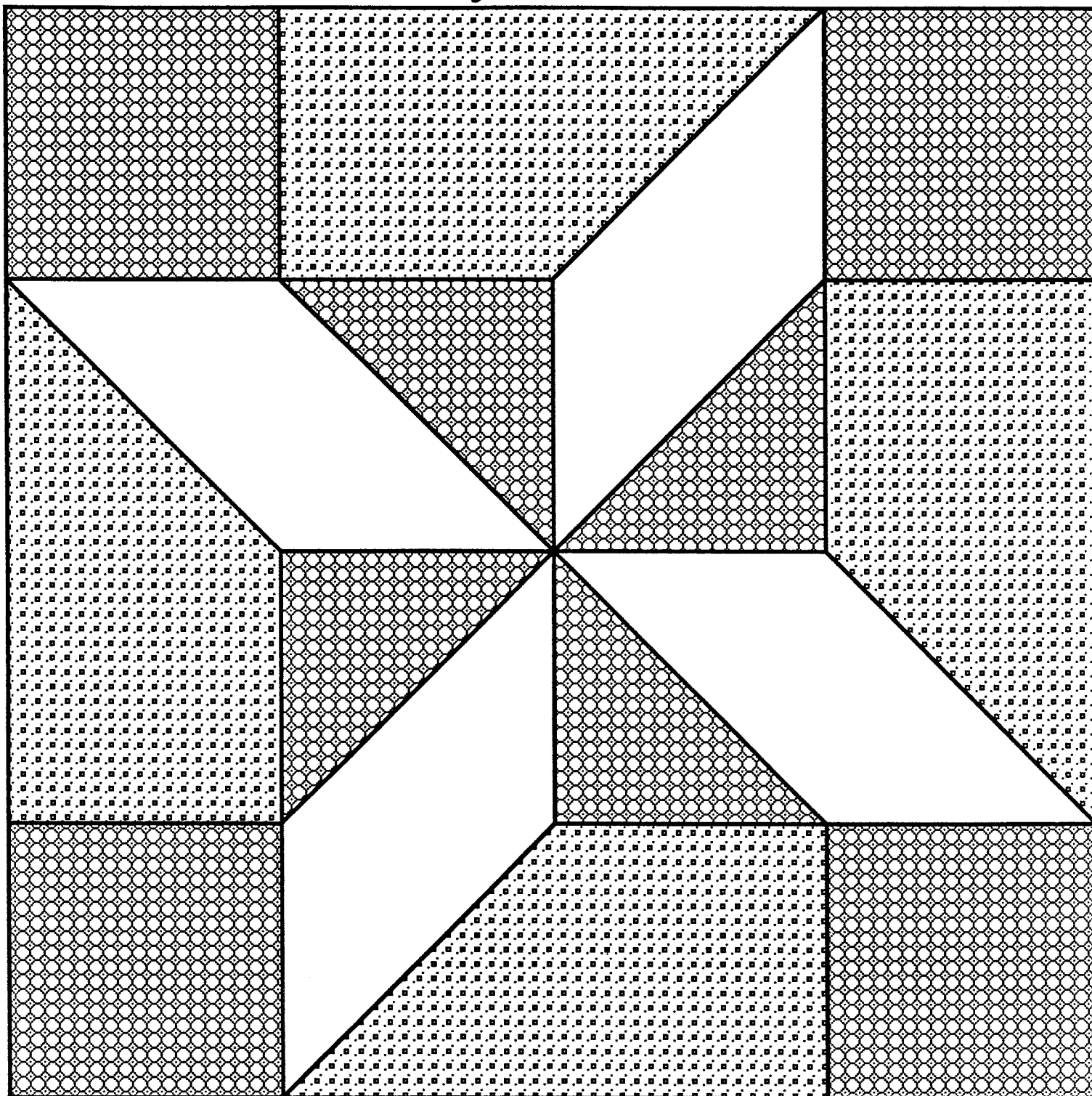
Go forward 2

Go back 2

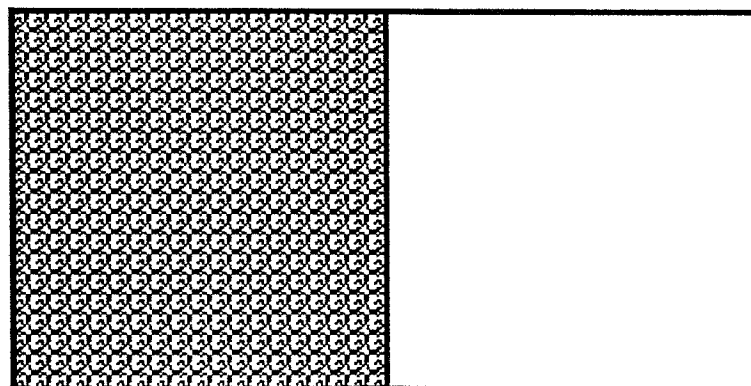
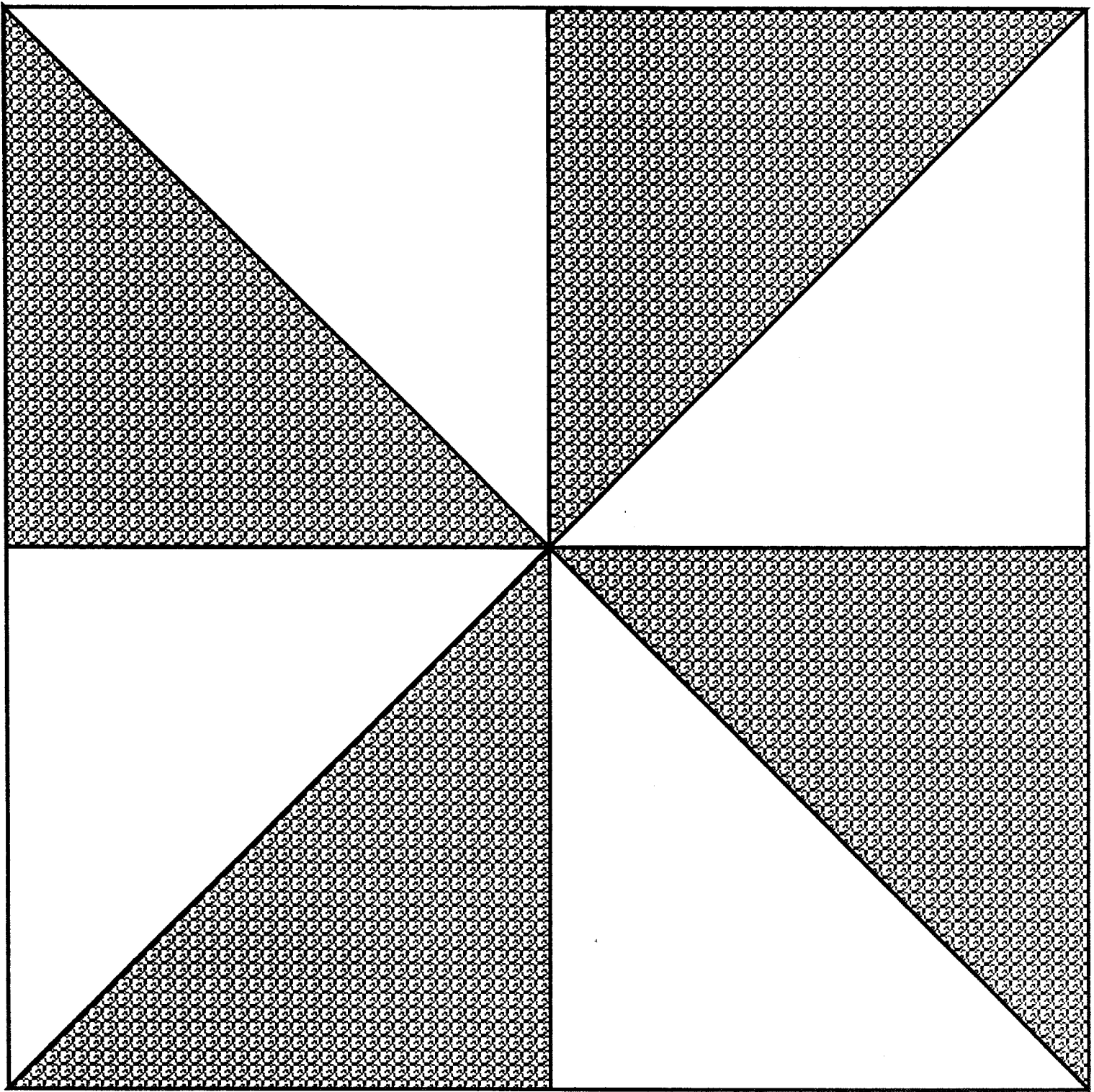
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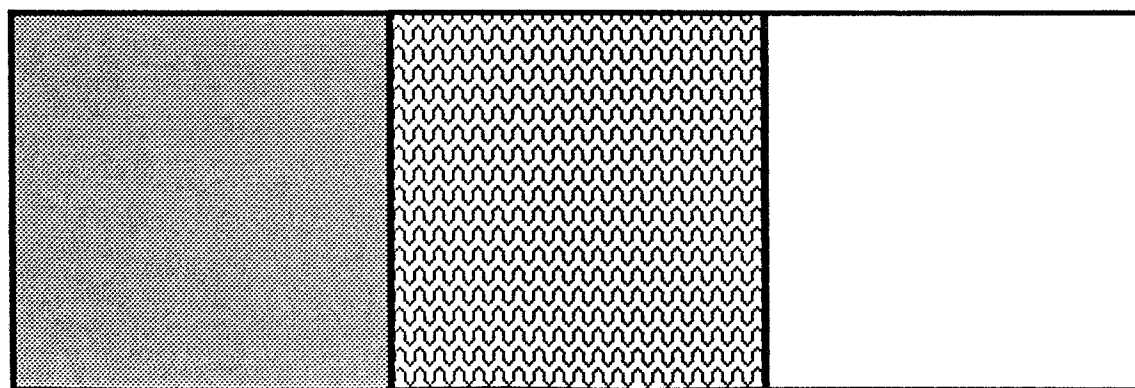
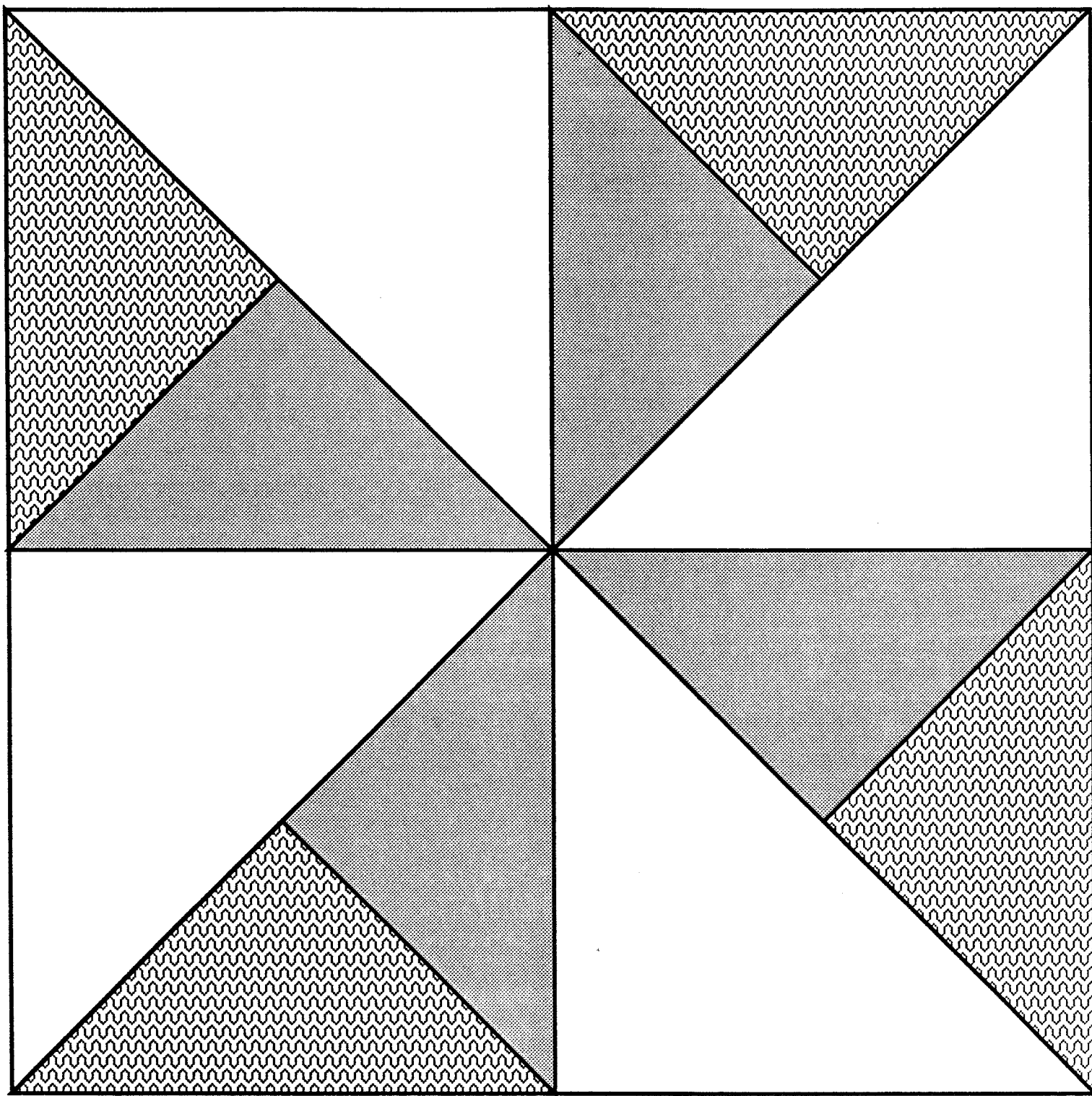


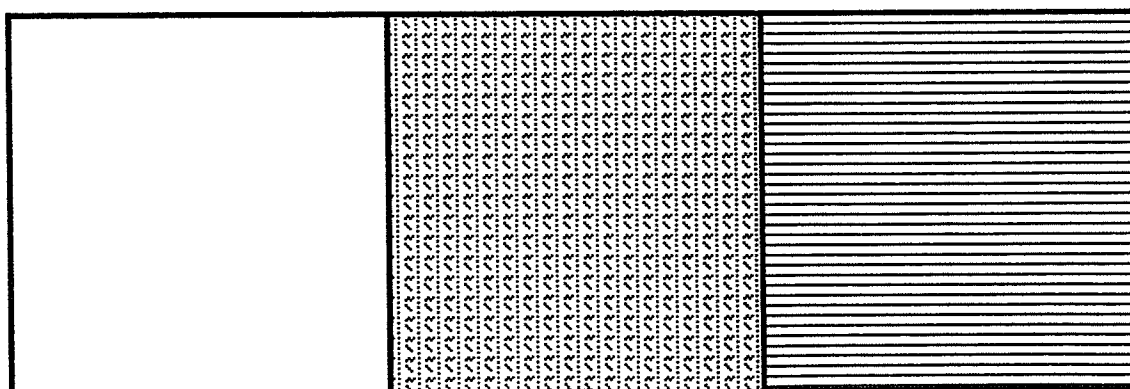
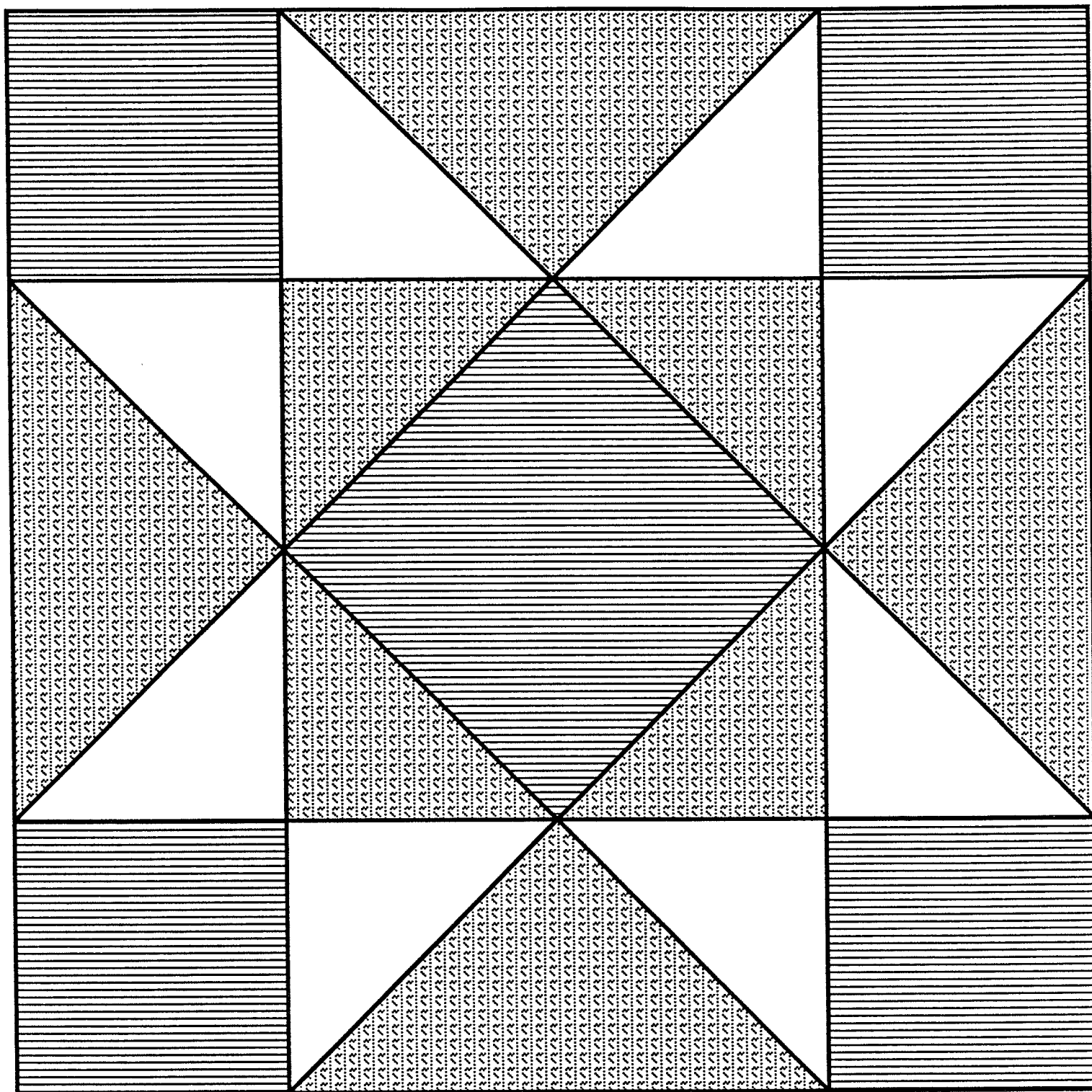


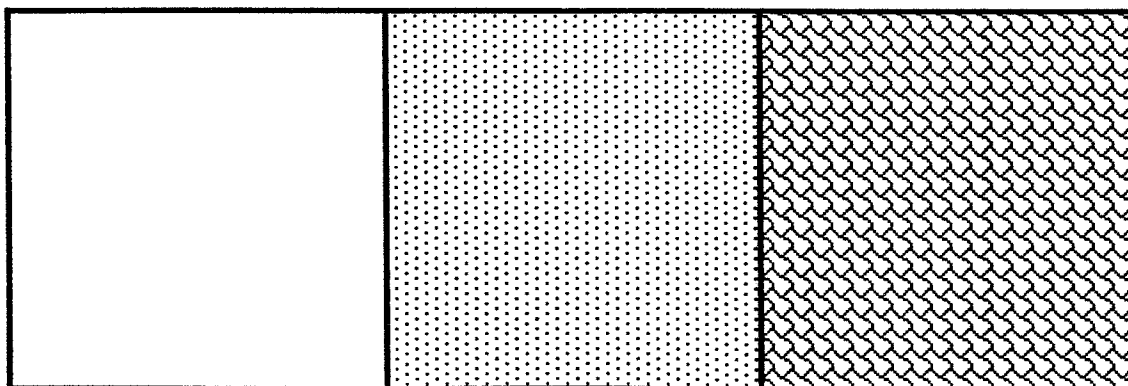
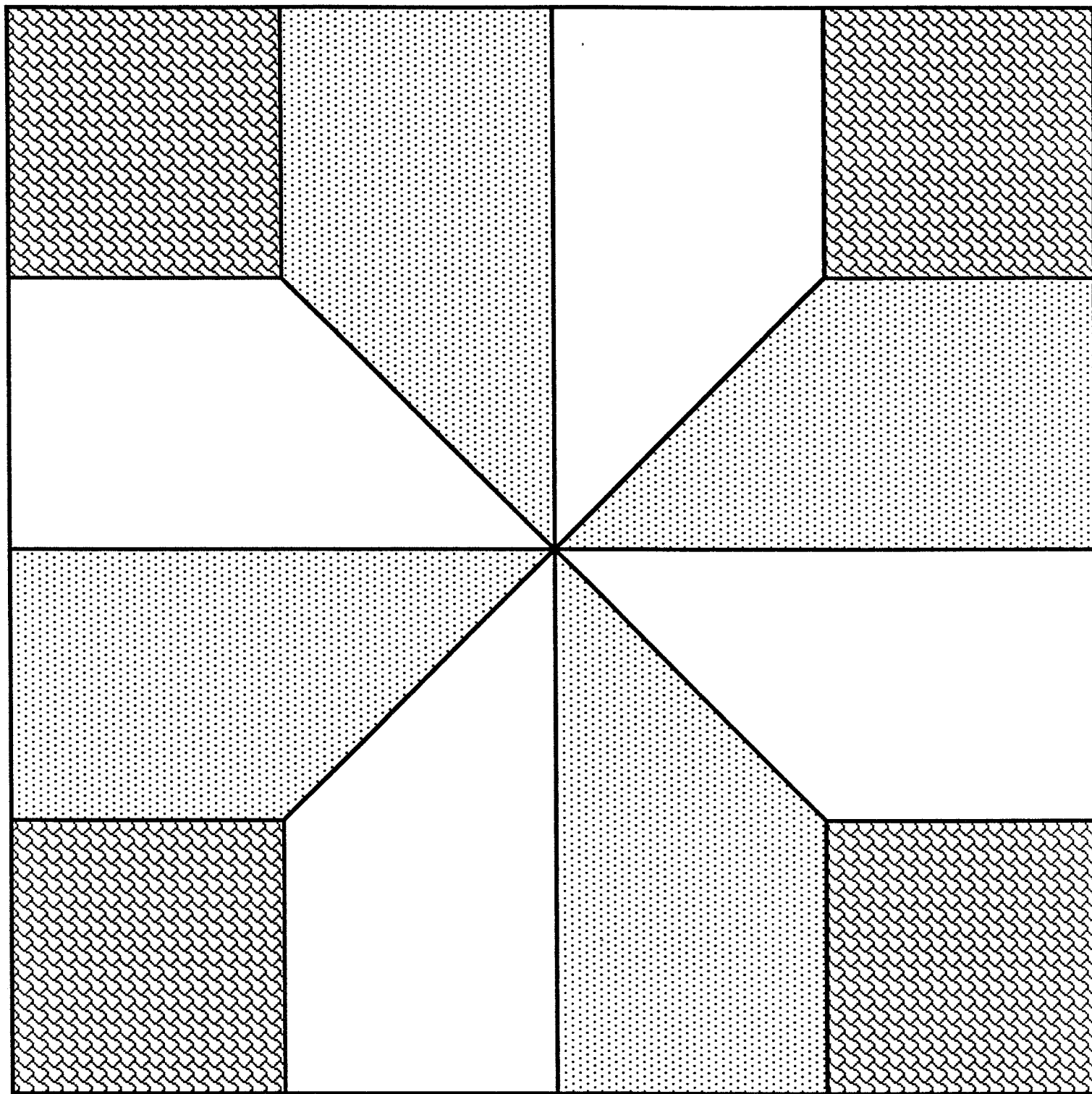


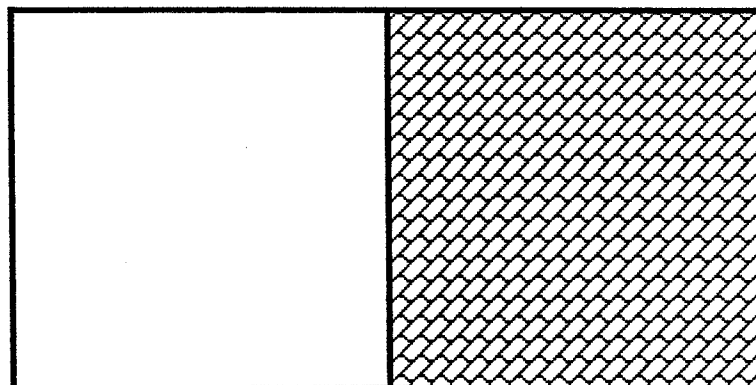
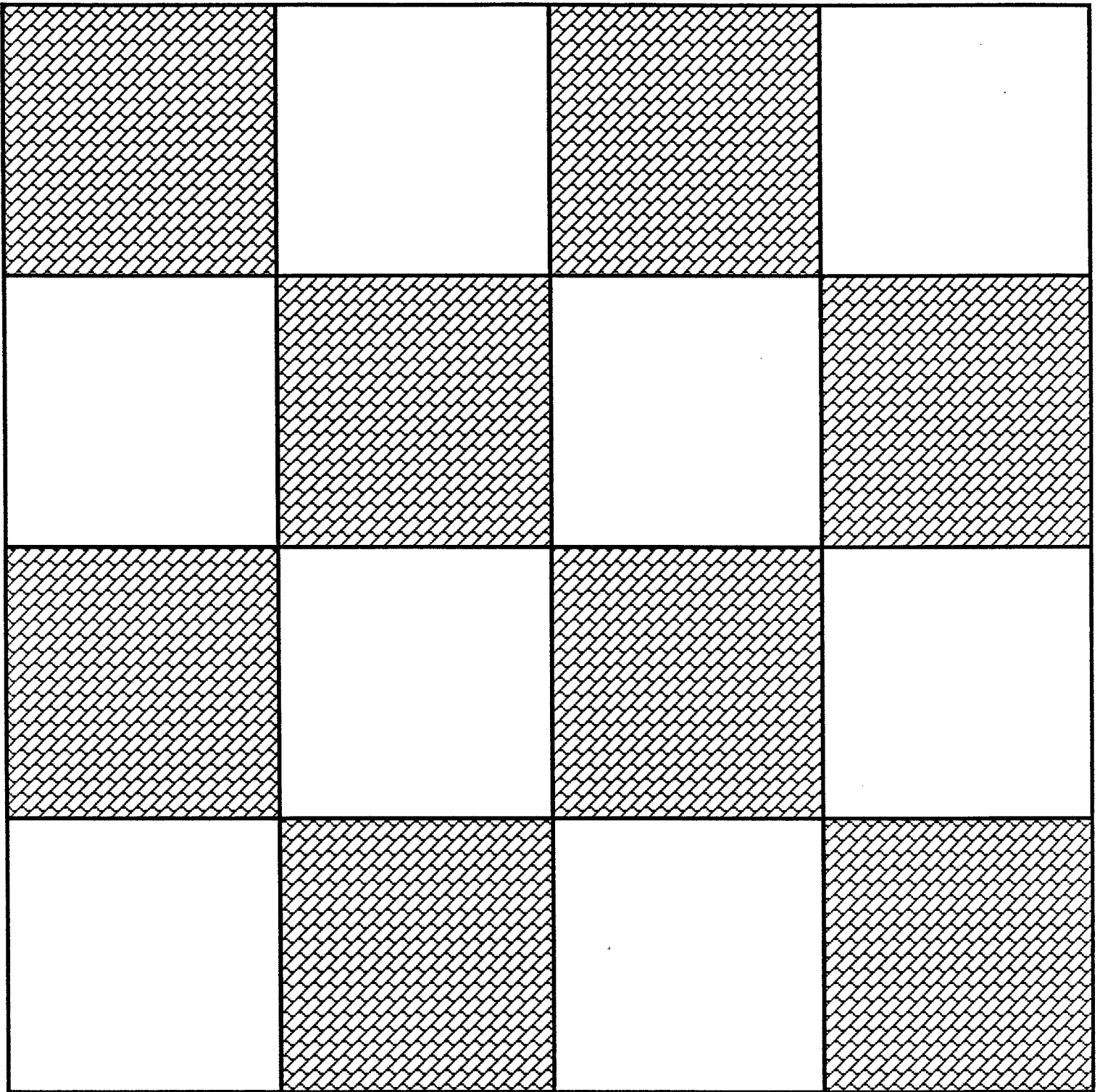










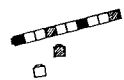


Apply the appropriate labels on both ends of each box lid. Either run the labels on full-sheet Avery Labels No. 5165, cut apart and attach; or simply cut apart these pages and glue or tape on.



**Playdough Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Unifix Cubes Patterns**

**A PRACTICE & ENRICHMENT BOX**



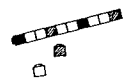
**Alphabet Stamps**

**A PRACTICE & ENRICHMENT BOX**



**Tile Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Coin Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Blocks and Mirrors**

**A PRACTICE & ENRICHMENT BOX**



**Sticker Patterns**

**A PRACTICE & ENRICHMENT BOX**



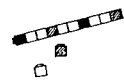
**Clock Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Calendar Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Blocks**

**A PRACTICE & ENRICHMENT BOX**



**Template Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Rubber Stamp Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Geoboards, Nuts & Washers**

**A PRACTICE & ENRICHMENT BOX**



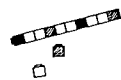
**Mirror Patterns**

**A PRACTICE & ENRICHMENT BOX**



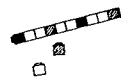
**Playdough Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Unifix Cubes Patterns**

**A PRACTICE & ENRICHMENT BOX**



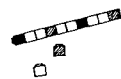
**Alphabet Stamps**

**A PRACTICE & ENRICHMENT BOX**



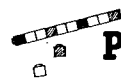
**Tile Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Coin Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Blocks and Mirrors**

**A PRACTICE & ENRICHMENT BOX**



**Sticker Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Clock Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Calendar Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Blocks**

**A PRACTICE & ENRICHMENT BOX**



**Template Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Rubber Stamp Patterns**

**A PRACTICE & ENRICHMENT BOX**



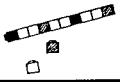
**Geoboards, Nuts & Washers**

**A PRACTICE & ENRICHMENT BOX**



**Mirror Patterns**

**A PRACTICE & ENRICHMENT BOX**



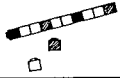
**Feely Box Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Shapes Race**

**A PRACTICE & ENRICHMENT BOX**



**Quilt Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Feely Box Patterns**

**A PRACTICE & ENRICHMENT BOX**



**Pattern Shapes Race**

**A PRACTICE & ENRICHMENT BOX**



**Quilt Patterns**

**A PRACTICE & ENRICHMENT BOX**



# Numerals 0-10



# BOX IT <sup>OR</sup> BAG IT

## MATHEMATICS

## Practice & Enrichment Boxes

**Donna Burk • Allyn Snider  
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Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten  
Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes  
Introduction to Measuring  
Understanding Measuring  
Reading, Writing & Understanding Numerals 0–10  
Pattern  
Arithmetic  
Money  
Place Value Counting  
Place Value Addition & Subtraction

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# Getting Started

*Once you've introduced Reading, Writing and Understanding Numerals through a variety of group lessons (be sure to see Kindergarten Box It or Bag It Mathematics Teachers Resource Guide, NUMERALS 0–10, READING, WRITING AND UNDERSTANDING), you will want children to practice and extend their understanding using the activities that follow in this packet. Here are a few things we've found helpful to remember for a successful Independent Practice Time.*

*Provide no more than 8–12 boxed activities at one time for a class of 30. Too many activities create more than tolerable chaos. Boxes are designed to be used variously by 1–6 children.*

*Model each activity thoroughly until children can tell you what to do, step by step. You'll find "box ingredients" and "playing instructions" for each activity in this packet. We use clear contact paper to put them in our box lids so WE can remember what goes in each box and how each game is played. Reading the directions would be too difficult for most primary children.*

*Resist the temptation to put out all your challenging Boxes at once—provide an equal balance of easy and hard. (If you set out too many difficult boxes, all the children will need you at once and the noise level will be almost unbearable as your children try to cope with the stress of too many difficult tasks.) Keep in mind that your teaching goals for children this age include working cooperatively together, sharing materials, communication, and increasing large and small motor skills. Many of the Boxes lend themselves to learning that goes beyond the skills commonly associated with beginning numbers.*

*As you construct these Practice and Enrichment Boxes, cover your box tops with the same design contact paper. That way, you'll be able to pull your Numeral Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from from The Math Learning Center in three sizes: standard (9" X 12" X 2"), half size (9" X 6" X 1-7/8") and junk (4" X 7" X 1-1/8").)*

*See the Kindergarten Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.*

*Remember the Boxes themselves can be used for group instruction. They are ideal for use by an aide or parent with small groups. Some of them can be easily adapted for use with your whole group.*

*During Independent Practice Time, it is critical that you be available and in circulation to make sure things go smoothly. Once routines even out, you'll have opportunities to observe individuals which are not afforded when you conduct group instruction. You can easily spot children with problems or understandings beyond your predictions. See the next page for some observation guidelines.*

*Be sure to see the Box It or Bag It Mathematics Teachers Resource Guide, INTRODUCTION, for more implementation strategies.*

## Numerals 0-10 Observation and Assessment Sheet

														Children's Names
														Child is able to share materials and work cooperatively
														Child counts by rote to _____
														Child counts with one to one correspondence to _____
														Child recognizes numerals to _____
														Child matches sets and numerals to _____
														Child is able to tally with sticks to _____
														Child is able to respond with counters to story problems.
														Child writes numerals to _____.

## Spinner Counting (2-4 Children)

See Kindergarten *Box It or Bag It Mathematics Teachers Resource Guide*, NUMERALS 0-10, for group introduction to this box.

**Box ingredients→** two spinners                      four gameboards  
two containers of counters  
standard box for storage

### PLAYING INSTRUCTIONS

1. Choose a container of counters.
2. One person begins the game by spinning the spinner. If the arrow points to "5", they set five pieces of junk, one per box, on their gameboard.
3. On subsequent turns, child first counts pieces of junk onto the space below the grid, checks for accuracy, and then moves them up onto the grid.
4. Play continues until one child has completely filled their gameboard.
5. Some children enjoy reversing direction after one board has filled and playing back to 0. It is great for setting foundations for subtraction.

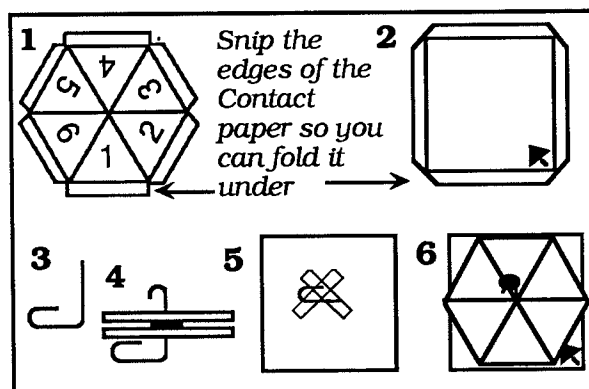
### MAKING INSTRUCTIONS

#### Spinners

1. Locate spinner tops in blacklines. Using waterbase felt markers, color each section a different color to make it stand out and make the spinners more attractive. Use a glue stick to glue tops to poster or matte board. Cut around glued spinner tops and cover the top sides with clear contact paper, overlapping edges to the underside. Use a school compass to poke a hole in the center of each spinner top.
2. Cut a base from poster or matte board that will hold the spinner top and still fit into your game box. Cover with clear contact paper. Set

spinner top on the base to determine placement. Mark the center of the top on the base. Poke a hole with your compass in the base. Cut a 1" square washer from poster or matte board. Use your compass to poke a hole in the center.

3. Get #1 paper clips, one for each spinner top. Open a paper clip. Straighten out the shorter side.



4. Assemble base, washer, and spinner top, poking paper clip up through all three.
5. Tape clip on underside of base.
6. Bend opened clip over and tape for safety. Use a permanent pen to draw arrows on base.

#### Gameboards

Locate gameboards in blacklines. Cover with clear contact paper or laminate. Store in standard box along with counters and spinners.

---

## Spin, Count, and Make A Book (1–4 Children)

---

**Box ingredients→** spinners book pages  
scissors folder for book pages  
stapler colored paper book covers  
standard box for storage

### PLAYING INSTRUCTIONS

1. Choose a record sheet.
2. Spin the spinner until it stops with the arrow pointing to a numeral.
3. Write the numeral the spinner tells you.
4. Mark an “X” on as many items as the spinner tells you.
5. Do this over and over until you have completed your sheet.
6. Cut the sheet apart on the section lines, put on a cover, and staple into a book.

### MAKING INSTRUCTIONS

#### **Spinner**

Locate the spinner top in blacklines. See Spinner Counting for making instructions.

#### **Book Pages**

Locate five blacklines in packet. Make many copies of each.

#### **Folder to Hold Book Pages**

Buy three Duo-Tang folders with the pockets on the bottom. Tape them together at tops, bottoms, and on the left edge with filament tape to make a six-page/pocket book. Place a set of papers in each pocket. Save the last pocket for your cut book covers.

---

## Jump and Count (2 Children)

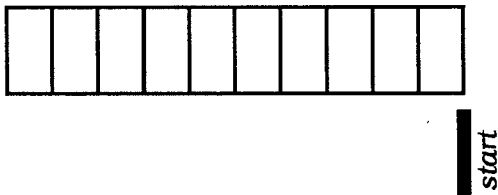
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See Kindergarten *Box It or Bag It Mathematics Teachers Resource Guide*, NUMERALS 0–10, for group introduction to this box.

**Box ingredients→** jumping strip record sheets  
masking tape scissors  
Jump and Count more/less spinner  
half box for storage

## PLAYING INSTRUCTIONS

1. Unroll the jumping strip and anchor it to the floor at both ends with masking tape. It is safest to jump beside the strip rather than on it, so put another piece of masking tape at one end of the strip to be your starting line.



2. Put your toes behind the starting tape and jump. Try not to fall forwards or back-wards.
3. Have your partner count the boxes you jumped. Write your name on the record sheet and how many boxes you jumped.
4. Let your partner have a turn. After you've both jumped and recorded, spin the more/less spinner to determine the winner. Loop the winner's name and number on the record sheet.
5. Repeat this activity several times. Staple your record sheets into booklets to take home.

**NOTE:** If you are doing this activity at a time of the year when name writing would be too difficult, the children *love* pasting on each time a xerox copy of their own picture. Another alternative is to have their name prewritten on gummed labels. Or just have numeral cards made, two of each number 1-10, eliminate the record sheet, and have the children lay out a card for each jump.

## MAKING INSTRUCTIONS

### Jumping Strip

Cut a length of butcher paper 40" long by 4" wide. Mark it with lines at 4" intervals to create ten boxes. Laminate or cover with clear contact on both sides for sturdiness. Provide rubber band or loop of elastic for storage after it is rolled up.

### More/less Spinner

Locate Jump and Count spinner top in blacklines. See Spinner Counting for making instructions.

### Record Sheets

Locate Jump and Count record sheets in blacklines. Make copies, cut apart, and store in a half box, along with the jumping strip and spinner.

---

## Bounce and Count (2 Children)

---

**Box ingredients→** rubber ball  
record sheets

Bounce and Count spinner  
half box for storage

## PLAYING INSTRUCTIONS

1. Bounce the ball as many times as you can without missing. Have your partner help you count the bounces.
2. When you miss, your turn is over. Write your name and the number of bounces on the record sheet.
3. Let your partner have a turn. After you've both bounced and recorded, spin the more/less spinner to determine the winner. Loop the winner's name and number.
4. Repeat several times. Staple your record sheets into booklets to take home.

**NOTE:** This activity works best when supervised by a parent or aide *outside* your classroom.

## MAKING INSTRUCTIONS

### Record Sheets

Locate the Bounce and Count record sheet in blacklines. Run, cut apart, and store in a half box with the Bounce and Count spinner.

### More/less Spinner

Locate Bounce and Count spinner top in blacklines. See Spinner Counting for making instructions.



---

## Toss and Count (2 Children)

---

**Box ingredients→** Toss and Count more/less spinner

scoop

bean bag

record sheet

half box for storage

### PLAYING INSTRUCTIONS

1. Toss the bean bag up and down with the scoop. Have your partner help you count the tosses.
2. When you miss and drop the bag, your turn is over. Write your name and the number of tosses on the record sheet.
3. Let your partner have a turn. After you've both tossed and recorded, spin the more/less spinner to determine the winner. Loop the winner's name and number.
4. Repeat several times. Staple your record sheets into booklets to take home.

NOTE: This activity works best when supervised by a parent or aide *outside* your classroom.

### MAKING INSTRUCTIONS

#### Scoop

Cut bottom away from a bleach bottle with scissors. Use the top portion with the handle for scoop.

#### Bean Bag

Find a parent to sew a sturdy fabric bean bag. Stuff with beans.

#### More/less Spinner

Locate Toss and Count spinner top in blacklines. See Spinner Counting for making instructions.

#### Record Sheets

Locate Toss and Count record sheet in the blacklines. Run, cut apart, and store in a half box with the Toss and Count spinner and the bean bag.

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## Grand Prix (2 Children)

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**Box ingredients→** race track

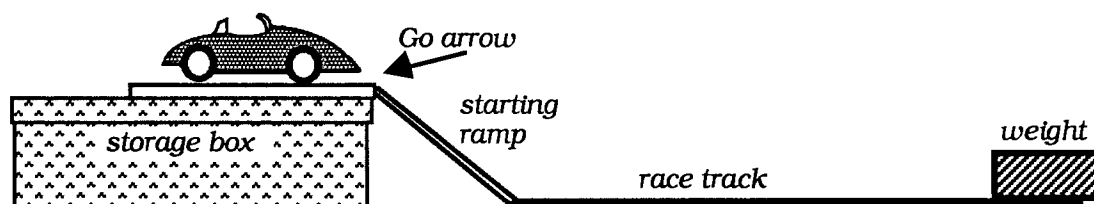
Grand Prix record sheets

race ramp

more/less spinner

two Hot Wheels cars (heavy ones)

standard box for storage



## PLAYING INSTRUCTIONS

1. Set up ramp and race track with your partner as pictured below. It's helpful to use building blocks as rails along the sides of the track, too. (See illustration above.)
2. Place your cars on the "start arrow" and give it a slight tap to get it going down the ramp. Count the boxes with your partner to determine how far your car traveled.
3. Write your name and the number of boxes your car traveled on the record sheet.
4. Let your partner have a turn. After you've both run your cars and recorded, spin the more/less spinner. Loop the winner's name and number.
5. Repeat several times. Staple your record sheets into booklets to take home.

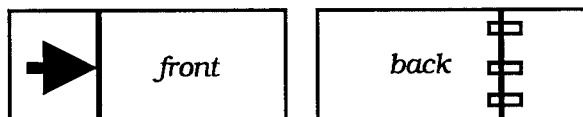
## MAKING INSTRUCTIONS

### Race Track

Cut a length of butcher paper 72" X 11". Draw section lines across it every six inches to serve as the boxes the children will count. Laminate or contact on both sides for strength. (See illustration below.) Provide a rubber band or loop of elastic to be used when race track is rolled for storage box.

### Starting Ramp

1. Cut two pieces of matte board, one 4" X 6", and one 6" X 6".
2. Hinge on the backside with short pieces of filament tape.
3. Draw a "go" arrow on the short section.



### More/less Spinner

Locate Grand Prix spinner top in blacklines. See Spinner Counting for making instructions.

### Cars

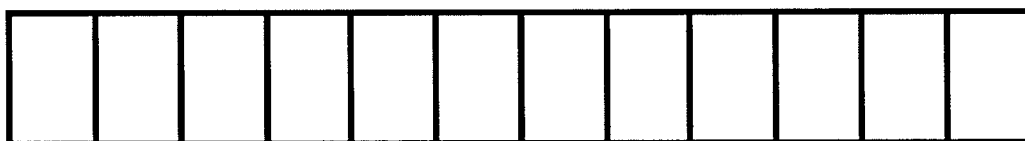
Find or purchase two or more Hot Wheels or Matchbox cars (the heavy kind go farther).

### Record Sheets

Locate Grand Prix record sheets in blacklines. Make copies, cut apart, and store in standard size box, along with cars, race track, race ramp, and more/less spinner.

NOTE: It seems to help the children stay on task better if they each take a few "trial runs" before they begin to write on the record sheets.

*race track*



---

## Top Draw (2 Children)

---

**Box ingredients→** Top Draw cards

junk box for storage

### PLAYING INSTRUCTIONS

1. Shuffle or mix up all the cards.
2. Place all cards face down in a pile.
3. Each player draws one card and reads the numeral.
4. Cards are then compared and top value wins.
5. Player holding card that was "more" takes both cards to his/her winning pile.
6. Play continues until all cards are used up.

7. Players count their winnings. The player with the most cards wins.

### MAKING INSTRUCTIONS

#### Top Draw Cards

Locate Top Draw cards in cardstock portion of packet. Laminate playing cards. Cut apart. Store in junk box.

---

## Gift Wrap Counting (1-4 Children)

---

**Box ingredients→** laminated gift wrap cards  
Vis-a-Vis or overhead projector pens  
record sheets, if desired  
standard box for storage  
provide slightly dampened cloths or paper towels for cleanup

### PLAYING INSTRUCTIONS

1. Choose a counting card.
2. Guess how many items are on the card.
3. Write down your guess.
4. Count the items, marking each item as you count.
5. Write down how many you counted.
6. Clean off your card.
7. Choose another card.
8. If you're using the record sheet, once it has been filled, cut each section apart to make a little book.
9. Staple your book pages together. Don't forget your name.

### MAKING INSTRUCTIONS

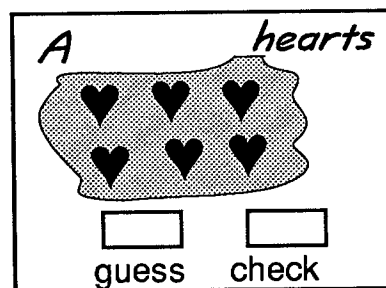
#### Gift Wrap Cards

1. Gather a variety of gift wraps with countable designs. Remember the children love bringing in these kinds of things.
2. Cut (free form) around the amount of paper you wish to use.
3. Mount it on 8-1/2" X 11" tag. Use a different wrap on each side of your tag so you create two counting jobs per card.

4. Make a guess box and check box on each side of card. (See illustration below.)

#### Record Sheets

Many teachers ask us for record sheets so they have math papers to send home. This adds still one more step for the children to remember but we do know that as teachers we like to show parents how much we are doing. Suit yourself about their use. If you plan to use the sheets, locate them in the blacklines. Run, cut, and store along with the gift wrap cards and pens in a standard size box.



*Children dot or "X" each item with pen as they count*

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## Spin 50 (2 Children)

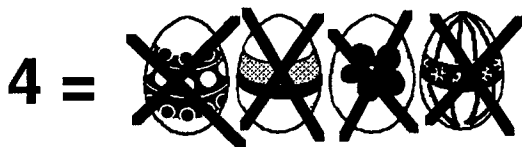
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See Kindergarten *Box It or Bag It Mathematics Teachers Resource Guide*, NUMERALS 0–10, for group introduction to this box.

**Box ingredients→**    gameboards                                  spinner  
                                 Vis-a-Vis or overhead projector pens  
                                 standard box for storage  
                                 provide slightly dampened cloths or paper towels for  
                                 cleanup

### PLAYING INSTRUCTIONS

1. Get out pens, gameboards, and spinner.
2. Spin the spinner and mark an “X” on each egg the numeral directs.



3. Take turns spinning and marking.
4. The first player to mark all eggs on his/her gameboard wins.

### MAKING INSTRUCTIONS

#### Gameboards

Locate in cardstock portion of packet. Laminate.

#### Spinner

Locate in blacklines. Assemble as directed in Spinner Counting. Store in standard size box along with gameboards and pens.

---

## Spinners and Scissors (1–4 Children)

---

**Box ingredients→**    two spinners                                  scissors  
                                 envelopes (to hold cut numerals)  
                                 construction paper numerals  
                                 standard box for storage

### PLAYING INSTRUCTIONS

1. Spin the spinner. Name the numeral it shows.
2. Find the numeral in the box.
3. Cut around it following the dotted lines.
4. Spin and cut lots more numerals. Tell a friend how many of each you have cut.

5. Put all your numbers in an envelope to take home.

### MAKING INSTRUCTIONS

#### Spinners

Locate the two spinner tops in the blacklines. Assemble as directed in Spinner Counting.

### Envelopes

Buy the cheapest available envelopes—you'll need lots. Or, better yet, get a lot from your school office, or have your children bring them from home.

### Construction Paper Numerals

Locate blackline in packet. Run many ditto copies on pastel construction paper. Cut apart on paper cutter so the children can pull out one numeral at a time to cut. Store numerals, envelopes, and spinners in standard box.

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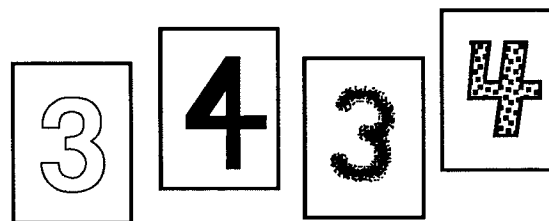
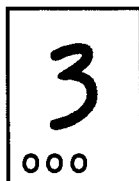
## Rub Over Numerals (1-4 Children)

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**Box ingredients→**    peeled crayon pieces                      rub-over numeral cards  
                                 clothespins                                      hole punchers  
                                 4-1/2" X 6" pieces of newsprint in tagboard pocket  
                                 standard box for storage

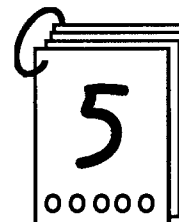
### PLAYING INSTRUCTIONS

1. Choose a pack of numerals.
2. Take a piece of paper and a clothespin and fasten paper over the numeral card with clothespin.
3. Rub paper with side of peeled crayon over and over until numeral brightly appears.
4. Punch the correct number of holes into your paper.
5. Repeat as many times as you like and staple your completed papers into a little book to take home.



If you're feeling rich, you may want to buy a set of numerals sold for needlepoint at your local craft store. They don't need to be mounted on tag.

3. Gather each set of numerals, punch with hole punch on one corner and join with binder ring.



### MAKING INSTRUCTIONS

#### Rub Over Numerals

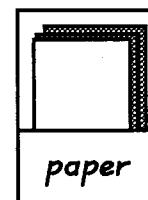
1. Cut tag into 4-1/2" X 6" cards.
2. Gather pipe cleaners, sand paper, tacky glue, dotted swiss, glitter, yarn, etc. Form numerals using these items. There are patterns in the blacklines to help you cut sand paper numerals. You get a wonderful raised number by using a marking pen to write numerals and then going over it with a line of tacky glue. Let them dry overnight.

#### Crayons

Use broken crayons. Peel off paper wrapping.

#### Paper

Cut newsprint 4-1/2" X 6". Make a tagboard pocket to hold this. Store, along with crayons, numeral cards, paper, clothespins, and hole punchers in standard box.



---

## Counting Books—Commercial (1–4 Children)

---

**Box ingredients→** 7–10 simple counting books

standard box for storage

We went through our collection of commercial books and discovered that over the years we had purchased many simple counting books. Before we bring these out as a boxed activity, we read

each one. The children love having this box of books available and spend lots of time at this activity.

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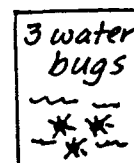
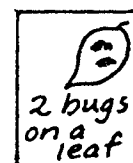
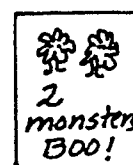
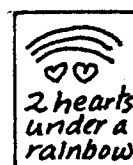
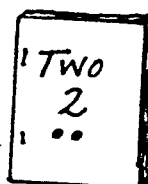
## Counting Books—Student Made (1–4 Children)

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**Box ingredients→** 6–10 student-made counting books

standard box for storage

Have children prepare simple counting pictures on 8-1/2" X 11" paper. Write the words they dictate on their sheets.



We like to assemble some books so that every page is about a given number and some books in which there are pages about different numbers. Store these books in a standard box.

---

## Feely Numbers in Order (2 Children)

---

**Box ingredients→** two large Feely boxes      numeral cards

two sets wooden, plastic, cardboard, or other hard numerals 1–9, 0–9, or less, depending on your children's needs

half box for storage

### PLAYING INSTRUCTIONS

1. Children put a set of numerals 1–9 into each Feely box.
2. Set out numeral cards.
3. Children work at the same time reaching into their boxes trying to locate numerals in order, that is, the child must first find his/her one, etc., name it and then place it on cards in order.
4. The first child to fill the card wins.

## MAKING INSTRUCTIONS

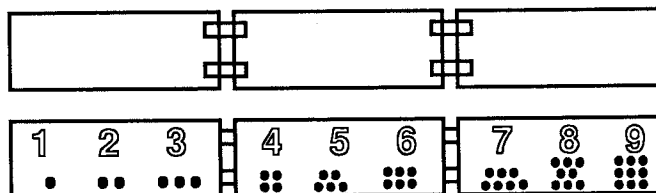
### Feely Boxes

For each box:

1. Find a dark colored stretchy sock.
2. Push a cottage cheese carton or plastic refrigerator container into the foot.

### Numeral Cards

Hinge three pieces of 8" X 3" tagboard with filament tape on the back side so they'll fold to fit in your boxes.



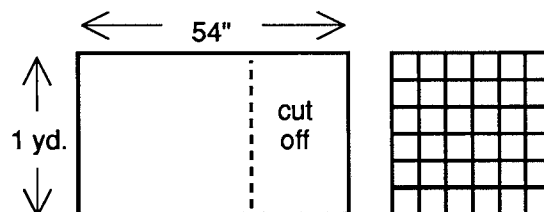
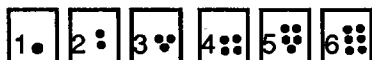
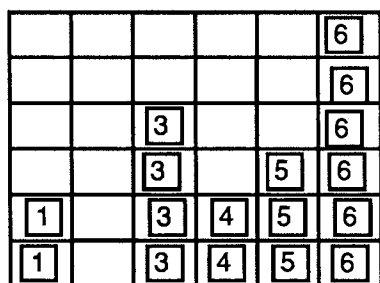
Draw around your numerals on the front side. Be sure to make cards for each player. Store numeral cards in a half box, along with numerals.

## Numerals Floor Graph (3-6 Children)

**Box ingredients→** vinyl graph                      large die  
    numeral pockets  
    standard box for storage

### PLAYING INSTRUCTIONS

1. Lay out graph.
2. Each child sits with a packet of numerals at foot of a column.
3. Die is tossed—all children call out number rolled and the child holding that set of numerals puts one on graph.
4. Play continues until one column is filled.



Mark your square with a permanent marker in six columns and six rows to create thirty-six 6" squares.

### Numerals

Cut 36 pieces of 5" X 5" tag. Make six cards of each numeral 1-6 or 0-5 or 6-11 or 11-16, etc.—whatever your children need—plus a starter card for the foot of each column. Make a tagboard pocket to hold each set. Store pockets of numerals along with vinyl graph in standard size box.

### Die

Cut down a large milk carton, tape, spray paint with a glossy paint or cover with plain contact paper. Write dots and numerals on it with a permanent marker. See Box it or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for more detailed making instructions.

## MAKING INSTRUCTIONS

### Vinyl Graph

Vinyl is sold in many fabric stores and dime stores for tablecloths. Buy one yard and trim 18" off the wider side to form a 36" square.

## Number Race (2-4 Children)

**Box ingredients→**

gameboard	Number Race spinner
markers (4 buttons or unifix cubes of different colors)	
standard box for storage	

## PLAYING INSTRUCTIONS

1. Spin the spinner to see who starts first.  
(Children decide ahead whether lowest or highest number will win.)
2. Place marker at "GO" arrow.
3. Spin spinner and move your marker the appropriate number of spaces.
4. Take turns and continue playing until someone lands exactly on the winner space.

## MAKING INSTRUCTIONS

## Number Race Gameboard

1. Color each hexagon on the gameboard with waterbase colored pens.
2. Laminate or cover with clear contact paper.
3. Join edges together by hinging the backsides with filament tape. The gameboard will fold up for storage in your box if you tape it correctly. You may need to experiment a bit.

## Spinner

**Locate Number Race spinner top in blacklines. See Spinner Counting for making instructions. Store spinner, gameboard, and markers in standard storage box.**

## Green Beans (1-4 Children)

See Kindergarten *Box It or Bag It Mathematics Teachers Resource Guide*, NUMERALS 0–10, for group introduction to this box.

**Box ingredients→**

green beans	record sheets
standard box for storage	

## PLAYING INSTRUCTIONS

1. Child counts five or ten (depending upon record sheet used) green beans into his/her hand. The hand is shaken and the beans dumped out.
2. The *green*-sided beans are counted and recorded on the graph by tracing over the numeral, starting at bottom of appropriate column.
3. The task is completed when one column is filled.

**NOTE:** Many children keep at this until all columns are filled. Others do several pages and make interesting comparisons of which numbers won on each page, etc. However they choose to work, the practice they get is wonder-ful!



## MAKING INSTRUCTIONS

### Green Beans

Use 1/2 bag of lima beans. Spray paint them on one side with bright green spray paint.

(The Testor's glossy kind sold in small cans for model airplanes is great!)

### Record Sheets

Locate Green Beans record sheets in blacklines. Run one or both sheets. Store, along with beans, in a standard box.

---

## Crazy Crocodile (2–4 Children)

---

**Box ingredients→** Crazy Crocodile cards

You may wish to provide one manila file folder per child to help them shield their cards from view. (They often don't care if someone else sees their cards.)

junk box for storage

### PLAYING INSTRUCTIONS

1. Place all cards face down in a pile.
2. Mix them all up.
3. Take turns taking one card each until all the cards have been shared.
4. Look carefully at your cards to see if you have any pairs. Set your pairs in the middle.
5. Now take turns drawing a card from the person beside you going around the circle.

Each time you get cards that are pairs, set them in the middle.

6. The last person to have Crazy Crocodile wins (or loses—the children decide!).

### MAKING INSTRUCTIONS

#### Crazy Crocodile Cards

Locate in the cardstock portion of this packet. Laminate and cut apart. Store in a junk box.

---

## Counting Jars (1–4 Children)

---

**Box ingredients→** counting jars, a dozen or more (ziplock bags could also be used)

record sheets

pencils

scissors

standard box for storage

### PLAYING INSTRUCTIONS

1. Choose a counting jar.
2. Get a record sheet.
3. Write your jar's letter on your record sheet.
4. Guess how many items are in your jar.
5. Write your guess on your record sheet.
6. Pour out the items in your jar and count them.
7. Write down how many you counted on your record sheet.
8. Do the same thing with another jar.

9. When you have counted three jars, cut your sections apart and staple them into a book. Be sure your name is on it.

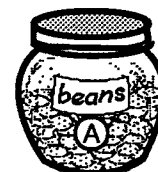
### MAKING INSTRUCTIONS

#### Counting Jars

1. Gather at least 12 tiny jars with lids. Your housemates will forgive you for all the olives, capers, sauces, gourmet jellies, etc., you feed them. Don't forget that your class is a great source for such things. Send a note!

2. Fill each jar with 5–40 counters. Here are some possibilities: colored macaroni (use a bit of rubbing alcohol and food coloring to dye), lima beans (even more fun when spray painted a bright, glossy color), shells, plastic cake decorations, cones, keys, plastic fruits, pencil erasers, fruit pits, bones. You have the idea now. Go for it! Check your drawers and closets.

3. Label each jar with an alphabet letter and, if desired, the name of the items inside.



## Record Sheets

**Locate Counting Jars record sheets in the blacklines. Run, cut, and store along with jars or ziplocks of counting items in a standard size box.**

## More and Less (2 Children)

### Box ingredients→

numeral cards

more and less cards

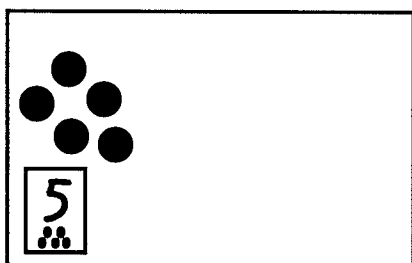
## counters

ten working space papers, 6 X 11

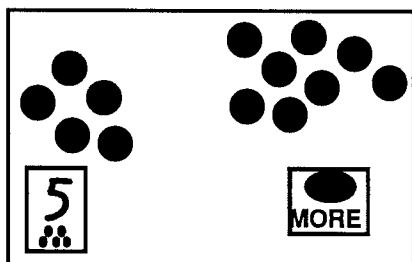
standard box for storage

## PLAYING INSTRUCTIONS

1. Lay out numeral cards (face down).
2. Lay out more and less cards (face down).
3. First child draws a numeral card and sets out the appropriate group of counters. Partner checks for accuracy.



4. Partner draws a more or less card and sets out a group of more or less as directed by card.



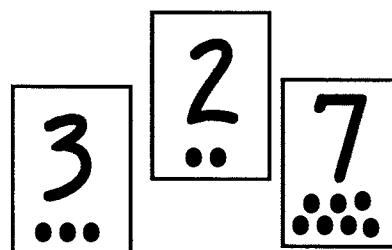
**"MORE"**  
group  
can be  
any  
number  
more  
than 5.

5. Work continues until all cards have been used.
6. When finished, children have an adult check work. (This is really important because of the language children need to understand more and less.) Very mature children sometimes enjoy making little slips that tell how many more or less they have set out. Don't require this, however, for it is still a very difficult skill at first grade.

## MAKING INSTRUCTIONS

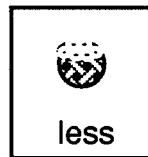
## Numeral Cards

**Make a set of cards 1–10. (Or, for less mature children, make cards in duplicate with a lower range of numbers. More sophisticated children enjoy doing this with a set of cards 11–20.) Be sure to include dots on cards for children who aren't yet sure of number names. Make a tag pocket to hold cards.**



### More and Less Cards

Locate blackline of apple baskets. Cut around each basket and mount on a card. Label "more" or "less".



Make a tag pocket to hold cards and store in a standard box along with numeral cards, counters, and working space papers.

---

## Newspaper Numerals (1-4 Children)

---

**Box ingredients→** spinners (2)

ten different colors of crayons

newspaper ads (It is best to give the children 1/8 or 1/4 sheet to search. Highly motivated children can do several and less mature learners won't be overwhelmed.)

standard box for storage

### PLAYING INSTRUCTIONS

1. Choose a newspaper ad.
2. Spin the spinner.
3. Find the crayon that matches the number spun, i.e., red-6, etc.
4. Circle that numeral every time you can find it in the ad using the appropriate crayon.
5. Spin and circle until all the numerals in the ad have been circled.

### MAKING INSTRUCTIONS

#### Spinners

Locate Newspaper Numerals spinner tops in blacklines. Color each numeral a different color, but make sure the two spinners are colored the same. Assemble as in Spinner Counting.

#### Newspaper Ads

Cut ads (no larger than 1/4 sheet) from newspaper.

#### Crayons

Include the ten colors you chose for the spinner. It's OK for players to have to share—they need to learn that skill. Store crayons, newspaper ads, and spinners in a standard size box.

---

## Cooky Cutter Numerals (1–4 Children)

---

**Box ingredients→** play dough (recipe follows)

number cookie cutters (available in cooking sections of many stores—the metal ones are the best)

set cards

dowel rolling pins or small commercial rolling pins

standard box for storage

### PLAYING INSTRUCTIONS

#### Easiest Level:

1. Child rolls out play dough and cuts out numerals.
2. Child reads cut numbers to a friend (or friendly adult).

#### Harder Level:

1. Child lays out set cards.
2. Child cuts out numerals to match each card.
3. Child arranges cards in numerical order.
4. Child shows work to adult.

#### Hardest Level:

1. Child uses cutters to cut out lots of numbers.
2. Child lays them out in 2-digit numbers and reads them to an adult.

### MAKING INSTRUCTIONS

**Play Dough** (makes enough for 4 children)

Mix thoroughly:

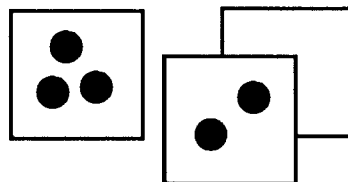
- 2 cups of white flour
- 1 cup of salt
- 1 tablespoon alum (sold in spice section of many stores)

Boil:

- 2 cups water
- 2 tablespoons salad oil
- few drops of food coloring
- flavoring extract if you want a great fragrance

Pour boiling liquid over dry ingredients. Stir until moist. It will have many lumps. Let cool until easily handled. Knead until very smooth. *Continue cooling until it is room temperature.* Seal in air tight containers when cool. (Small margarine tubs work well.) If the children put the lid on, this lasts for many weeks.

#### Set Cards



Make dot cards 0–10 or more for children to use in matching. Be sure to contact or laminate these on both sides. Store cards, play dough, cookie cutters, and rolling pins in standard box.

---

## Feely Box—Three in a Row (2 Children)

---

**Box ingredients→** large Feely box

wooden, plastic, cardboard, or other hard numerals  
(4 each, numerals 0–4, or 4 each, numerals 5–9)

half box for storage

### PLAYING INSTRUCTIONS

1. Partners share one Feely Box of numerals.
2. Each child has his/her own game board (matching the numerals in the can).
3. The children take turns reaching into the Feely Box, selecting a numeral, naming it, then pulling it out to check.
4. If the player was correct in naming, he/she places the numeral in the correct spot on his/her game board.
5. The first player to get three in a row wins.
6. More often the children would rather play to black out—this is just fine—lots more practice!

### MAKING INSTRUCTIONS

#### Feely Boxes

For each box:

1. Find a dark colored stretchy sock.
2. Push a cottage cheese carton or plastic refrigerator container into the foot.

#### Numerals

These could be cardboard, wooden or metal, such as the ones sold in hardware stores for

homes, or plastic, such as the magnetic kind or those sold for games.

### Gameboards

Cut gameboards 11 X 8-1/2. Draw lines evenly to mark off a grid as illustrated. Take your numerals and trace them randomly on the boards. You can color the numerals with felt tip markers if you'd like. Cut the boards in half and hinge them at the back with filament tape so they'll fold to fit into the storage box. Store Feely Boxes with numerals separately.

0	2 :	3 ..
4 ..	1 .	0
3 ..	2 :	4 ..

---

# Numerals Floor Mat (1-6 Children)

---

**Box ingredients**→      task cards                      floor mat  
   junk box for storage

## PLAYING INSTRUCTIONS

1. Spread mat on floor.
2. Children sit around edges of mat.
3. One child (in stocking feet) prepares to jump.
4. Hold up a numeral card. The children around the mat call out the numeral name. The child on the mat jumps to that numeral. Continue until the child jumps to all the numerals on the ring. (Be careful not to have this be a testing time. Give all needed help.)

**VARIATIONS:** (from Irene Wing of Berryessa School District, San Jose, CA)

1. Jump on all numbers in order (1-9).
2. Jump on all the numbers in sequence from 9-0, from 6-1, etc.
3. Jump on all the even numbers (or odd).
4. Jump on the number that tells:
  - a. your age
  - b. how many ears you have
  - c. how many legs a dog has, etc.
  - d. our classroom number
  - e. how old you'll be on your next birthday
  - f. not counting your thumbs, how many fingers do you have
  - g. the number after 8, before 6, etc.
  - h. your favorite number
  - i. number of pets you have
  - j. the numerals in your phone number
  - k. the numerals in your address
  - l. the numerals on a clock

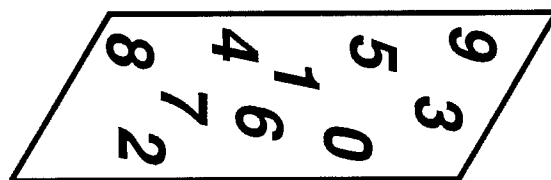
Let your imagination go—ask the children to help add more ideas.

Other uses: Make numeral cards for visual or auditory memory. For those who are very sophisticated: the numeral that stands for two tens and seven, etc.; the sum of 2 + 3, etc.

## MAKING INSTRUCTIONS

### Floor Mat

1. Use a dark color fabric backing about 1 yd. X 1-3/4 yd.
2. Purchase felt, fake fur or other bright fabric from which to cut numerals. A variety of colors is nice.
3. Cut large numerals from fabric.
4. Sew, glue or iron on with Stitch Witchery or a similar product.

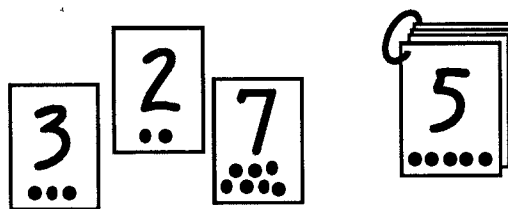


### Numerals Cards

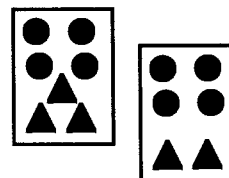
Make these from sturdy tag. Join together with a binder ring. Store in a junk box.

Irene's wonderful ideas:

If you're lucky enough to get parent helpers or student tutors, Irene's ideas (listed above) are great set up on cards and joined either with a binder ring, or left as a deck from which student draws task. If you're artistic, sketch these so they can be self-directing.



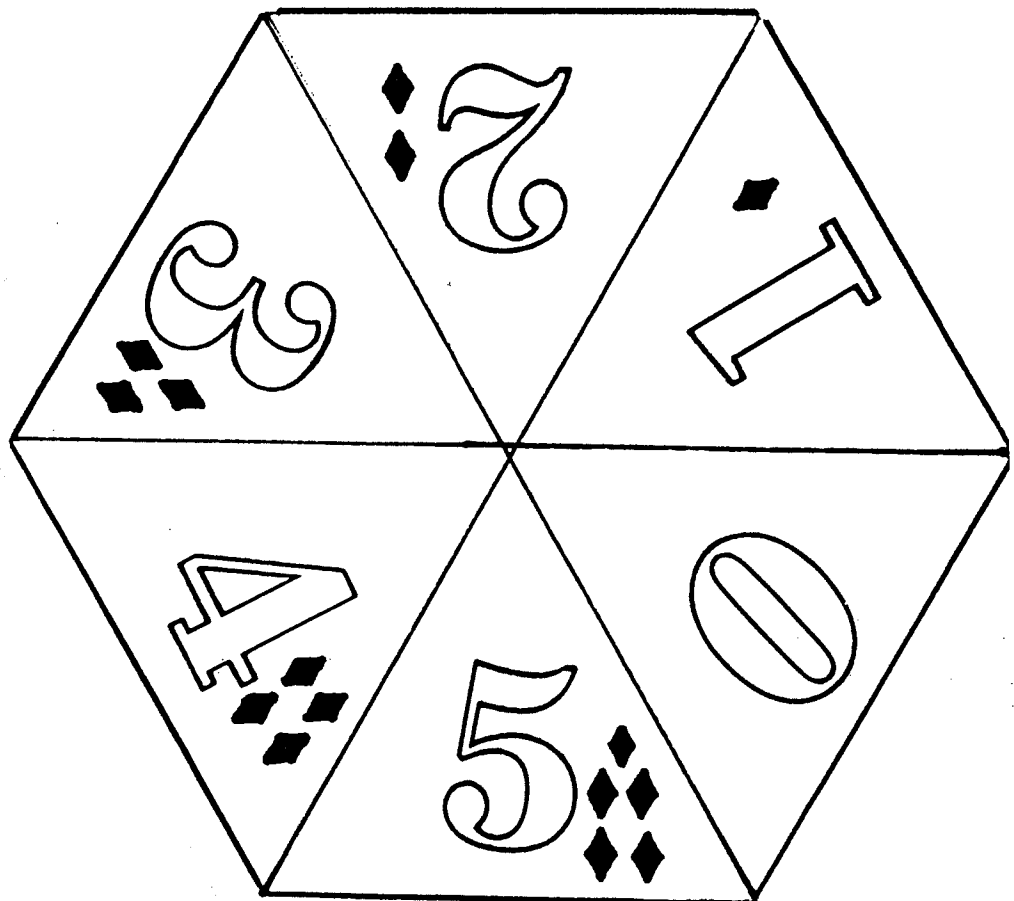
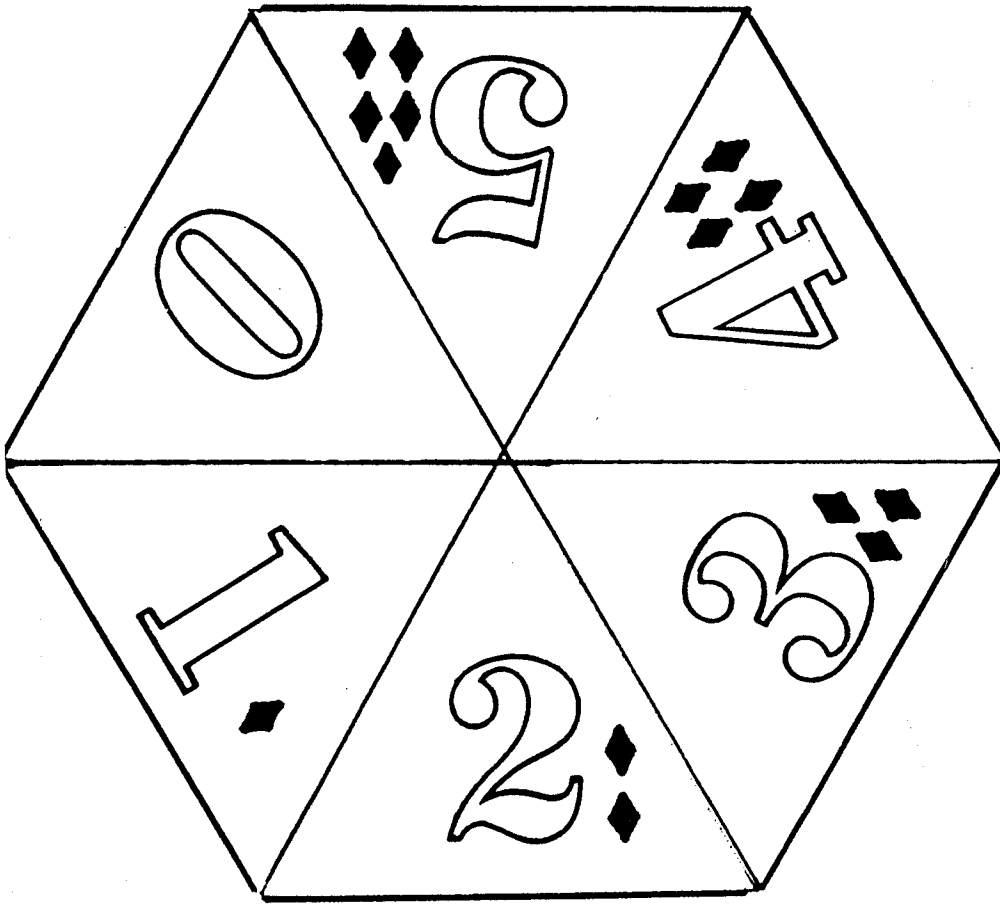
Set cards can be fun too. Sets above 5 can't be instantly seen, therefore set them up in two parts so children "count on": 4...5, 6, 7.



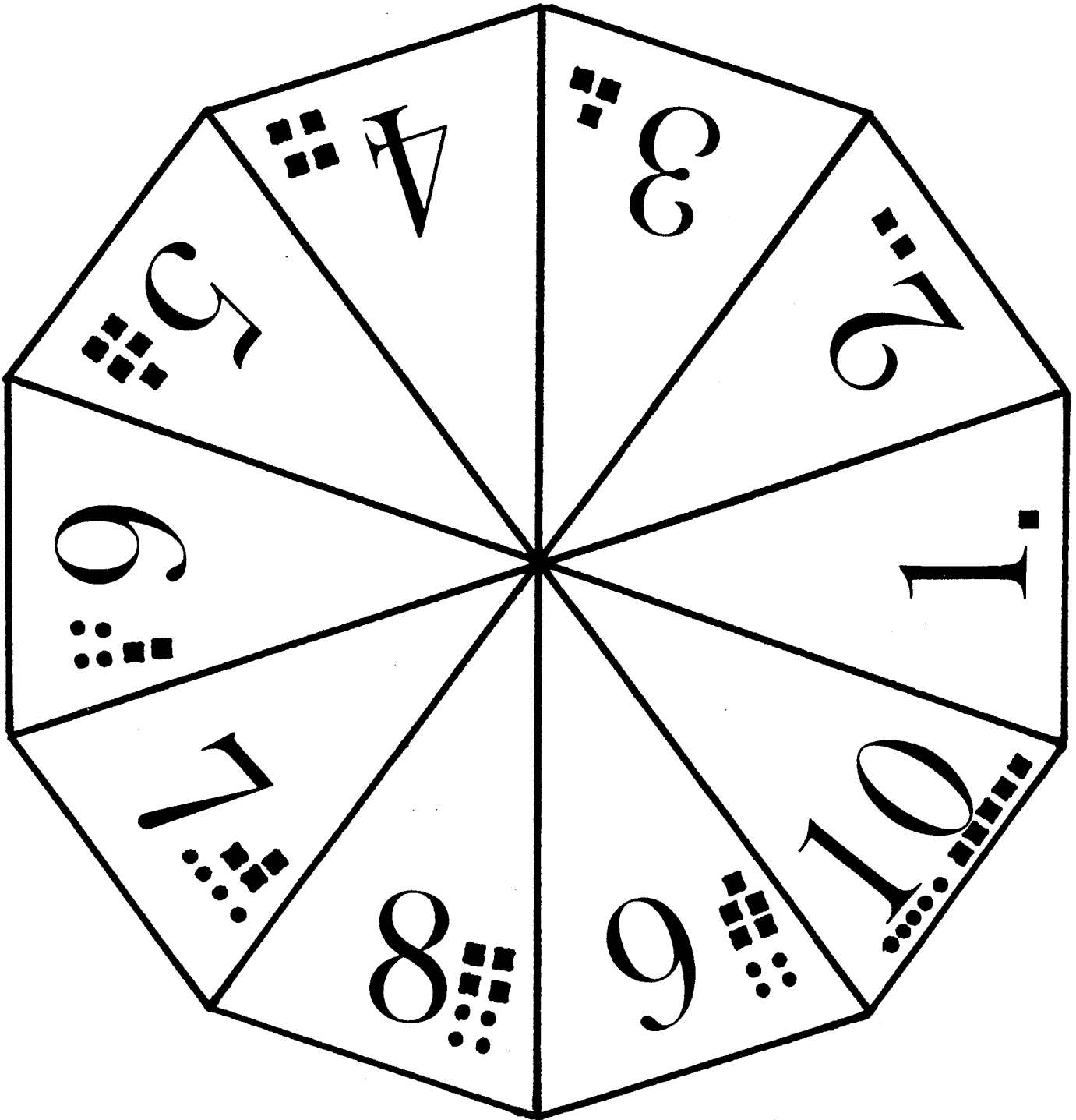
# Blacklines

Patterns, cards, spinners, and other materials you'll make for the  
Practice & Enrichment Boxes described in this packet.

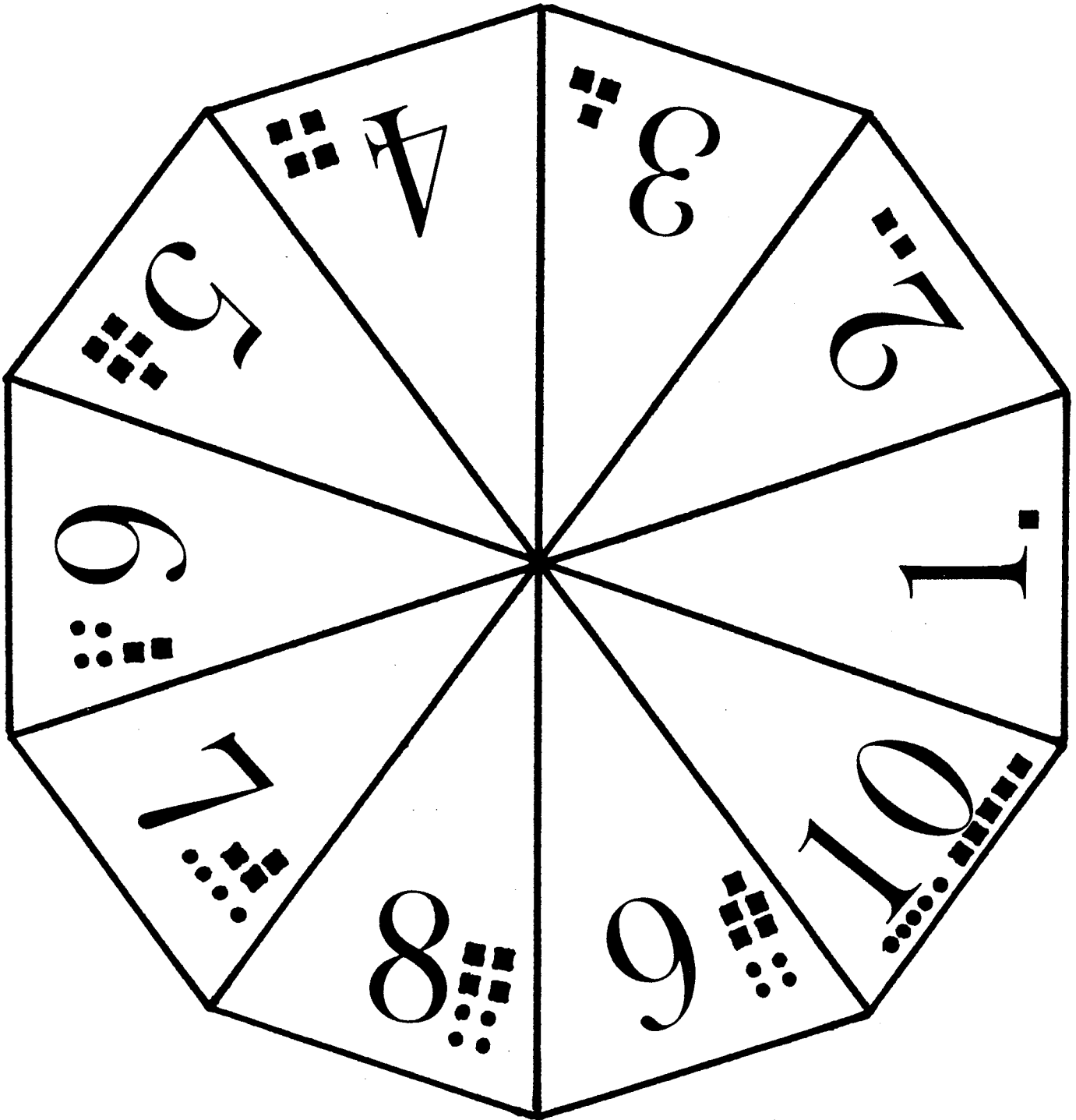
# Spinner Counting Spinner Tops





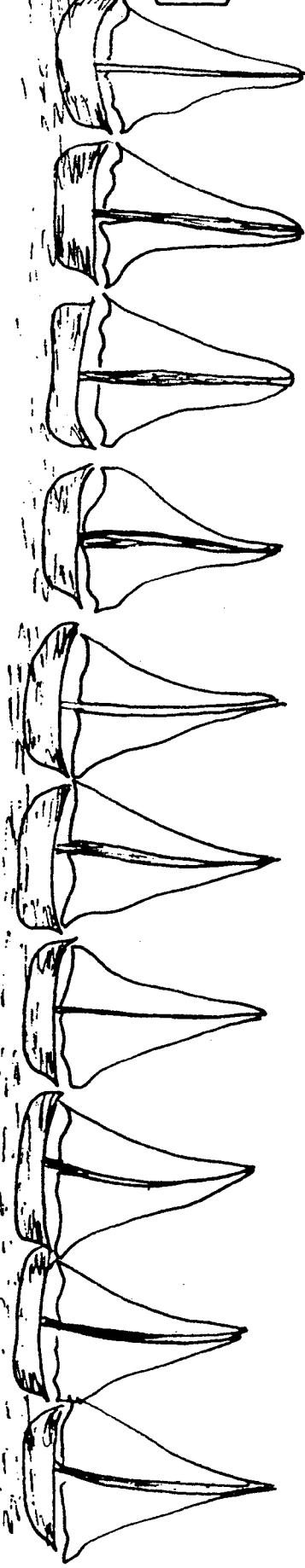
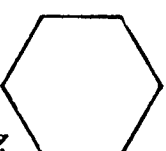
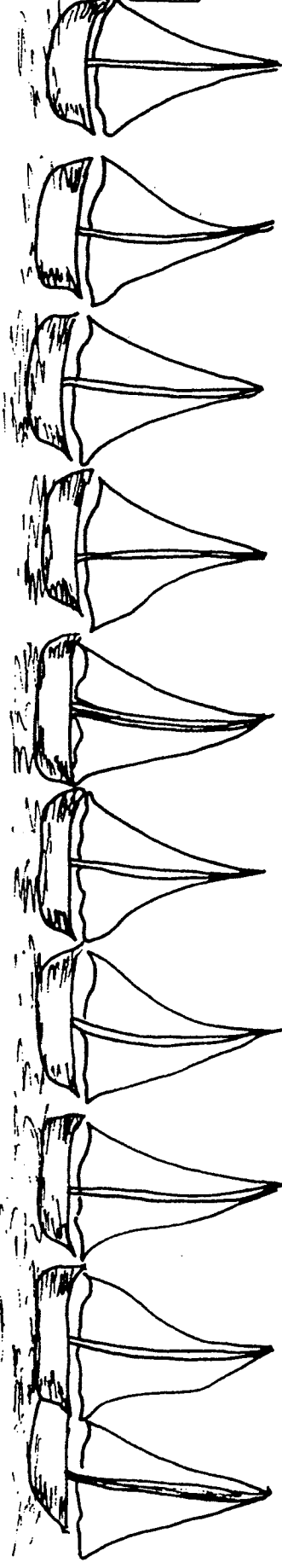
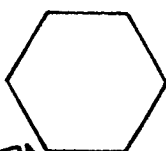
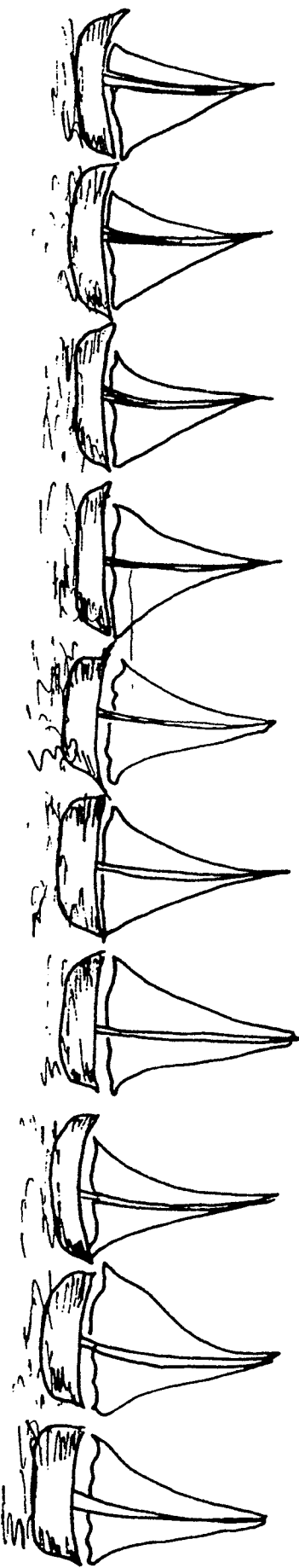
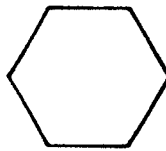
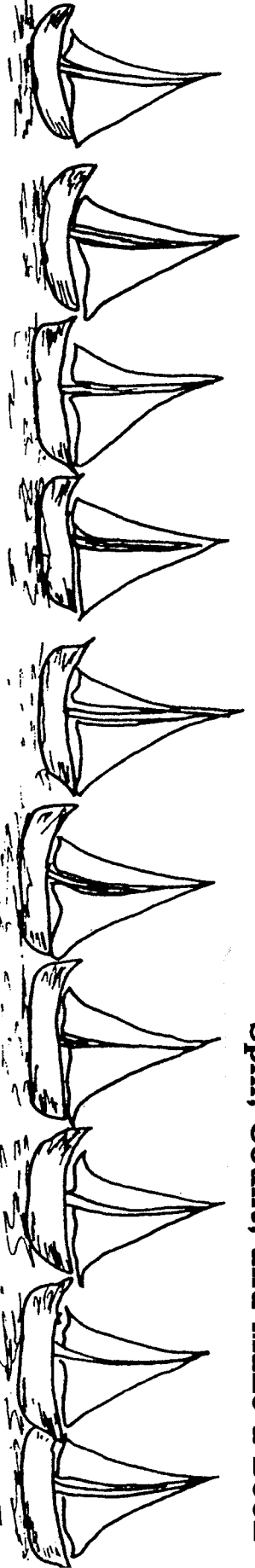
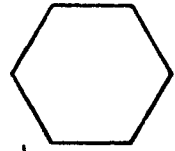


**Spin, Count, and Make a Book**  
Spinner Top

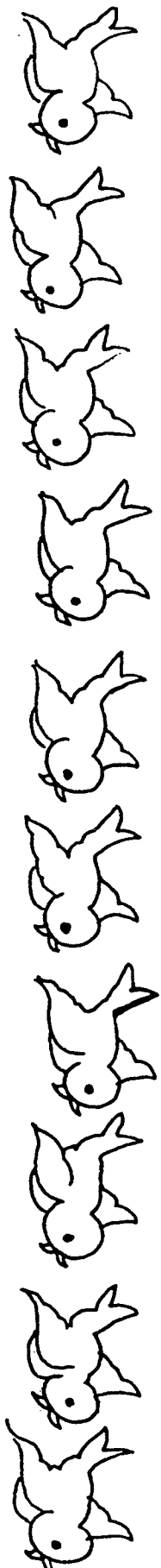
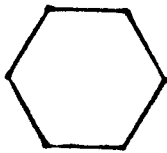
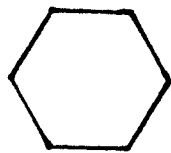
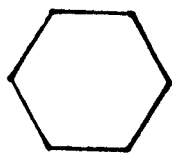
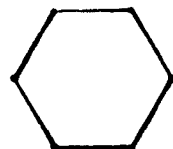


**Spin, Count, and Make a Book**  
Spinner Top

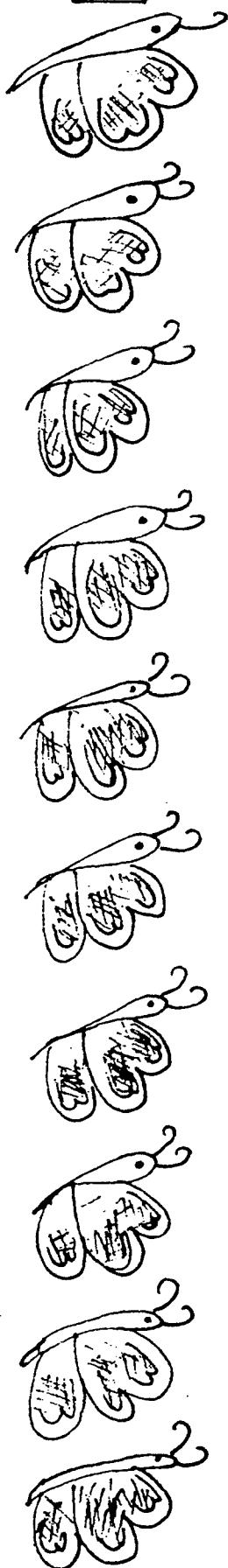
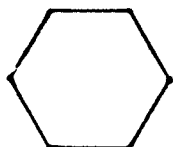
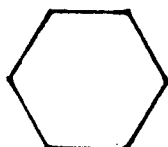
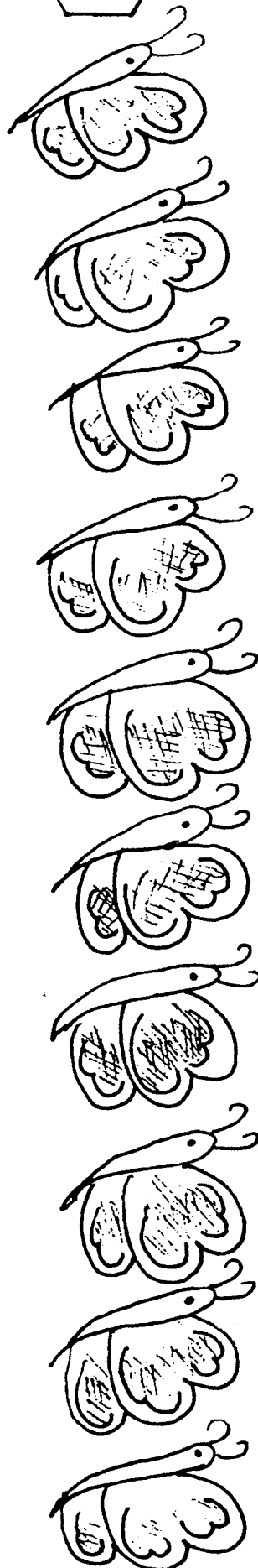
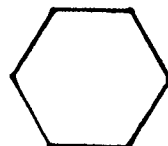
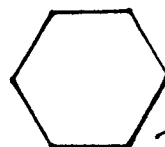
Spin, Count, and Make a Book



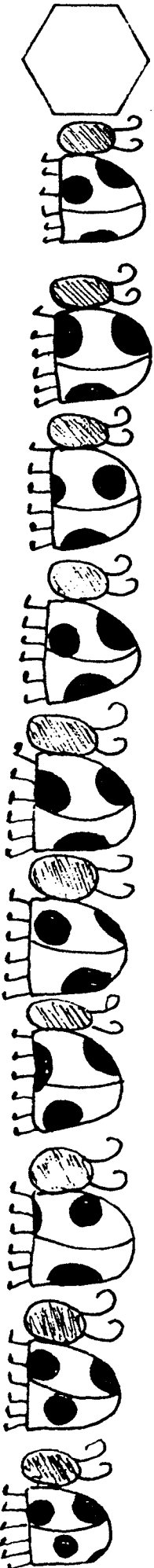
## Spin, Count, and Make a Book



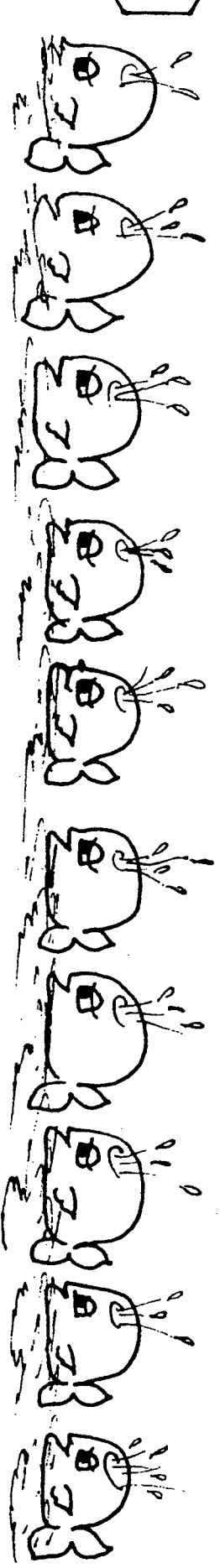
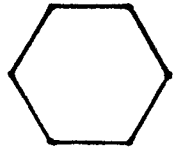
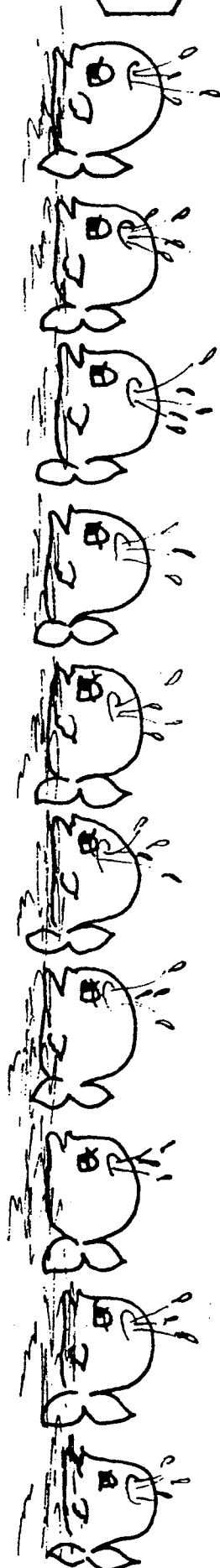
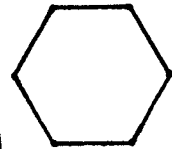
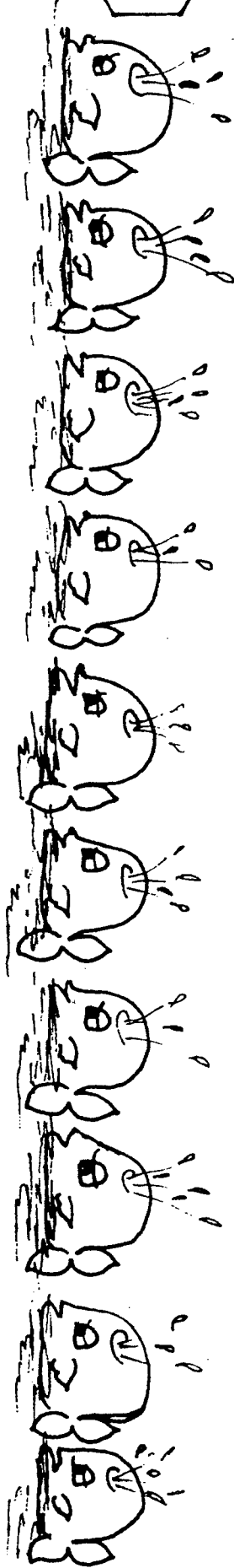
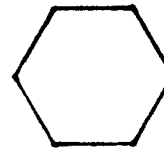
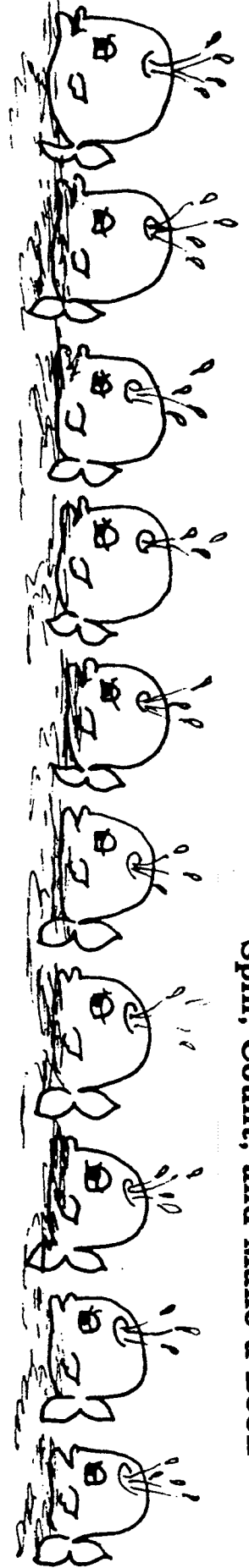
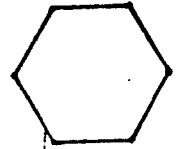
Spin, Count, and Make a Book



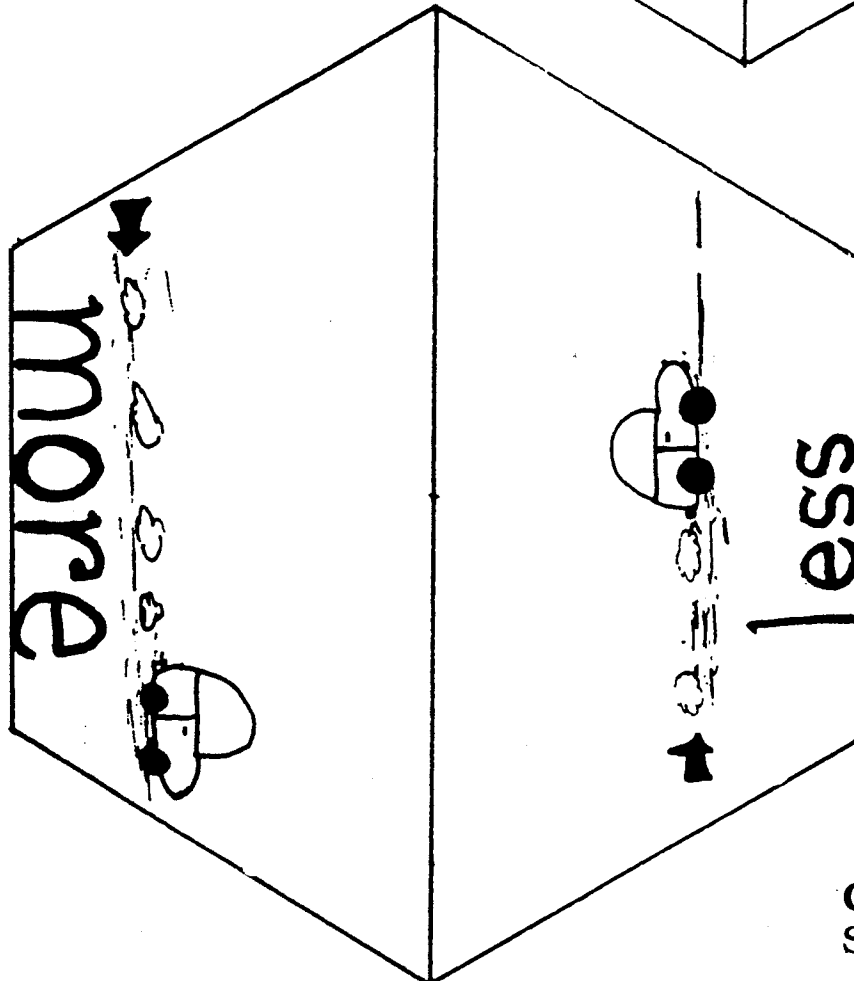
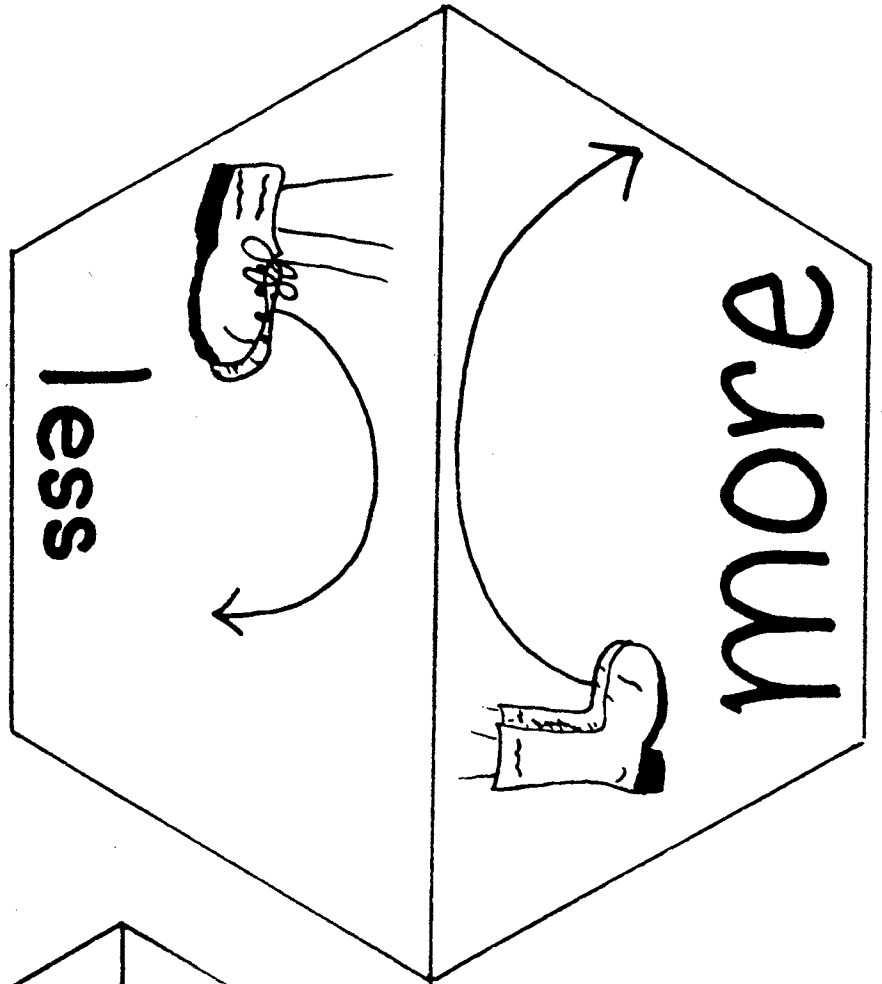
Spin, Count, and Make a Book



Spin, Count, and Make a Book



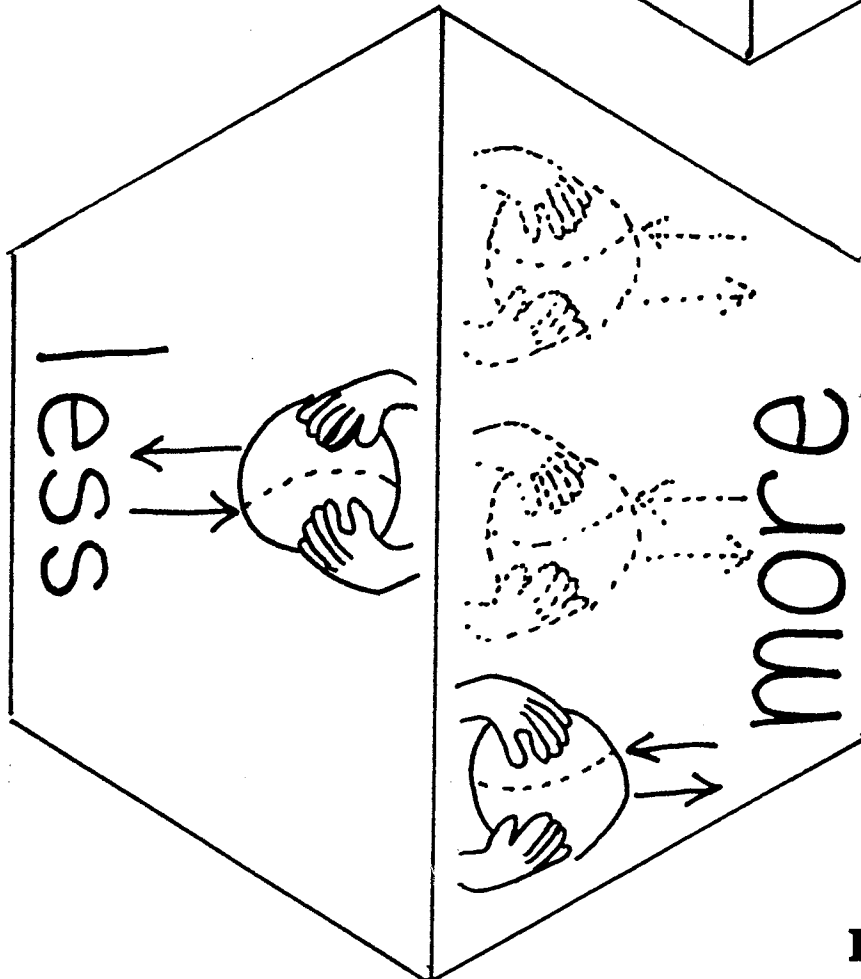
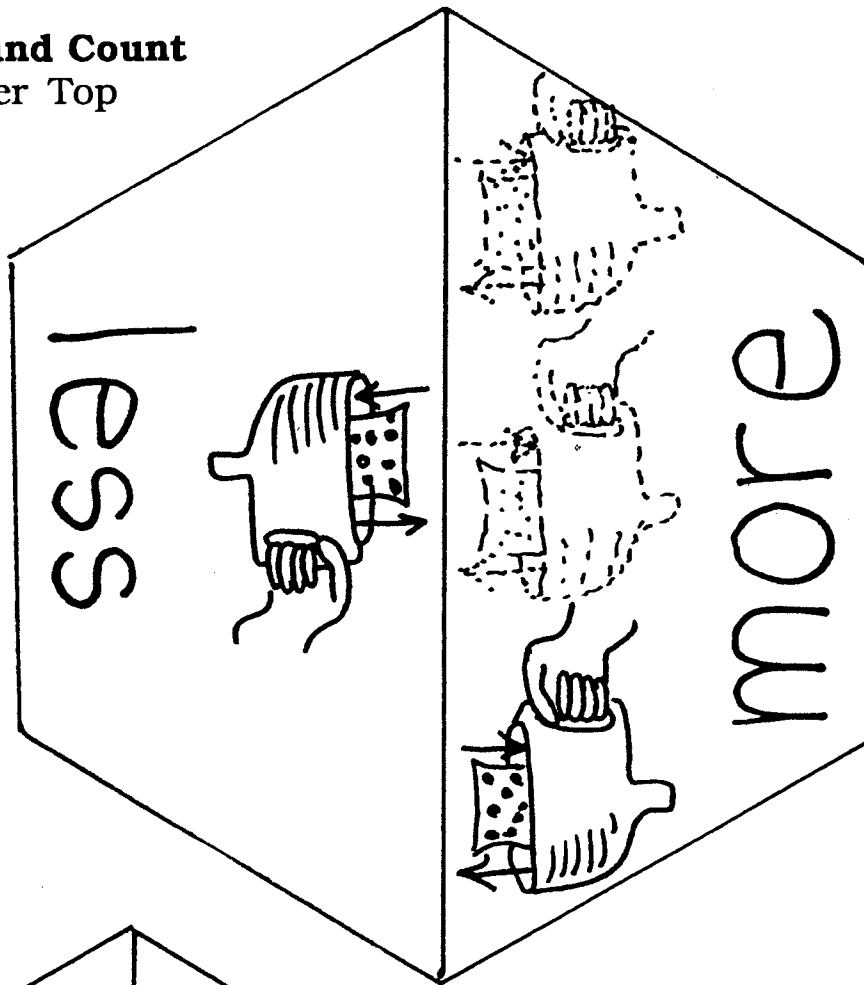
# Jump and Count Spinner Top



# Grand Prix Spinner Top

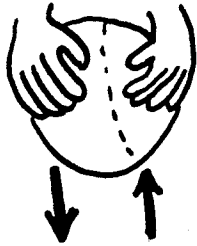


**Toss and Count**  
Spinner Top

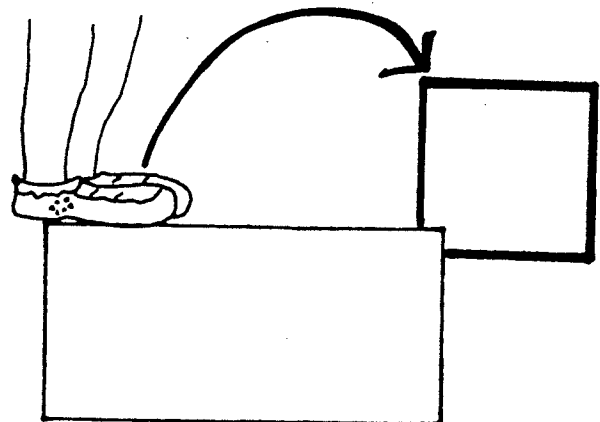
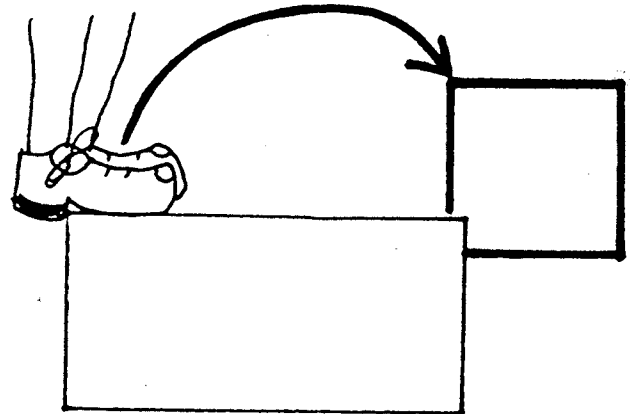
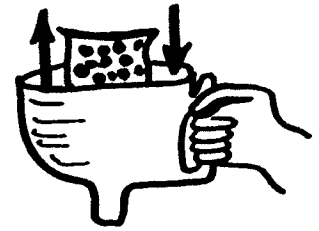


**Bounce and Count**  
Spinner Top

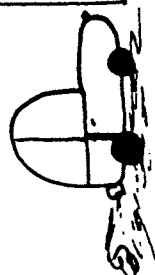
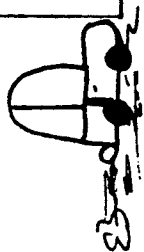
**Toss and Count**



**Bounce and Count**



**Jump and Count**



**Grand Prix**

# Counting Jars

name: \_\_\_\_\_



guess

check



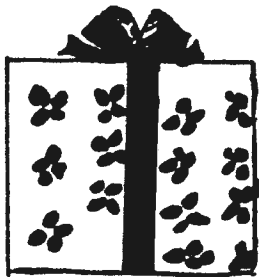
guess

check



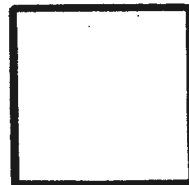
guess

check



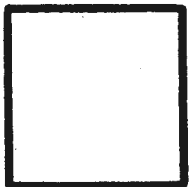
## Gift Wrap Counting

name: \_\_\_\_\_



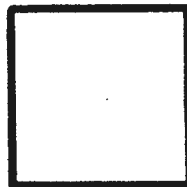
guess

check



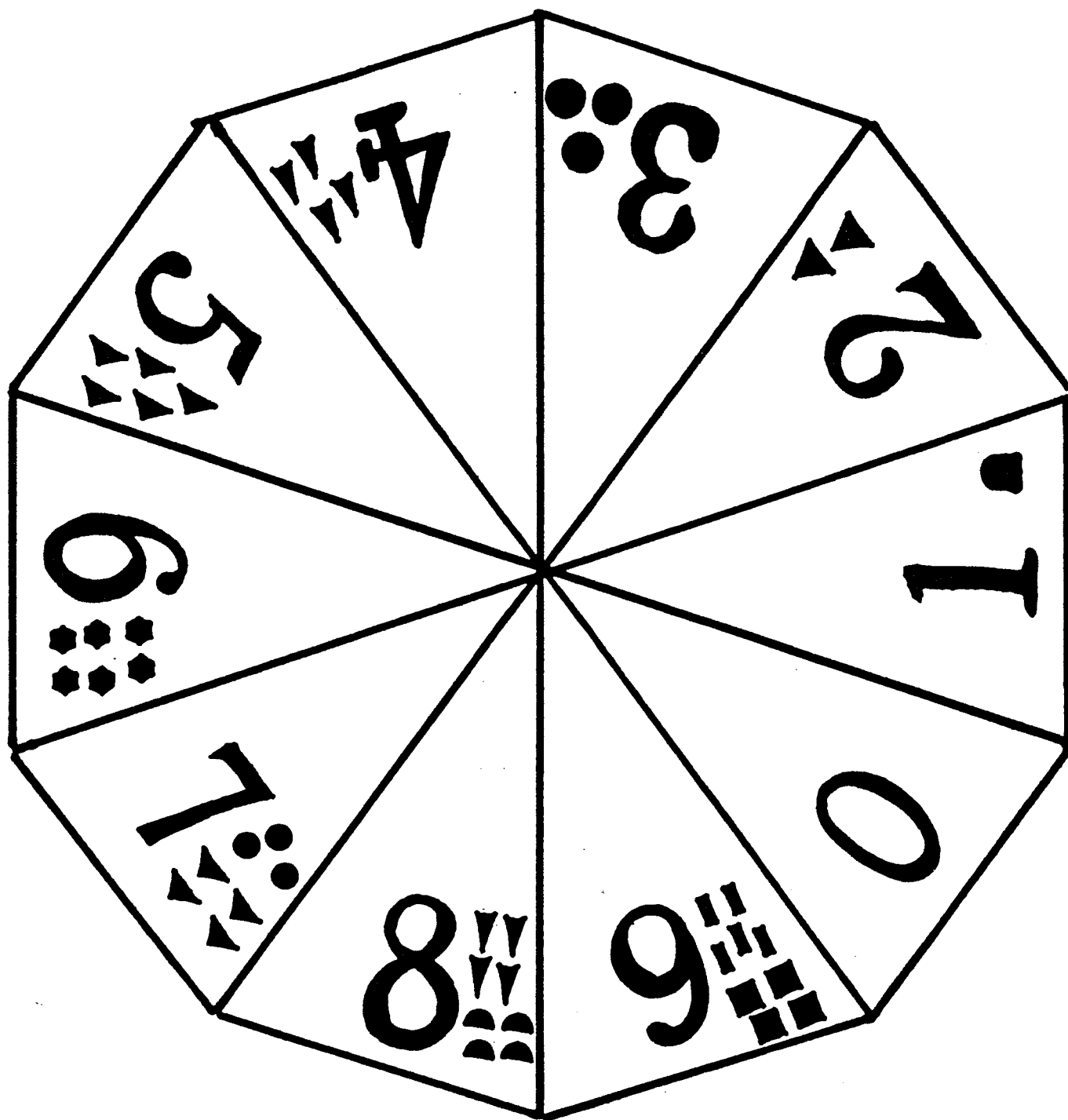
guess

check

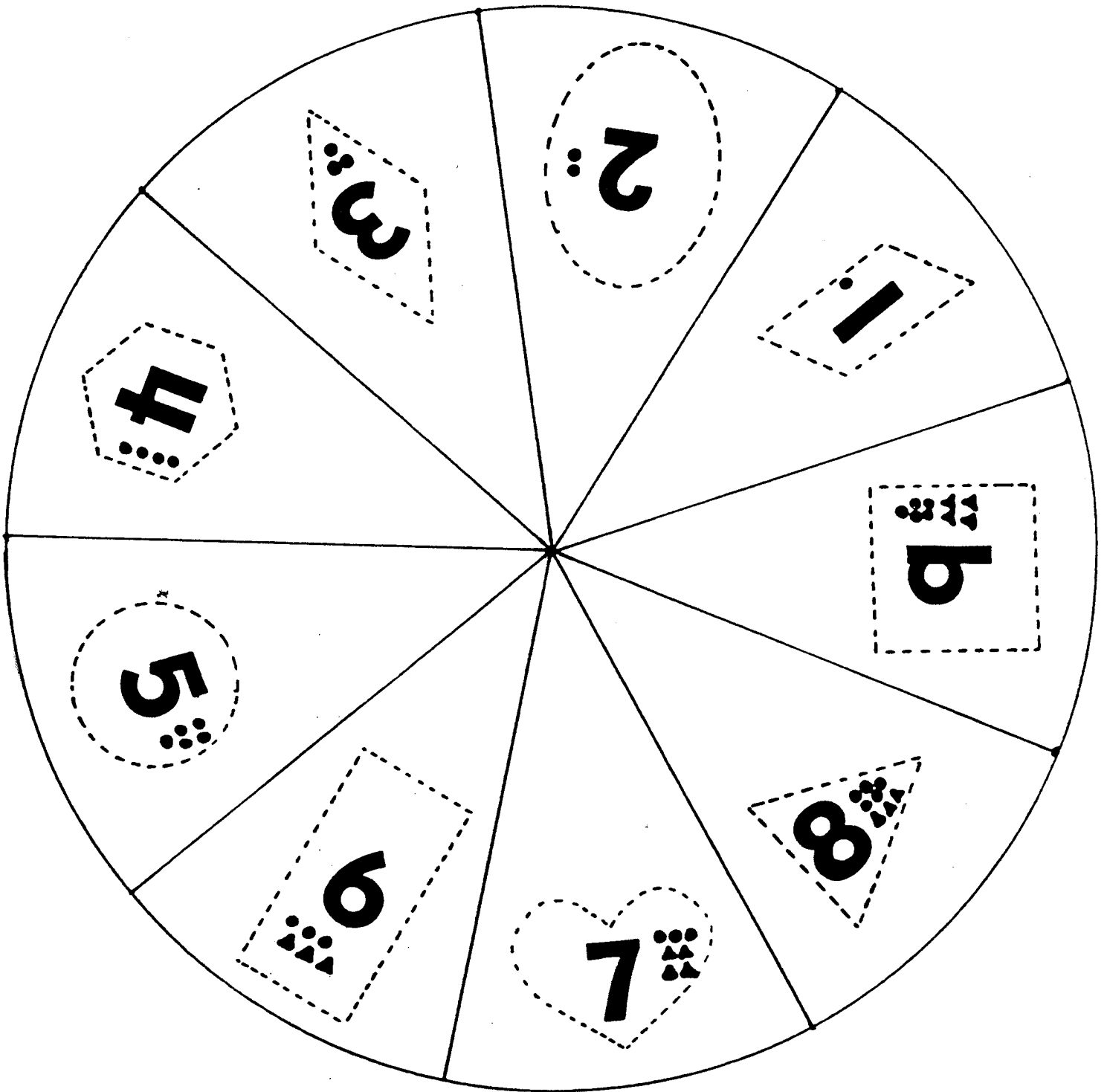


guess

check

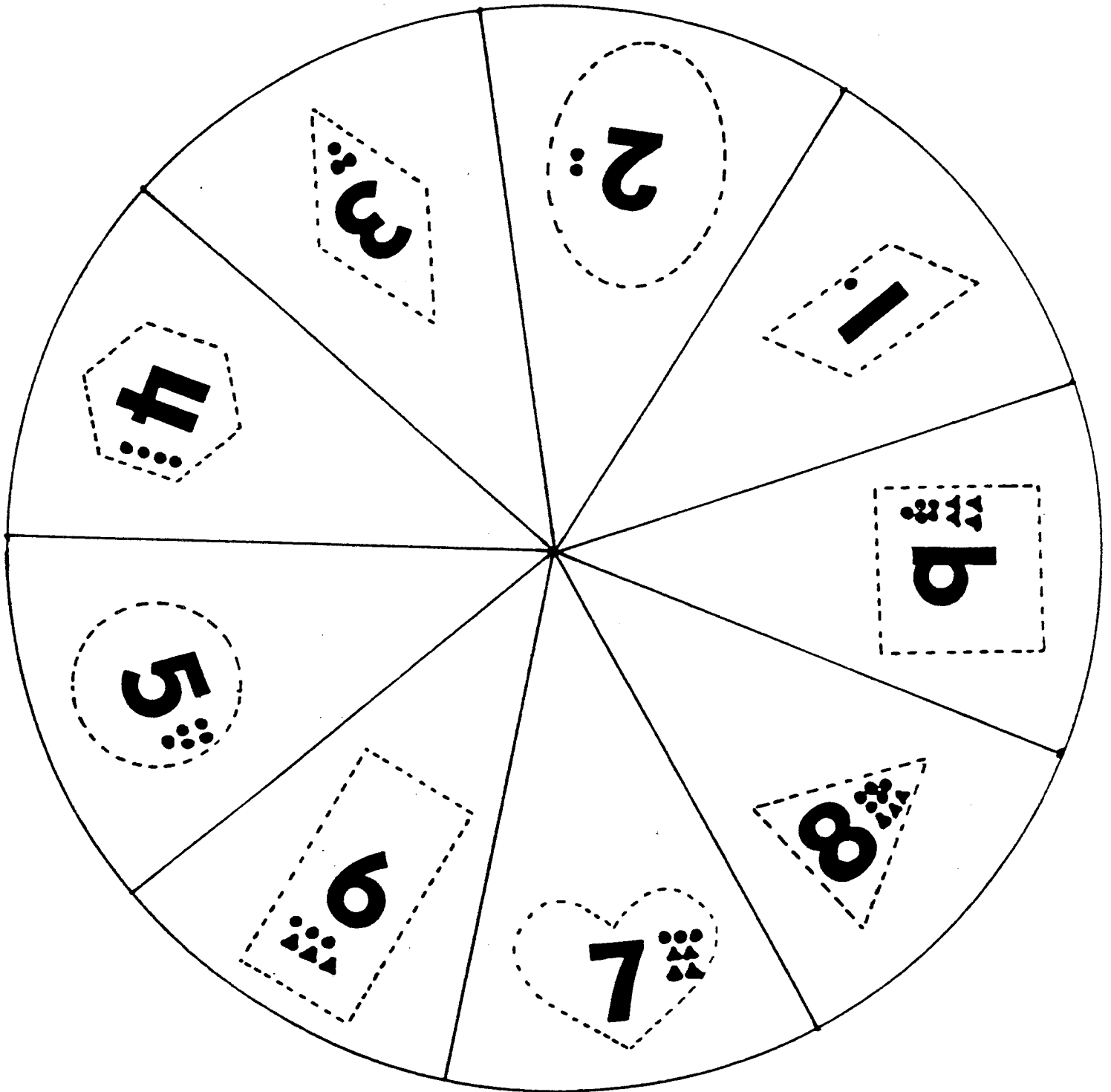


**Spin 50**  
Spinner Top



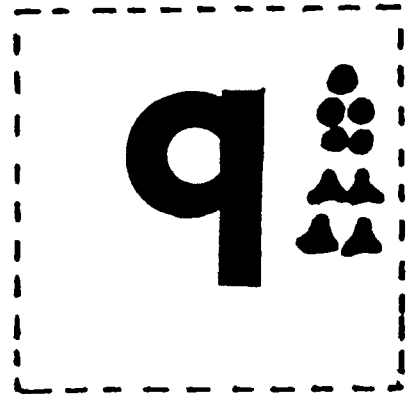
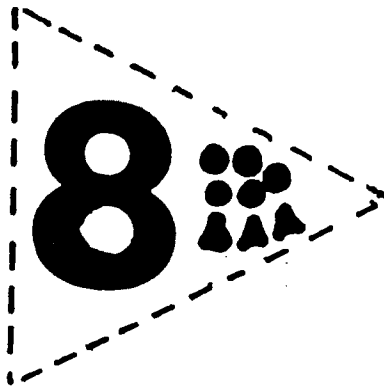
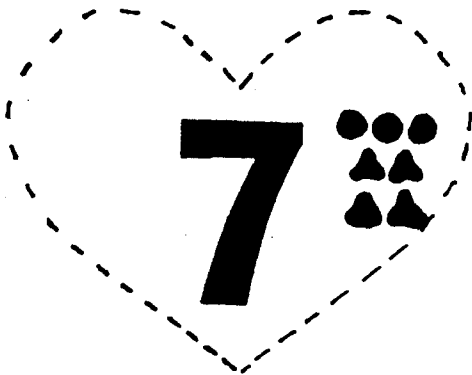
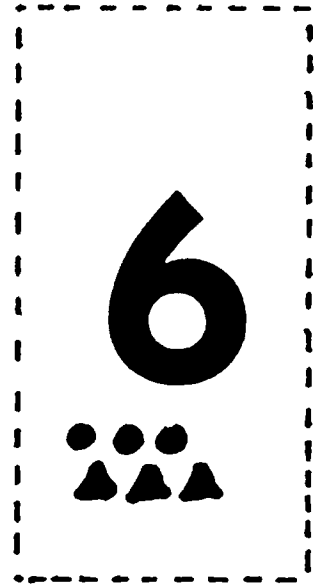
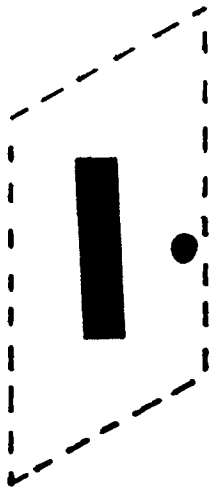
## Spinners and Scissors

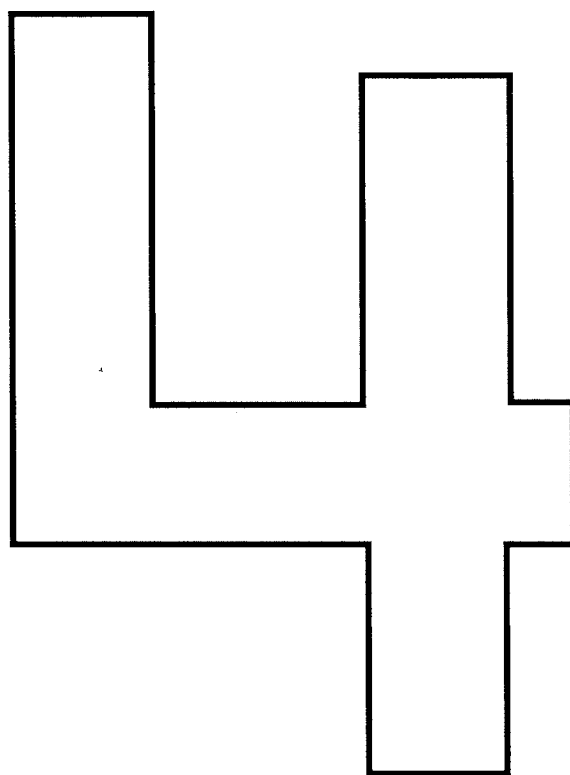
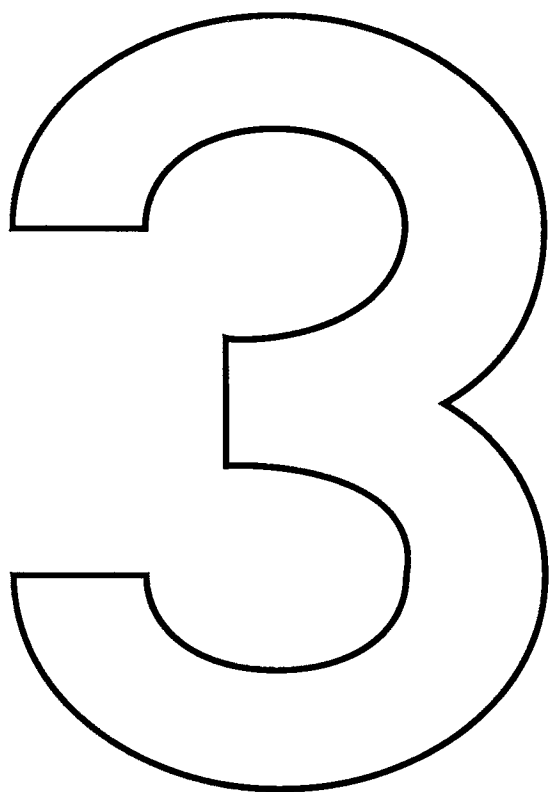
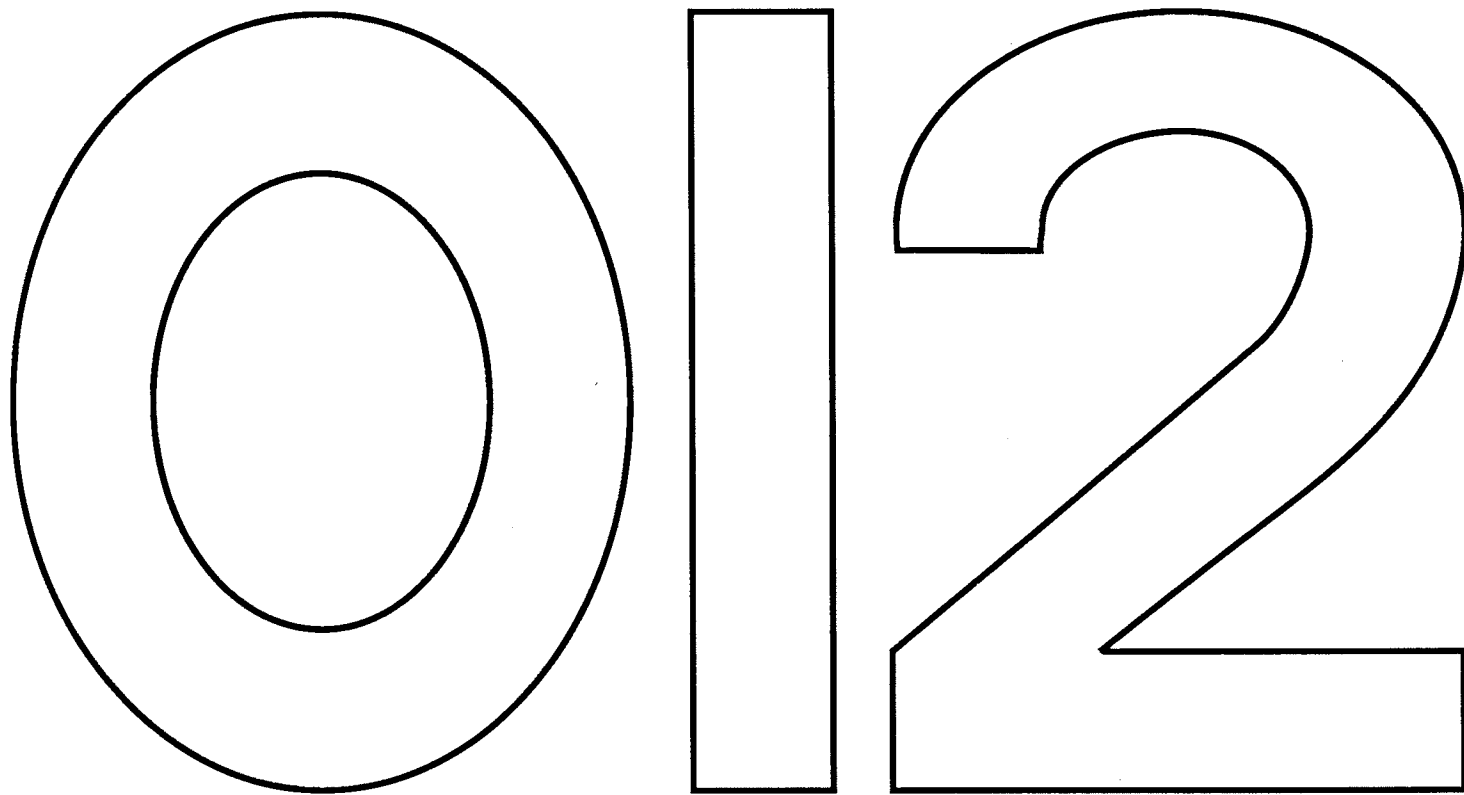
Spinner Top



# Spinners and Scissors

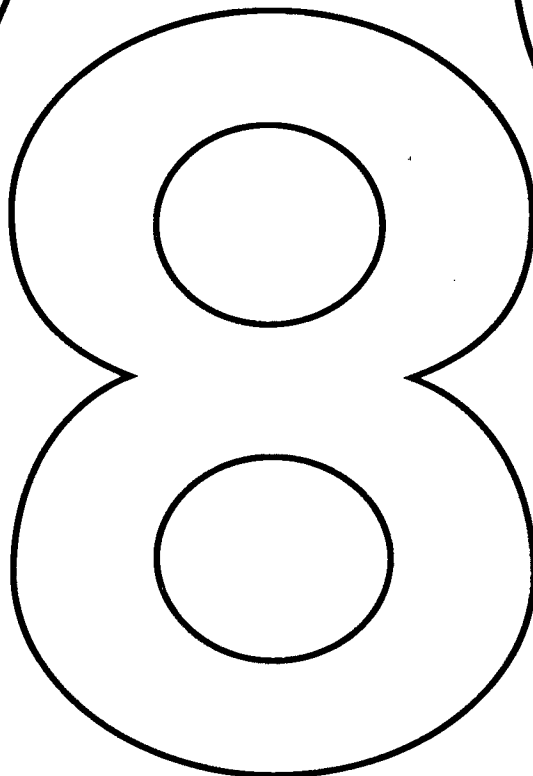
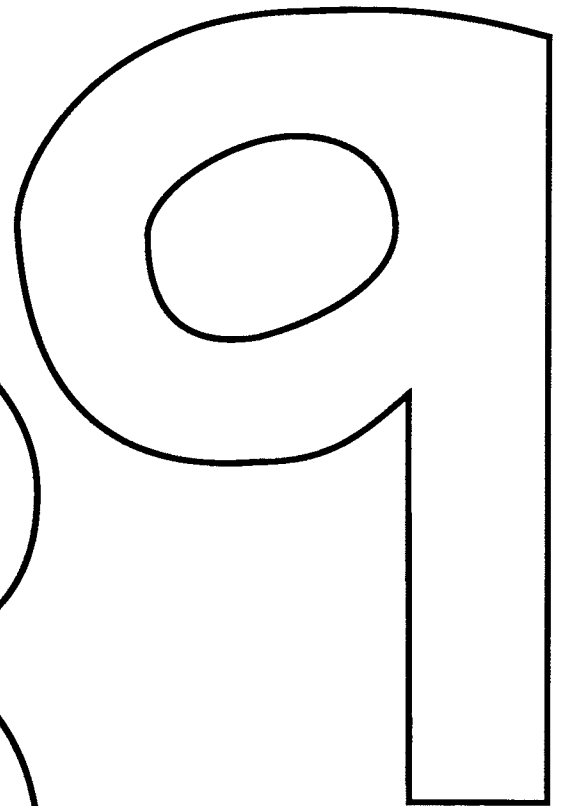
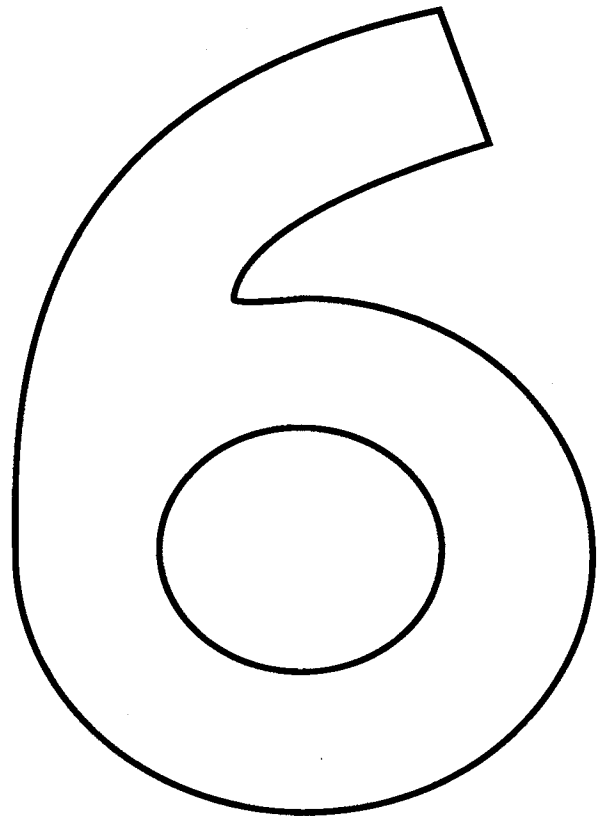
Spinner Top





Rub over  
numerals

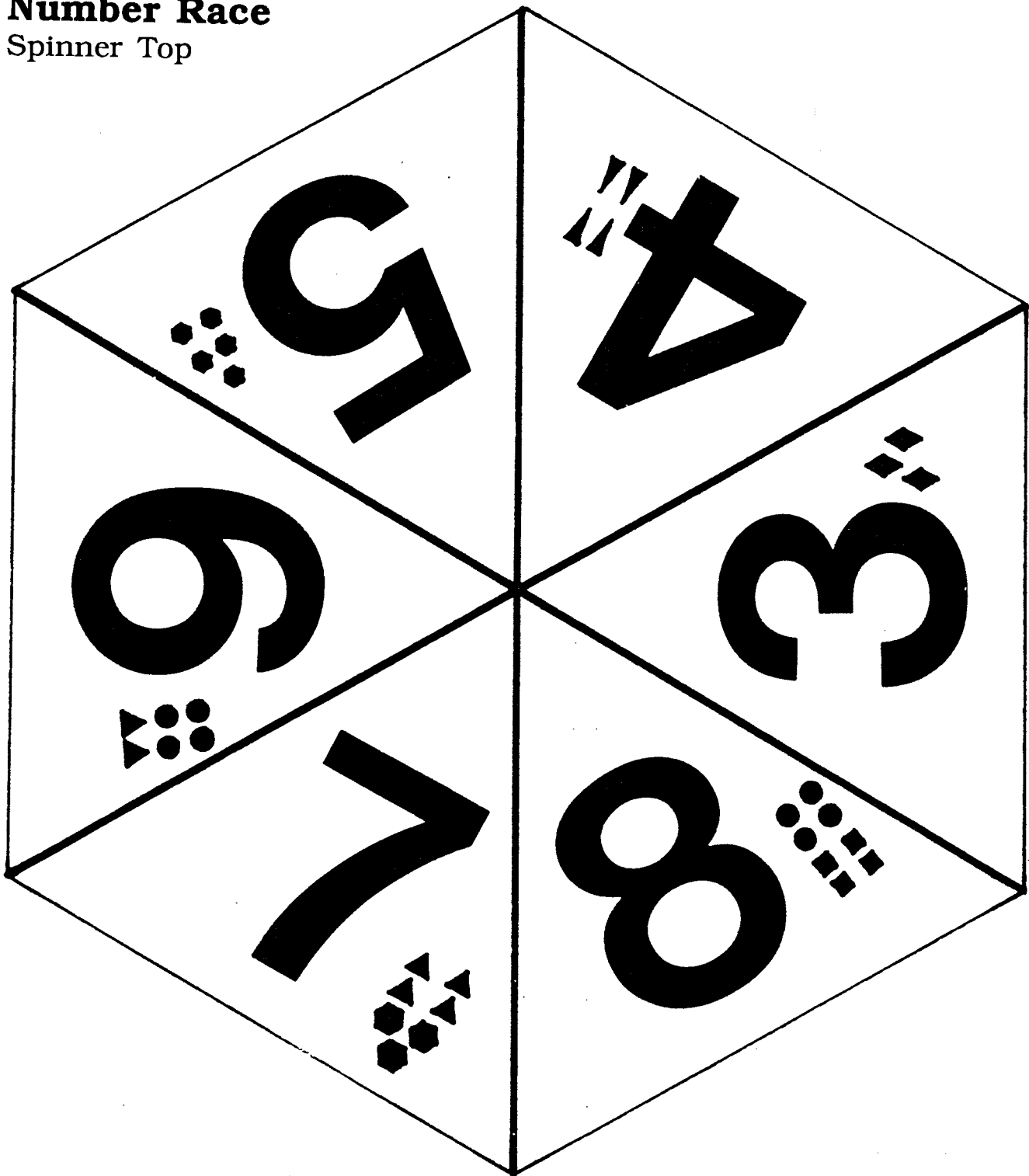




Rub over  
numerals

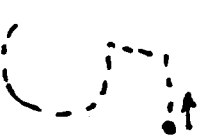
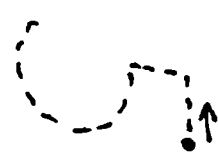
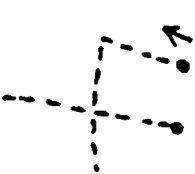
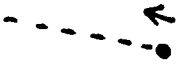
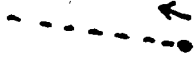
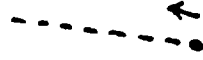
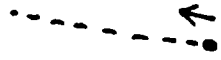
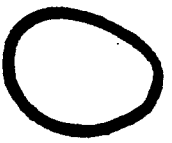
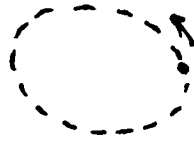
# Number Race

Spinner Top



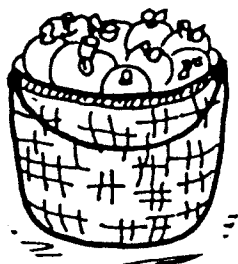
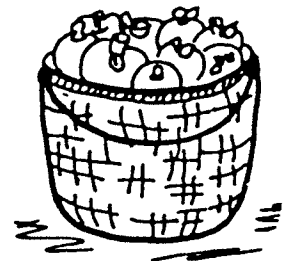
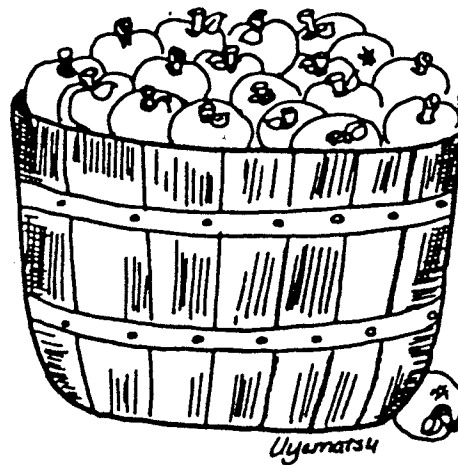
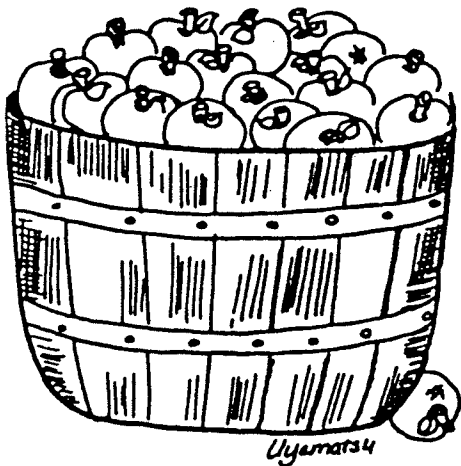
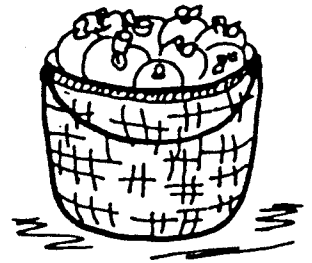
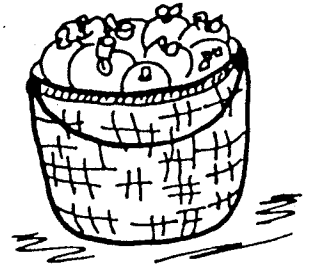
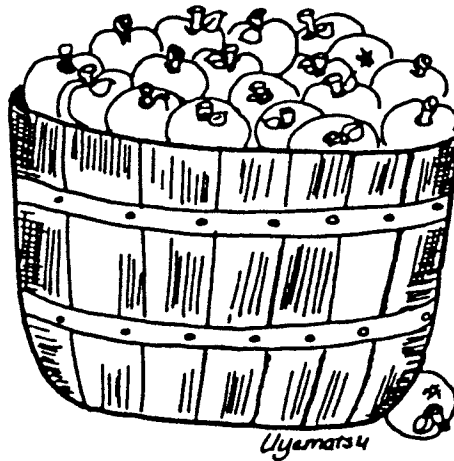
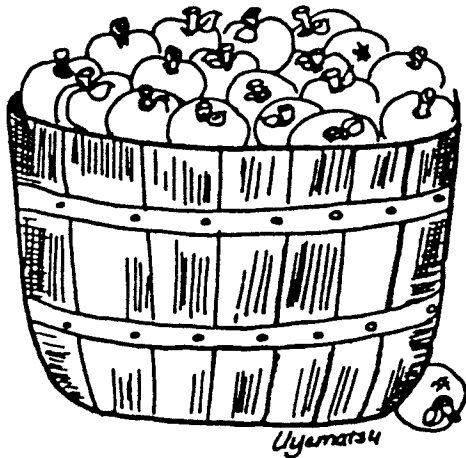
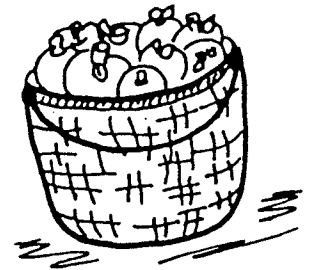
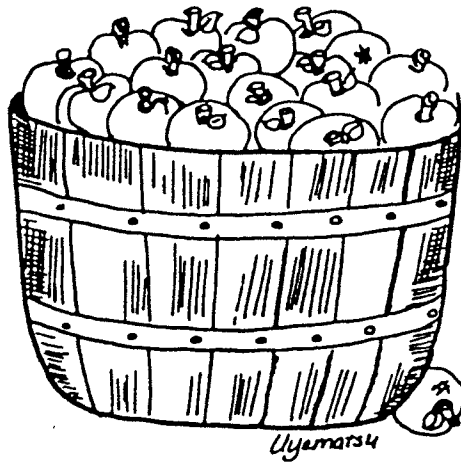
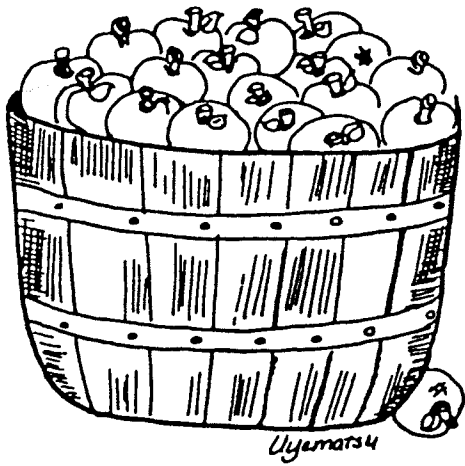
Green Beans

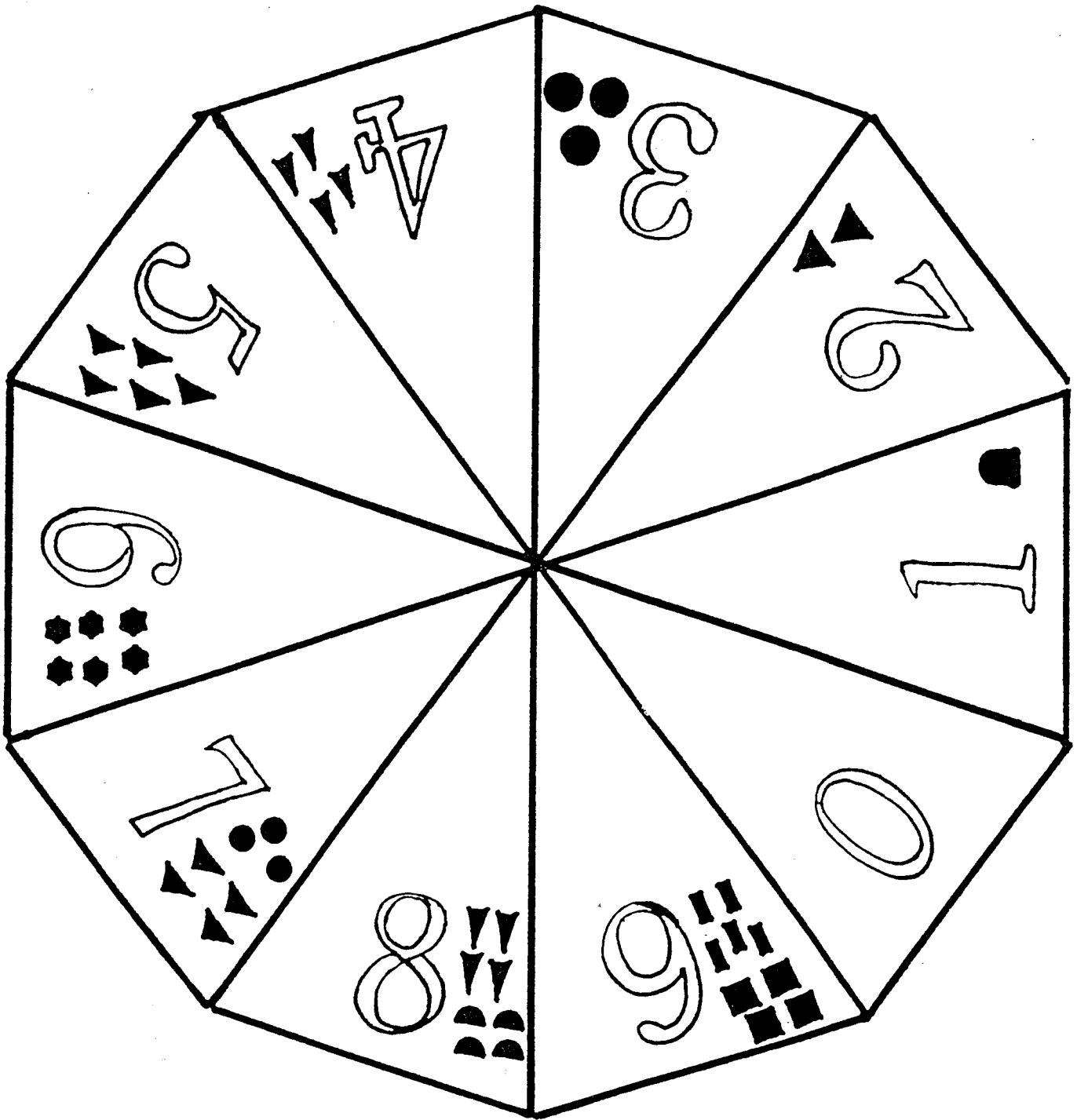
name \_\_\_\_\_



Name:

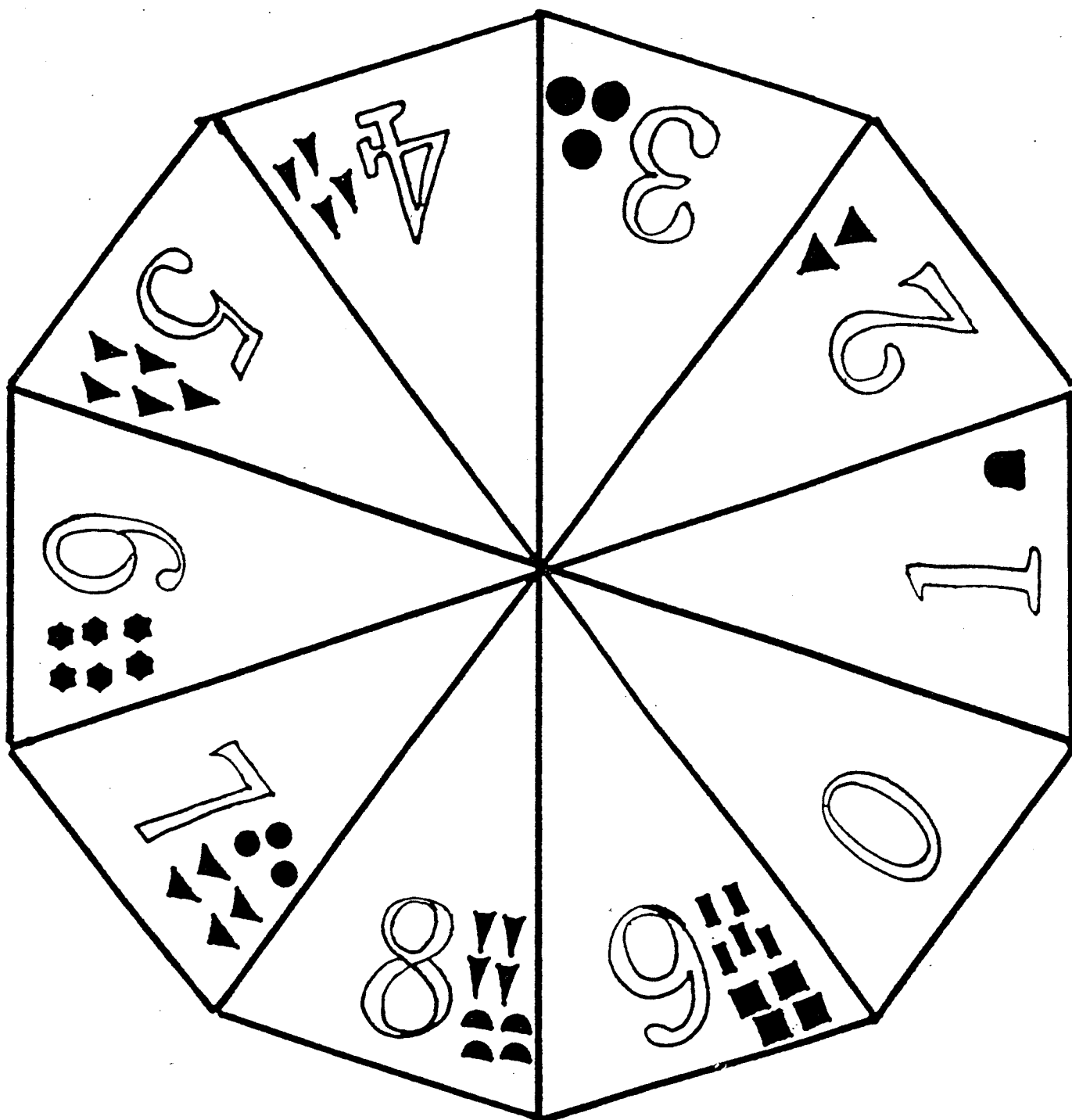
[illegible]





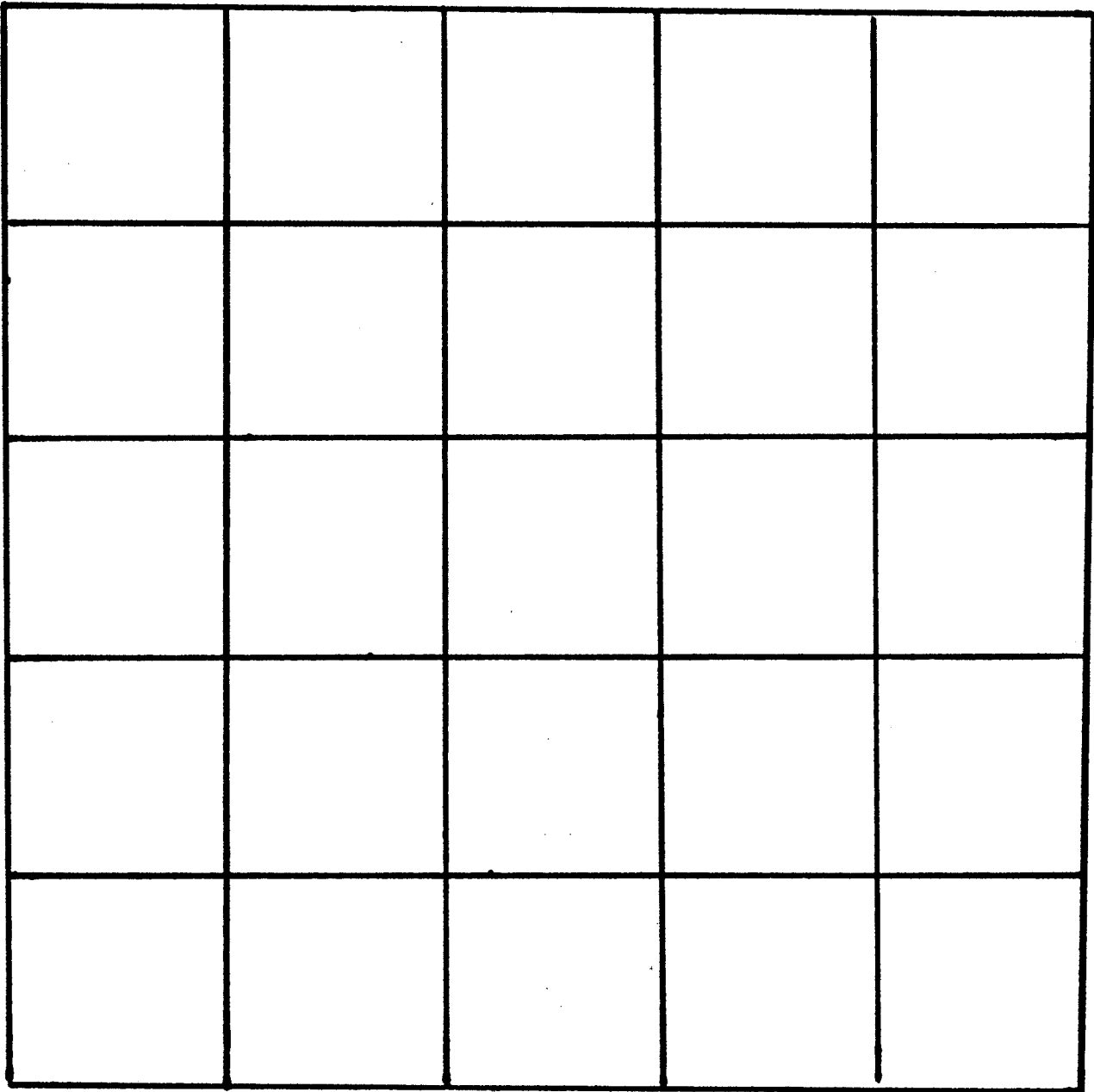
## Newspaper Numerals

Color each numeral  
a different color.

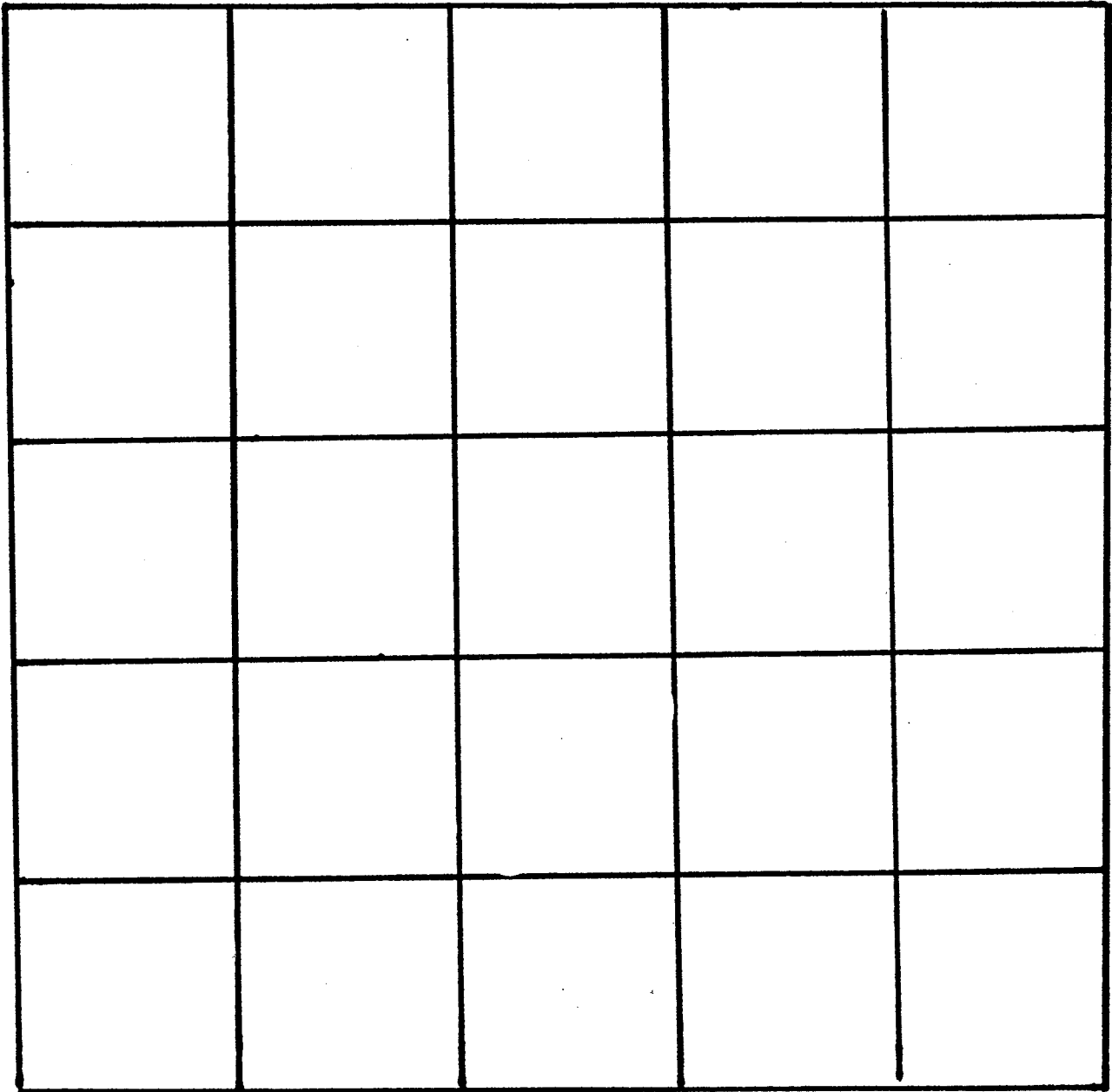


## Newspaper Numerals

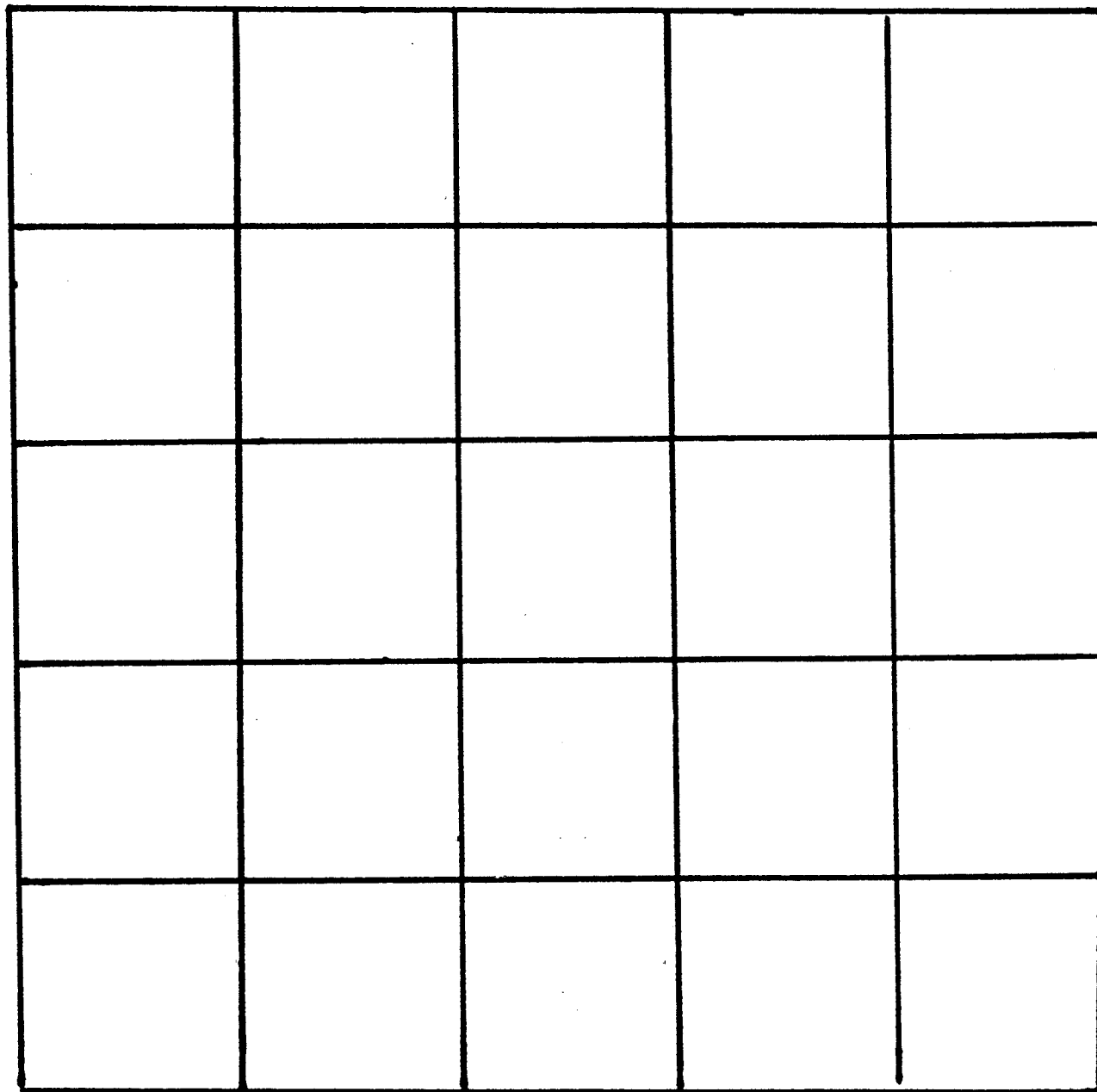
Color each numeral  
a different color.

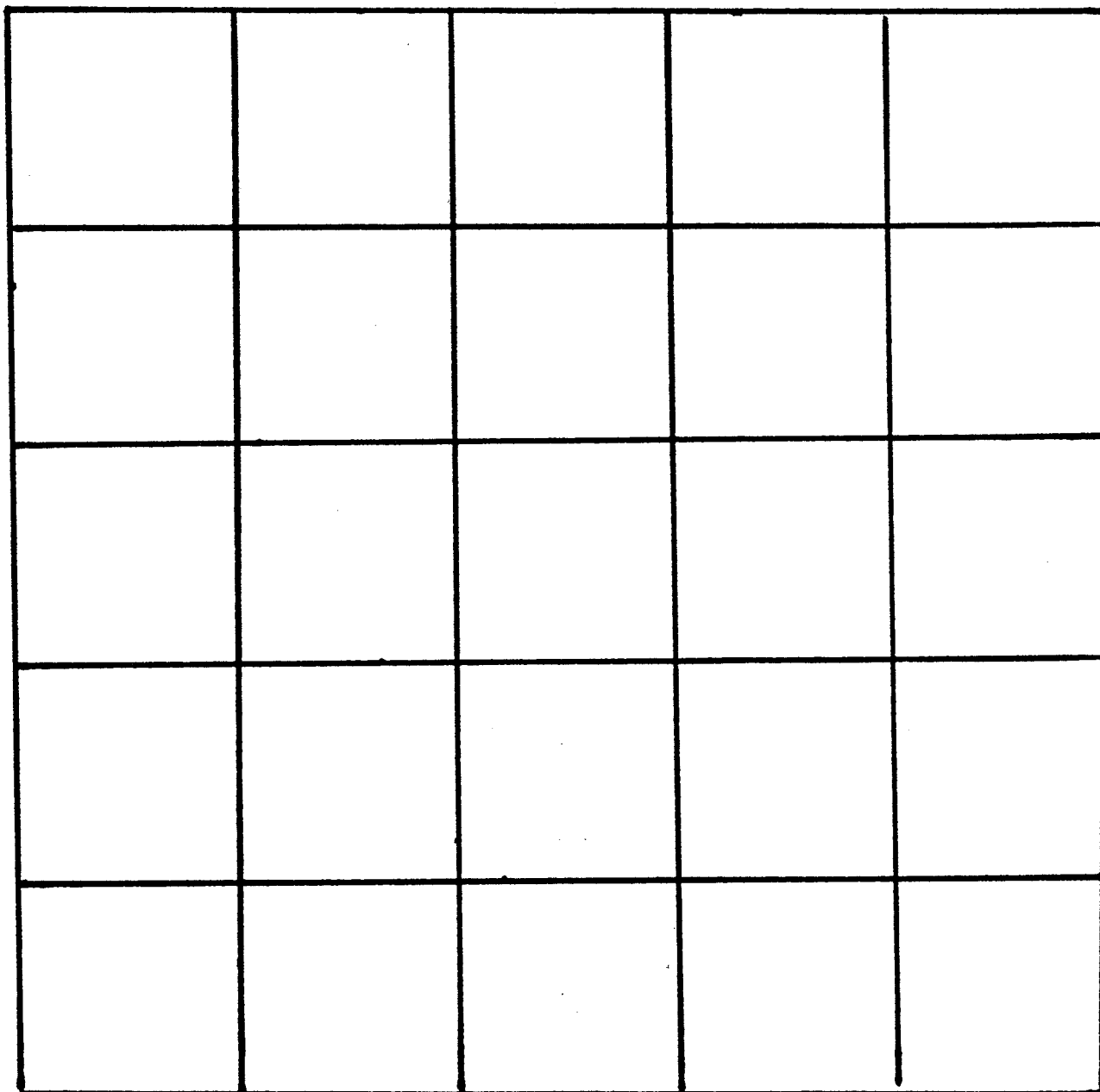
**Gameboards (4)**



**Gameboards (4)**

# Gameboards (4)



**Gameboards (4)**



1



2



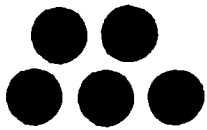
3



4



5



6



7



8



9



10



0



6





1



2



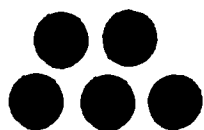
3



4



5



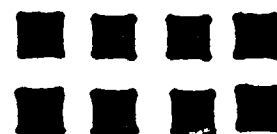
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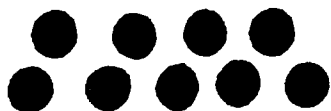
7



8



9



10



0



6





1



2



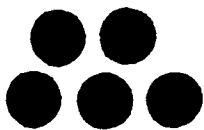
3



4



5



6



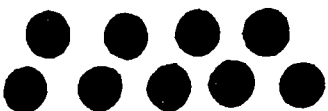
7



8



9



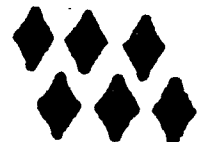
10

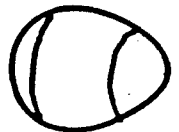
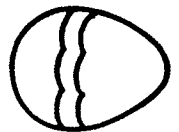
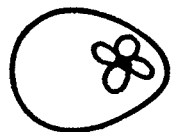
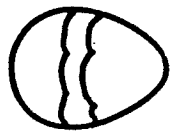
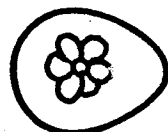
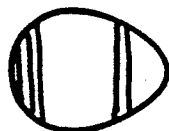
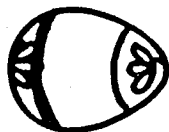
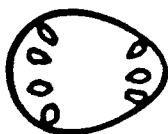
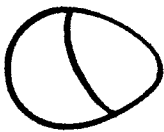
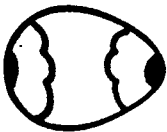
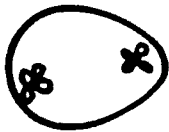
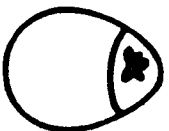
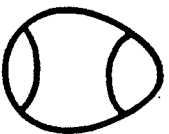
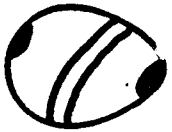
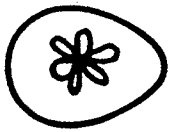


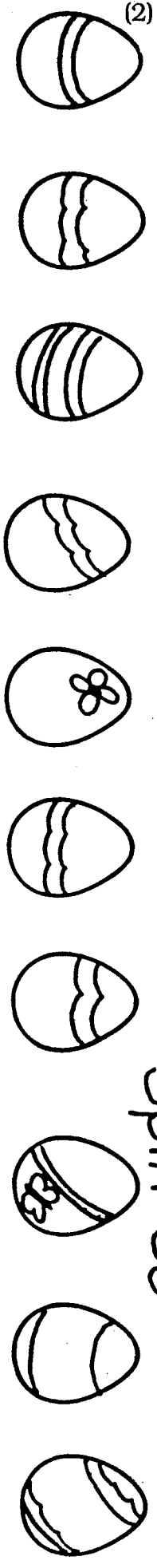
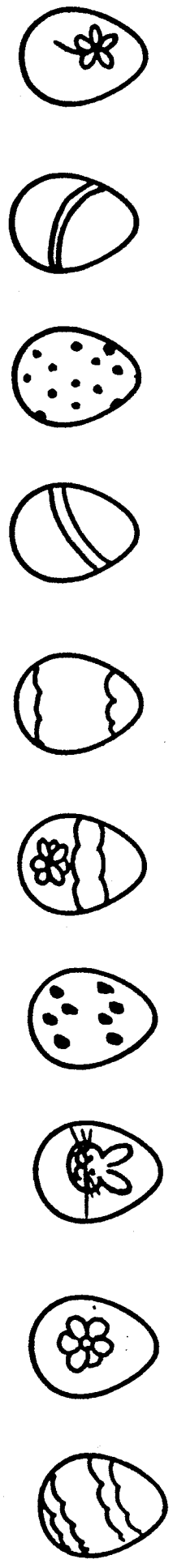
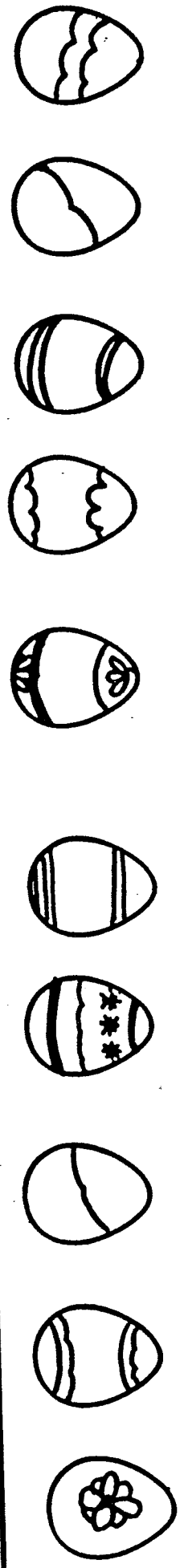
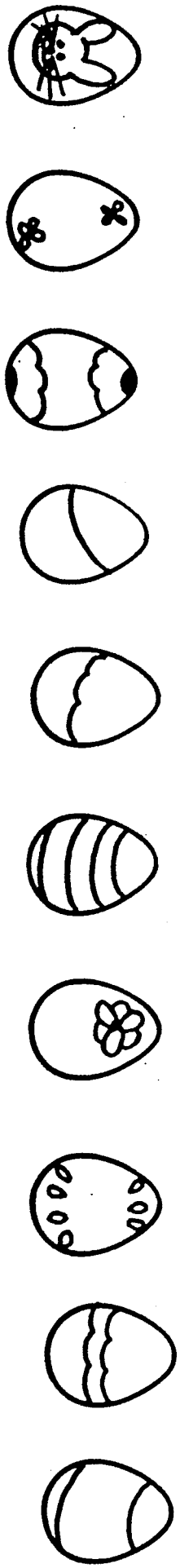
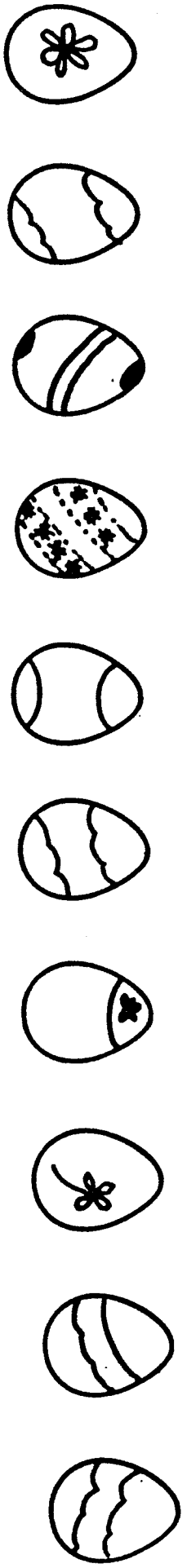
0



6

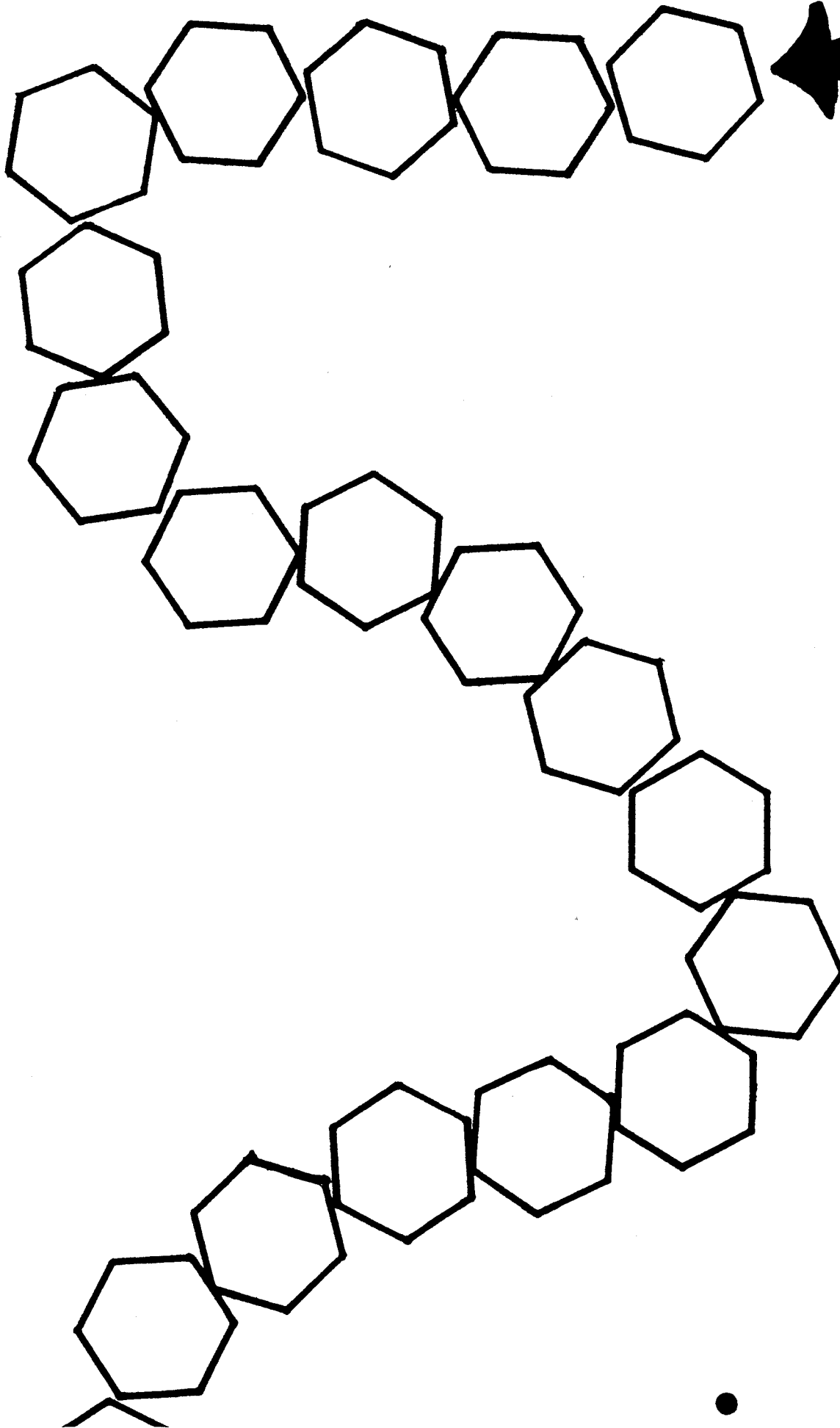








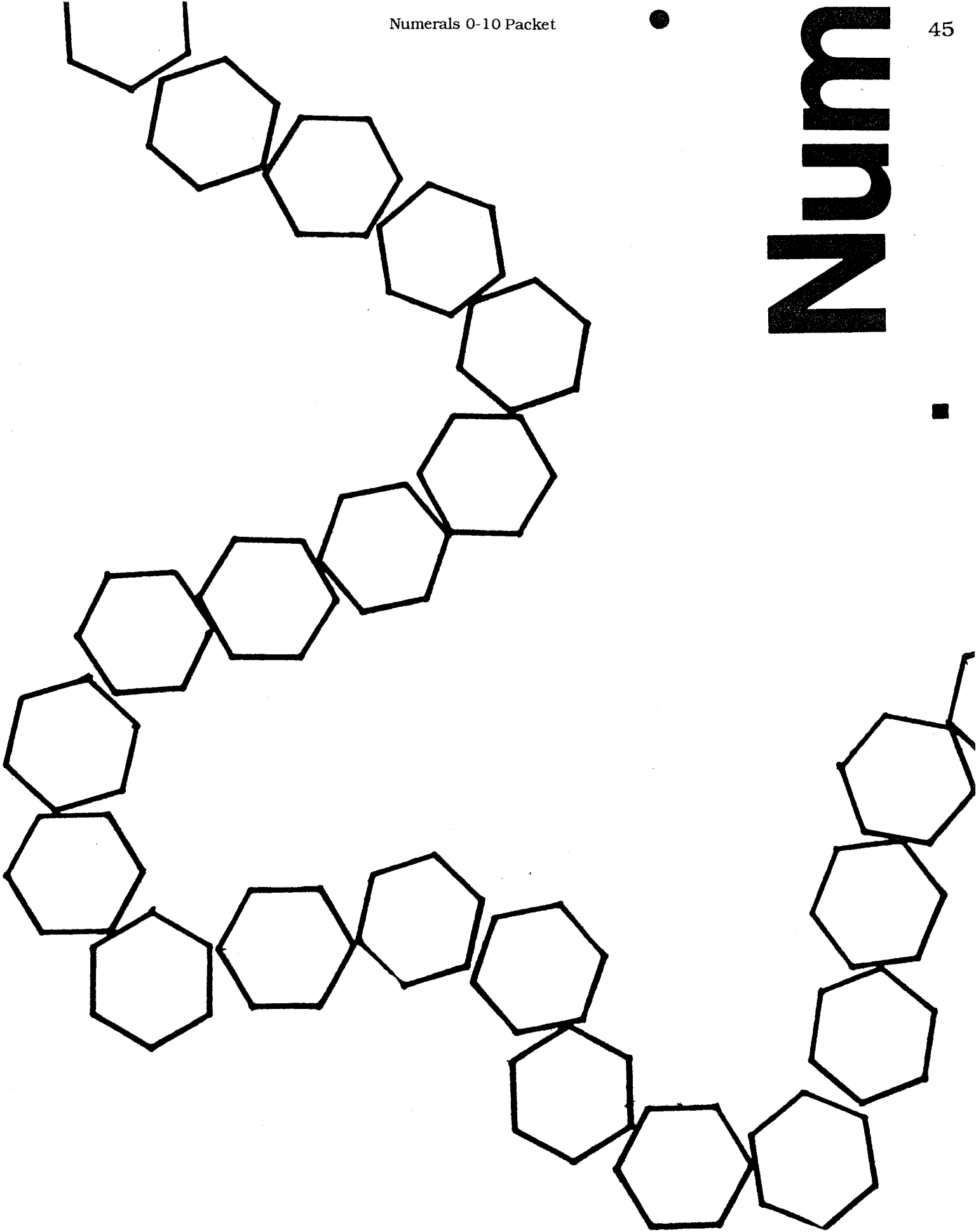
 **Go**

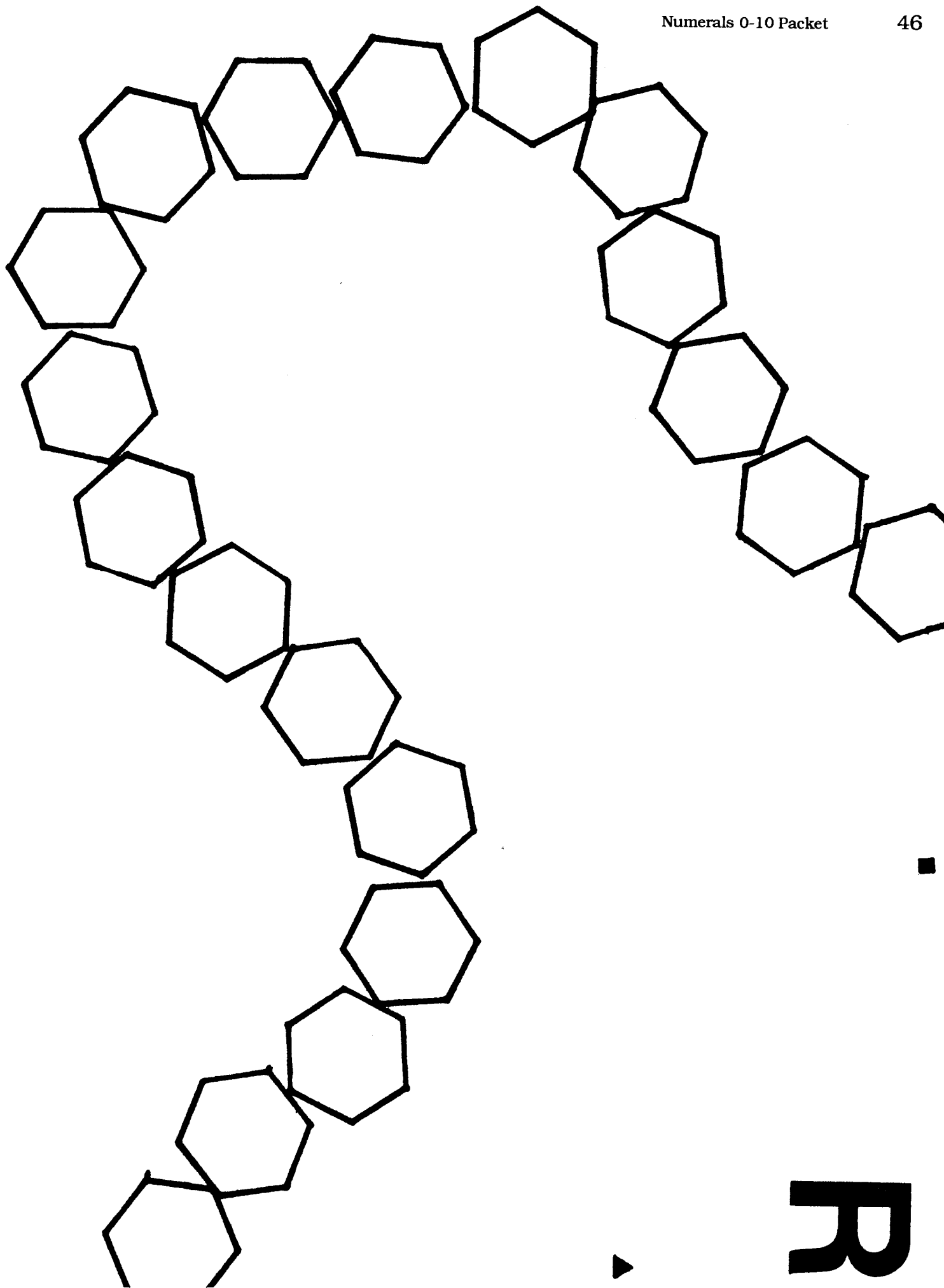


**ber**

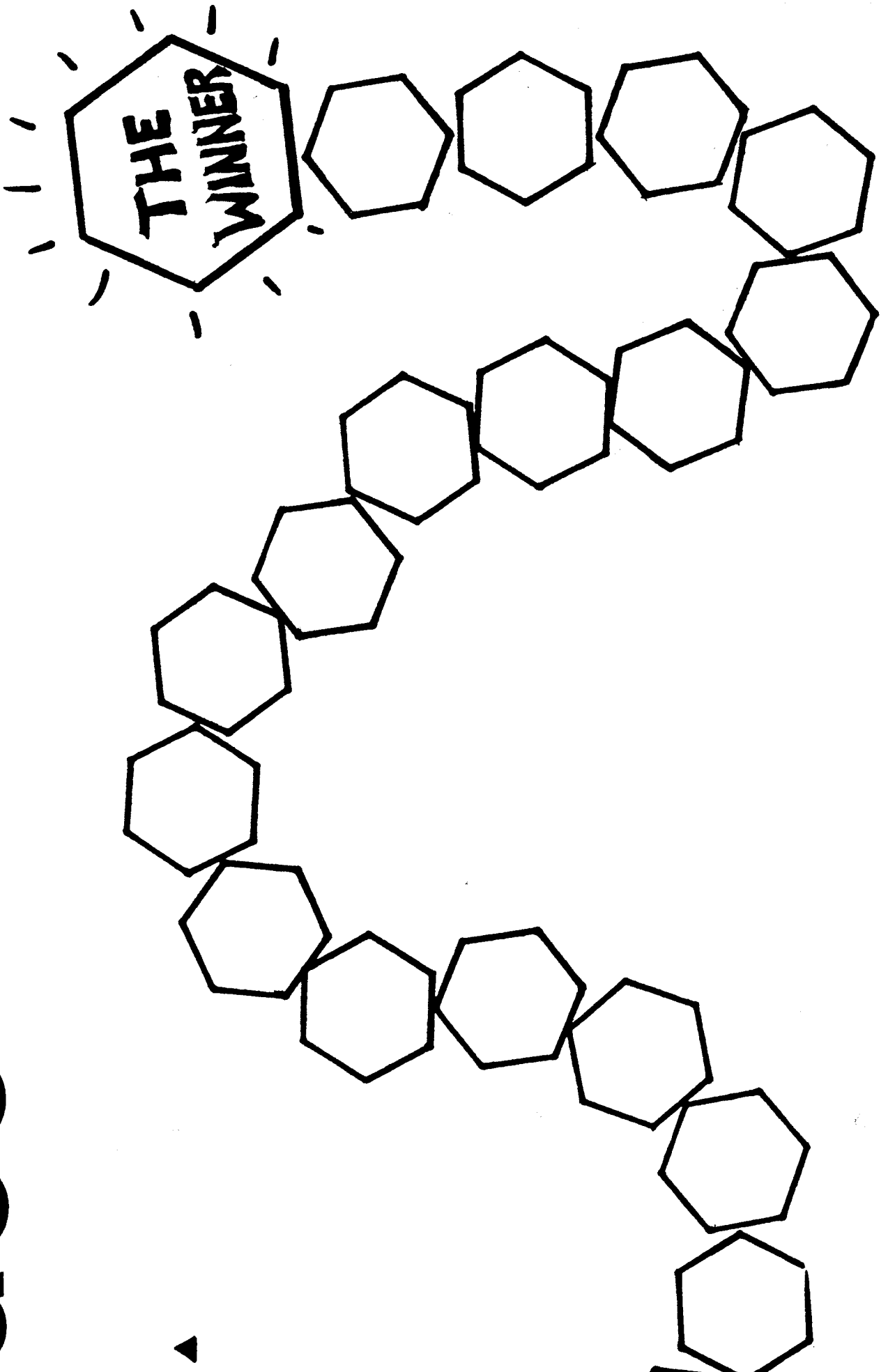


urn





ace



1

2

3

4

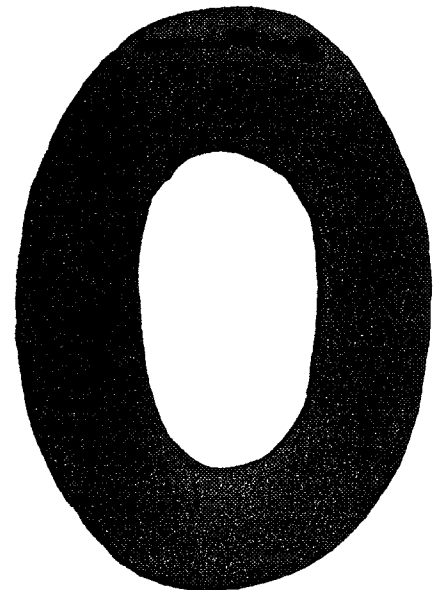
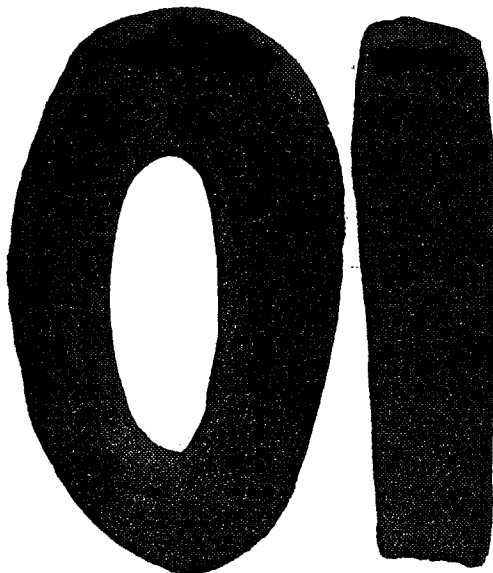
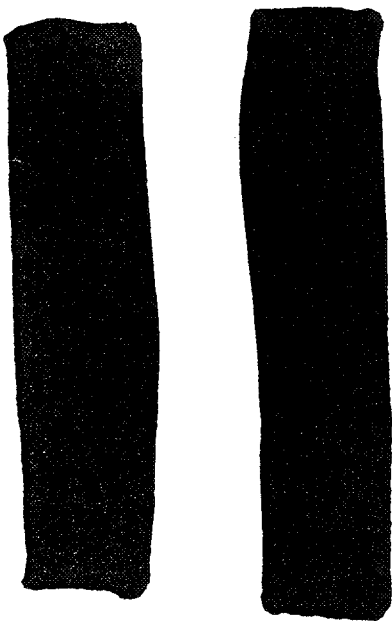
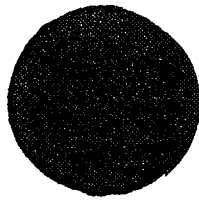
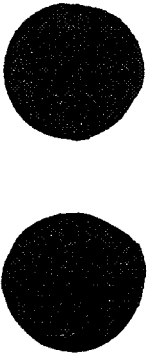
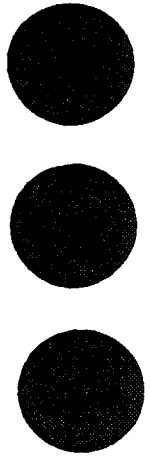
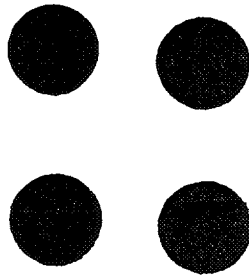
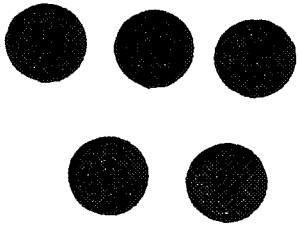
5

6

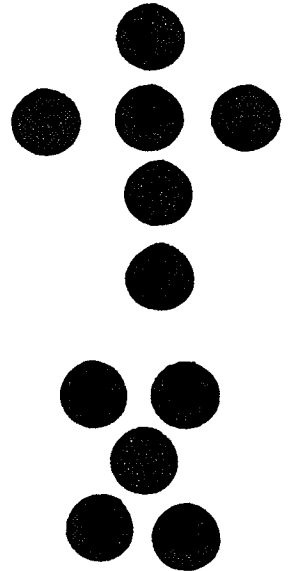
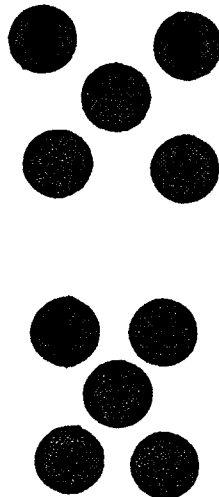
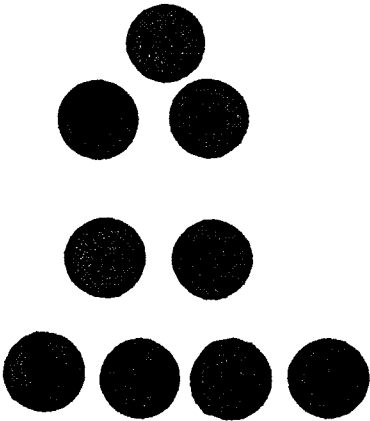
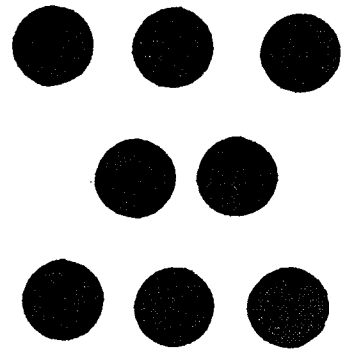
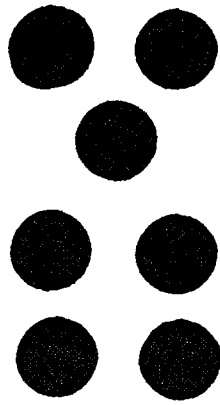
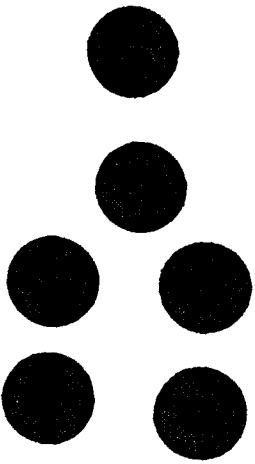
7

8

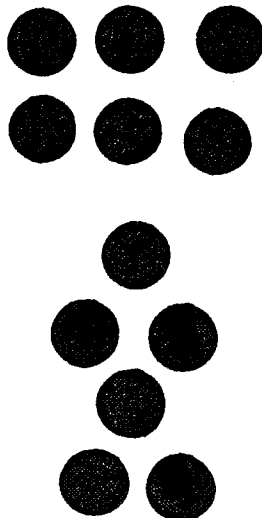
9



Crazy Crocodile



12



Apply the appropriate labels on both ends of each box lid. Either run the labels on full-sheet Avery Labels No. 5165, cut apart and attach; or simply cut apart these pages and glue or tape on.



## Spinner Counting

**A PRACTICE & ENRICHMENT BOX**



## Spin, Count, and Make a Book

**A PRACTICE & ENRICHMENT BOX**



## Jump and Count

**A PRACTICE & ENRICHMENT BOX**



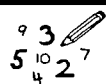
## Bounce and Count

**A PRACTICE & ENRICHMENT BOX**



## Toss and Count

**A PRACTICE & ENRICHMENT BOX**



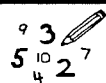
## Grand Prix

**A PRACTICE & ENRICHMENT BOX**



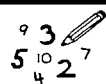
## Top Draw

**A PRACTICE & ENRICHMENT BOX**



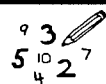
## Gift Wrap Counting

**A PRACTICE & ENRICHMENT BOX**



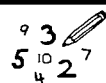
## Spin 50

**A PRACTICE & ENRICHMENT BOX**



## Spinners and Scissors

**A PRACTICE & ENRICHMENT BOX**



## Rub Over Numerals

**A PRACTICE & ENRICHMENT BOX**



## Counting Books

commercial

**A PRACTICE & ENRICHMENT BOX**



## Counting Books

student made

**A PRACTICE & ENRICHMENT BOX**



## Feely Numbers in Order

**A PRACTICE & ENRICHMENT BOX**



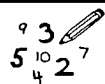
## Spinner Counting

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## Spin, Count, and Make a Book

**A PRACTICE & ENRICHMENT BOX**



## Jump and Count

**A PRACTICE & ENRICHMENT BOX**



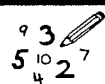
## Bounce and Count

**A PRACTICE & ENRICHMENT BOX**



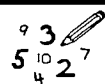
## Toss and Count

**A PRACTICE & ENRICHMENT BOX**



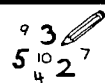
## Grand Prix

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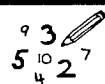
## Top Draw

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## Gift Wrap Counting

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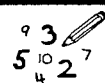
## Spin 50

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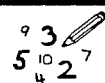
## Spinners and Scissors

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## Rub Over Numerals

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## Counting Books

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## Counting Books

student made

**A PRACTICE & ENRICHMENT BOX**



## Feely Numbers in Order

**A PRACTICE & ENRICHMENT BOX**





## Numerals Floor Graph

**A PRACTICE & ENRICHMENT BOX**



## Number Race

**A PRACTICE & ENRICHMENT BOX**



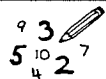
## Green Beans

**A PRACTICE & ENRICHMENT BOX**



## Crazy Crocodile

**A PRACTICE & ENRICHMENT BOX**



## Counting Jars

**A PRACTICE & ENRICHMENT BOX**



## Newspaper Numerals

**A PRACTICE & ENRICHMENT BOX**



## Cooky Cutter Numerals

**A PRACTICE & ENRICHMENT BOX**



## Feely Box Three in a Row

**A PRACTICE & ENRICHMENT BOX**



## Numerals Floor Mat

**A PRACTICE & ENRICHMENT BOX**



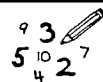
## Numerals Floor Graph

**A PRACTICE & ENRICHMENT BOX**



## Number Race

**A PRACTICE & ENRICHMENT BOX**



## Green Beans

**A PRACTICE & ENRICHMENT BOX**



## Crazy Crocodile

**A PRACTICE & ENRICHMENT BOX**



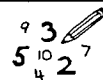
## Counting Jars

**A PRACTICE & ENRICHMENT BOX**



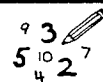
## Newspaper Numerals

**A PRACTICE & ENRICHMENT BOX**



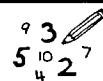
## Cooky Cutter Numerals

**A PRACTICE & ENRICHMENT BOX**



## Feely Box Three in a Row

**A PRACTICE & ENRICHMENT BOX**



## Numerals Floor Mat

**A PRACTICE & ENRICHMENT BOX**

# Shapes



## BOX IT OR BAG IT MATHEMATICS

Practice & Enrichment Boxes

**Donna Burk • Allyn Snider  
Paula Symonds**

Published by The Math Learning Center

**Box It or Bag It Mathematics, Practice & Enrichment Box:  
Shapes**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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# Getting Started

*Once you've introduced Shapes through a variety of group lessons (be sure to see Box It or Bag It Mathematics Teachers Resource Guide, Kindergarten, SHAPES), you will want children to practice and extend their understanding using the activities that follow in this packet. Here are a few things we've found helpful to remember for a successful Independent Practice Time.*

*Each Box is designed to be used by 1–6 children. Provide no more than 8–12 boxed activities at one time for a class of 30. Too many activities create more than tolerable chaos.*

*Model each activity thoroughly until children can tell you what to do, step by step. You'll find "box ingredients" and "playing instructions" for each activity in this packet. We use clear contact paper to attach them inside our box lids so WE can remember what goes in each box and how each game is played. Reading the directions would be too difficult for most primary children.*

*Resist the temptation to put out all your challenging Boxes at once—provide an equal balance of easy and hard. (If you set out too many difficult Boxes, all the children will need you at once and the noise level will be almost unbearable as your children try to cope with the stress of too many difficult tasks.)*

*As you construct these Practice and Enrichment Boxes, cover your box tops with the same design contact paper. That way, you'll be able to pull your Arithmetic Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from The Math Learning Center in three sizes: standard (9" X 12" X 2"), half size (9" X 6" X 1-7/8") and junk (4" X 7" X 1-1/8".) See the Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.*

*Remember the Boxes themselves can be used for group instruction. They are ideal for use by an aide or parent with small groups. Some of them can be easily adapted for use with your whole group.*

*During Independent Practice Time, it's critical that you be available and in circulation to make sure things go smoothly. Once routines even out, you'll have opportunities to observe individuals which are not afforded when you conduct group instruction. You can really spot children with problems or understandings beyond your predictions. See the next page for some Observation guidelines.*

*Be sure to see the Box It or Bag It Mathematics Teachers Resource Guide, INTRODUCTION, for more implementation strategies.*

## Shapes Observation Sheet

														Children's Names
														Works well with others, shares materials.
														Gets to work easily.
														Recognizes shapes and points to them when named.
														Names shapes.
														Creates shape designs, patterns and pictures
														Locates shapes in environment.
														Sorts shapes.
														Can draw simple shapes.

# General Making Instructions

*Many of the Boxes have similar game parts. Rather than repeat the making instructions for these every time, we've included them in this section. Many of the gameboards, spinner tops, and cards have been printed for you and are among the blacklines and cardstock included in this packet. We'll always indicate if game materials are in the packet.*

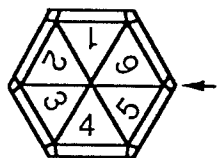
## SPINNERS

For each spinner you'll need:

- spinner top from blacklines
- two 6 X 6 squares poster or matte board, white or any light color
- one or two 1 X 1 squares poster or matte board (scraps work just as well as 1" squares and save a great deal of board)
- one regular-sized paper clip
- filament (strapping) tape
- clear contact paper

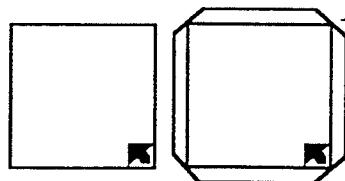
### To Do:

1. Glue printed spinner top to one of the 6 X 6 pieces of posterboard. Cut it out. (Many teachers have found that matte board is sturdier and lasts longer. Also, rather than cutting out a 6" square for the spinner top, a great deal of board can be saved by gluing all the spinner tops to a large piece of board and then cutting them out. (If you mass produce spinner tops, jot the name of each game by its spinner top so you can remember where it will go.)



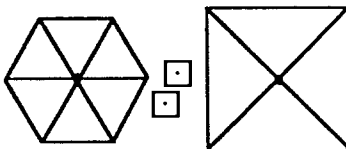
*Snip the edges of the contact paper so you can fold it under.*

2. Cut a piece of clear contact paper somewhat larger than the spinner top. Place the contact paper over the top. Snip the edges of the contact paper and turn them under the spinner top.



*Clip contact paper at the corner so you can fold it under*

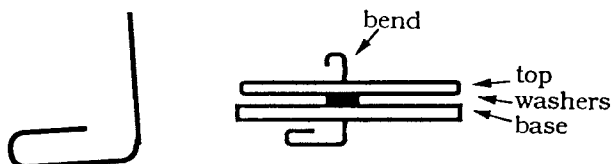
3. Draw a small arrow at the corner of the other 6 X 6 piece of railroad board. Cover the square with clear contact paper, turning the edges under.



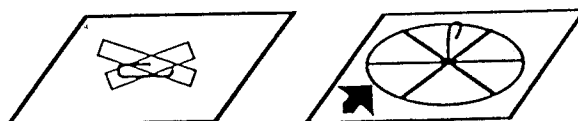
*Draw lines diagonally across the back of the 6 X 6 square to locate midpoint*

4. To assemble spinner, poke holes through the center of the 6 X 6 square, the 1 X 1 "washer" pieces, and the center of the spinner top.

5. Unfold a paper clip by pulling out the middle section and bending it upwards.



6. Poke it upward through the squares, the washers, and the spinner top.



7. Tape the paper clip with an "X" of filament tape to the back of the 6 X 6 square to hold the spinner together. Bend down the top point of the paper clip in front and wrap it with a small piece of filament tape to prevent injury. Be sure to label each spinner with the name of the game. Otherwise, cleanup can be challenging.



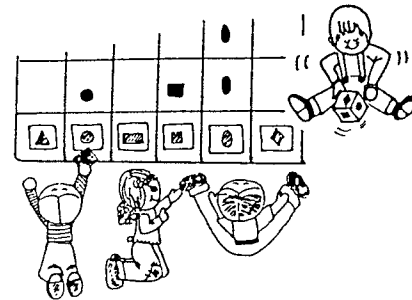


# Games and Activities

## Shapes Floor Graph (3-6 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, Shapes Floor Graph, for group introduction to this box.

**Box ingredients→** vinyl graph  
 shapes die  
 shapes packets (6)  
 standard box for storage



### PLAYING INSTRUCTIONS

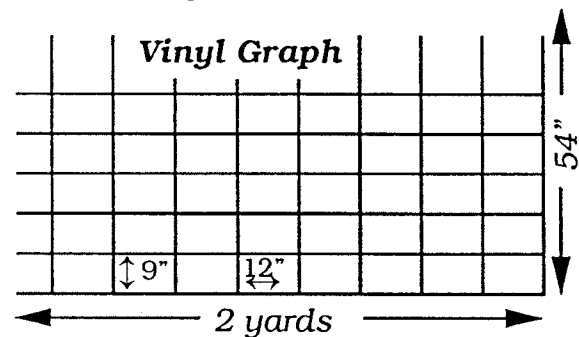
1. Children sit at the foot of each column of the vinyl graph. (A child may play more than one column if there are not six players.) Children lay their empty packets of shapes at the bottom of their columns and hold their shapes.
2. The "leader" rolls the die. Everyone calls out the shape rolled.
3. The child holding that shape places one in the bottom box of his or her column.
4. Play continues until one column is filled. Be sure to count shapes in all columns. Which is most and least? Are there more triangles or circles, etc.

Note to Teachers: The wonderful part of this activity is that children help one another so much. It's an excellent game to use as you first begin studying shapes.

### MAKING INSTRUCTIONS

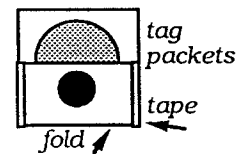
#### Vinyl Graph

Purchase two yards of 54"-wide, solid color vinyl. Section off the vinyl with a permanent marking pen. There will be six columns, each 12" wide. The boxes will be 9 X 12 in each column.



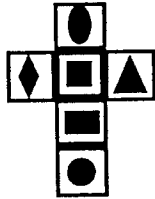
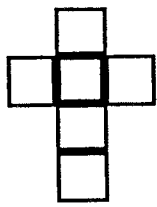
#### Shapes Packets (6)

Locate pattern sheet for Shapes Floor Graph in blacklines. Cut six of each different shape from railroad board or sturdy cardboard. Put each set in a tag board packet labeled with its shape.



#### Shapes Die

Cut six 2" square pieces of sturdy cardboard or railroad board. Construct the die as illustrated below.



1. Tape it together as shown.

2. Draw shapes on each surface.  
3. Cover with clear contact paper.  
Trim extra edges.

4. Fold up to form cube.  
5. Tape edges.

Store die, shapes packets and vinyl graph in a standard box.

## Feely Box Shapes (2-4 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, Feely Boxes, for group introduction to this box.

**Box ingredients→** feely boxes (4)  
shape cut-outs (4 sets)  
spinners (3)  
standard box for storage



### PLAYING INSTRUCTIONS

1. Choose which spinner you will use. Take the feely boxes and check to be sure they have the needed shapes inside.
2. Take turns to spin the spinner.
3. Find the shape in your sock box (don't peek!) by feeling for it. Keep it hidden in your hand until every player is ready to show it. It's wonderful when every player finds the shape!
4. Play continues as long as children are interested.

### MAKING INSTRUCTIONS

#### Feely Boxes (4)

Save cat food cans or tuna cans. Wash thoroughly. Leave the bottoms in and, with a hammer or pliers, smooth down any sharp or rough edges at the top. Purchase two pair of children's very stretchy socks. Slip each can into a sock. Presto—feely boxes!

#### Shape Cut-outs (4 sets)

Use the patterns from the Feely Box Shapes blackline to help you cut out shapes from sturdy cardboard. You'll need four of each shape.

#### Spinners (3)

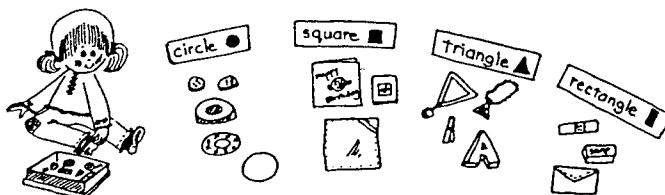
Locate Feely Box Shapes spinner tops in blacklines. Assemble as directed in General Making Instructions. Store spinners, shape cut-outs and feely boxes in a standard box.

---

## Shapes Sorting (1-2 Children)

---

**Box ingredients→**    sorting items  
                                 sorting cards (4)  
                                 half box for storage



**Squares:** block, unifix cube, die, photo slide, book, etc.

### PLAYING INSTRUCTIONS

1. Set out sorting cards.
2. Study each sorting item and put it in the group where you think it fits.
3. When you are finished, show an adult your work.

### Sorting Cards (4)

Use 3 X 8 strips of tag to make cards. Laminate or cover cards with clear Contact. Store cards and sorting items in a half box.

### MAKING INSTRUCTIONS

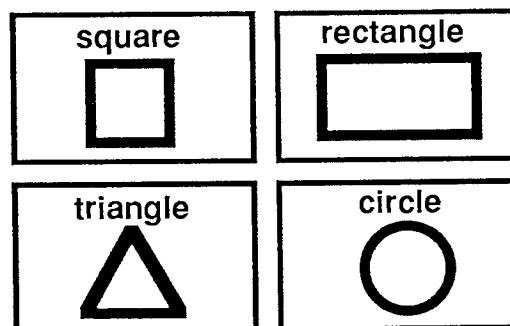
#### Sorting Items

Go through your drawers, closets and cupboards and gather two- and three-dimensional items such as—

**Rectangles:** bar of soap, eraser, small box, birthday cards, letter, book, etc.

**Triangles:** old jewelry, swimming pool tile pieces, buttons, etc.

**Circles:** button, washer, large head screw, jingle bell, trim ball, seeds, lids, margarine tub, saucer, etc.



Note: Children could bring things from home to enhance the sorting collection.

---

## Shapes Lotto (1-2 Children)

---

**Box ingredients→**    lotto boards (4)  
                                 leader cards (16)  
                                 game markers (80)  
                                 standard box for storage



### PLAYING INSTRUCTIONS

1. Leader holds up shape card.
2. All players say color and name of shape, i.e., "red circle".
3. Each child locates the shape on his/her lotto board and covers it with a black square.
4. The first child with four in a row wins.

### MAKING INSTRUCTIONS

#### Lotto Boards (4) and Leader Cards (16)

Locate Shapes Lotto boards in the cardstock portion of this packet. The Leader Cards are printed, also, on these sheets. Color in the shapes. Have *all* circles be one color, etc., on every board. Color the leader cards in the same colors as you've chosen for the boards. Cut apart the leader cards.

**Game Markers (80)**

Clear plastic round game markers (available from The Math Learning Center) are ideal but any small counters will do. Store in a junk

box. Store boxed game markers, leader cards, and lotto boards in standard box.

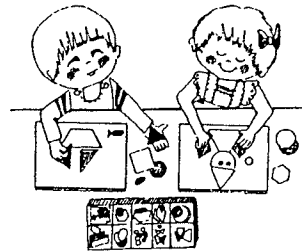
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## Felt Shapes (1-2 Children)

---

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, Felt Shapes, for group introduction to this box.

**Box ingredients→** cut felt shapes  
flannel boards (2)  
standard box for storage

**PLAYING INSTRUCTIONS**

Children create designs, patterns, etc., on flannel boards.

Note to teachers: Don't be shocked when the children, day after day, seem to do nothing more than cover every inch of the flannel board with a hodgepodge of shapes. Eventually when this has run its course, they do wonderfully creative things. Apparently, the hodgepodge approach is a must.

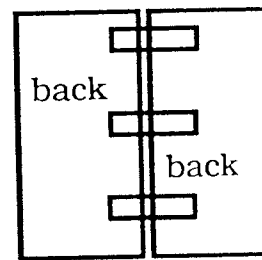
**MAKING INSTRUCTIONS****Cut Felt Shapes**

Purchase ten colored squares of felt. Use the Felt Shapes patterns in blacklines to cut a wide variety of colored shapes from your felt.

**Flannel Boards (2)**

Cut four 6 X 11-1/2 pieces of sturdy cardboard.

Cover each piece with dark solid-colored flannel (1/3 yard of flannel will be more than adequate). Dab edges with glue. Tape all edges firmly with filament tape. Hinge boards at the back with several pieces of filament tape to create two folding flannel boards. Store boards and cut felt shapes in standard box.



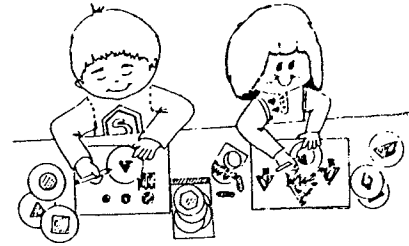
*Leave a small margin so board will fold easily*

---

## Shape Templates (1-4 Children)

---

**Box ingredients→** templates (15-20)  
pencils  
paper  
standard box for storage



### PLAYING INSTRUCTIONS

Children use templates, pencils and paper to copy shapes, create designs or patterns, and even realistic pictures. Be sure to make crayons available, too.

### MAKING INSTRUCTIONS

#### Templates (15-20)

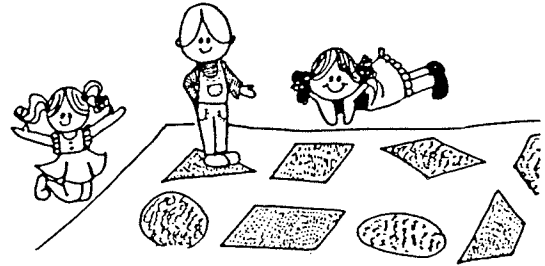
Save clear lids from margarine tubs and other

small plastic containers. Trim the rims off so you're left with clear plastic circles. Each lid will be the template for one shape, so the more lids you can gather and cut, the more interesting this activity will be. Locate the Shape Templates pattern page in the blacklines, and cut it apart. Tape each shape to a lid and cut it out with a single edge razor blade, an Exacto knife or very sharp scissors. (Curved shapes have to be cut with scissors.) Store templates, pencils, and paper in a standard box.

## Shapes Mat (2-4 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, The Shapes Mat, for group introduction to this box.

**Box ingredients→** shapes mat  
memory cards (3 sets)  
spinner  
standard box for storage



### PLAYING INSTRUCTIONS

#### Spinner Variation

1. Children sit around outside edges of mat.
2. Child who will jump on shapes has shoes off (socks on).
3. Leader spins the spinner; all children call out color and shape name, "blue square", and jumper jumps to appropriate spot. (Don't let this be a testing time. Everyone helps—everyone learns!) Continue with each jumper for four or five turns.

#### Memory Cards Variation

1. Children stand around outside edges of mat.
2. One child is eagerly waiting turn in stocking feet at end of mat.
3. Leader holds up memory card. (There are two-shapes, three-shapes, and four-shapes memory cards. Hold up cards of appropriate difficulty for each jumper.)
4. Jumper *plans* how and where to jump as group reads card aloud, "red circle, blue square, orange triangle". Once he/she begins to jump, encourage smooth rhythmic movements. The goal here is to help children plan more than one move as well as recognize shapes and colors.
5. Each child jumps one memory card and returns to edge of the mat. The pace here is quick and fun!

### MAKING INSTRUCTIONS

#### Shapes Mat

You'll need 1-1/2 yards of dark cotton blend fabric, 8 squares of felt or fake fur in assorted colors, and Shapes Mat patterns from blacklines. Pre-wash cotton fabric. Cut out felt or fur shapes using patterns. Arrange the cut shapes on background fabric so they are comfortable jumping distances apart. Sew or glue each shape to the backing.

#### Memory Cards (3 sets)

Locate the three sets of Shapes Mat memory cards in the cardstock portion of this packet. Color the shapes to match your mat. Laminate or Contact. Punch hole in upper corner and put each set on a binder ring.

#### Spinner

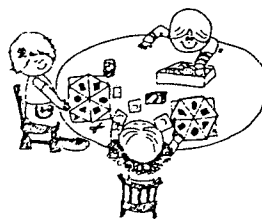
Locate Shapes Mat spinner top in blacklines. Assemble as directed in General Making Instructions, but use an 8-1/2" square of sturdy cardboard for a base and a 2" square "washer". Store the spinner and memory cards in a standard box. You may need to store the mat separately—it's fairly bulky.

---

## Shapes, Spinners and Scissors (1-4 Children)

---

**Box ingredients→** spinners (2)  
scissors (4 pairs)  
shapes to cut  
envelopes  
standard box for storage



### PLAYING INSTRUCTIONS

1. Spin the shapes spinner. Look through the box of shapes to find the shape you need.
2. Cut out the shape and put it into your envelope.
3. Spin and cut until your envelope has lots of shapes.
4. Compare your shapes with your friends.
5. Clean up your paper scraps.

### MAKING INSTRUCTIONS

#### Spinners (2)

Locate the Shapes, Spinners and Scissors

spinner tops in blacklines. Assemble as directed in General Making Instructions.

#### Shapes to Cut

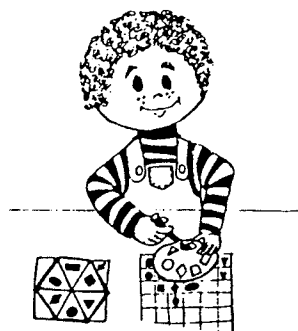
Locate the Shapes, Spinners and Scissors shapes sheet in the blacklines. Make a thermofax and then run dittoed copies on pastel construction paper. Cut shapes apart on section lines and place in box. (Children will be looking through a boxful of multiple shapes to find the single shape they need.) Store shapes to cut, spinners, scissors and envelopes in a standard box.

---

## Templates and Spinners (1-4 Children)

---

**Box ingredients→** spinners (2)  
record sheets  
templates (4)  
pencils  
standard box for storage



### PLAYING INSTRUCTIONS

1. Spin the spinner. Be sure you take turns with the spinner.
2. Draw the spun shape on your graph using your template.
3. Keep spinning and drawing until one shape column is filled.
4. Compare it with your other columns. If you do another paper, do you think that shape will win again? Try it!

5. If you do more than one paper, staple your pages into a book.
6. Show your finished work to your friends and a grown-up.

### MAKING INSTRUCTIONS

#### Spinners (2)

Locate the Templates and Spinners spinner tops in blacklines. Assemble as directed in General Making Instructions.

### Record Sheets

Locate Templates and Spinners record sheet in blacklines. Run copies.

### Templates (4)

Gather four Cool Whip plastic lids (or any large smooth clear plastic lids). Trim the rims off so you're left with flat, clear plastic circles.

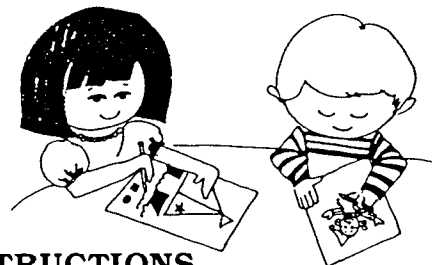
Tape shape drawings (in blacklines with spinner tops) on lid. Cut out shapes with a single edge razor blade or an Exacto knife. (Curved shapes need to be cut with very sharp scissors.) Store templates, record sheets, spinners and pencils in a standard box.

---

## What's Missing? (1-4 Children)

---

**Box ingredients→** black Vis-a-Vis or overhead projector pens (4)  
game cards (12)  
half box for storage



### PLAYING INSTRUCTIONS

1. Choose a card. Study it carefully to see what's missing.
2. Circle the shape at the bottom of your card that you think is missing.
3. Can you draw the missing shape into the picture?
4. How many cards can you do?
5. Be sure to show a grown-up and tell them about your work when you're finished.

### MAKING INSTRUCTIONS

#### Game Cards (12)

Locate What's Missing? game cards in the cardstock portion of this packet. We suggest you leave these black and white as children feel they're adding the final touch with their black pens. Laminate or cover with clear Contact paper. Store cards and pens in a half box. Be sure to have damp and dry paper towels available when children are using this activity during Independent Practice Time.

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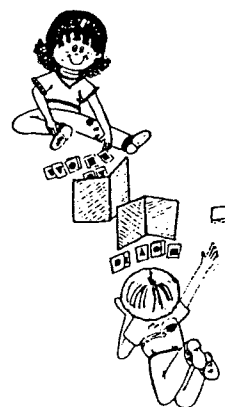
## Rotten Rectangle (2-4 Children)

---

**Box ingredients→** game cards (27)  
manila file folders (4)  
standard box for storage

### PLAYING INSTRUCTIONS

1. Put all cards face down in a pile and mix them up.
2. Pass out all cards, one by one, to each player.
3. Set up your cards using your file folder as a "shield". Look them over carefully. If you have any "partners", put them in the middle. Can you say the shape names and colors?



4. When every player has set out their partners, take turns selecting a card from the person



next to you in the circle, just like "Old Maid".

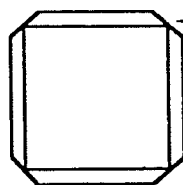
5. The last person holding Rotten Rectangle wins or loses—the children decide.

## MAKING INSTRUCTIONS

### Game Cards

Locate Rotten Rectangle game cards in the cardstock portion of this packet. Color each pair of shapes in colors you want your children to be able to name, e.g., two small orange circles,

two large green triangles, etc. Laminate or cover with clear Contact.



*Clip contact paper at corners so you can fold it under.*

Store game cards and manila folders in a standard box.

---

## Shapes Search (1–4 Children)

---

- Box ingredients→** game cards (2)  
numberline helper cards (2)  
Vis-a-Vis or overhead projector pens (4)  
standard box for storage



## PLAYING INSTRUCTIONS

Children use pens to search for each shape, marking with a dot or small "X" as they find them. They record the number of each shape found on their game card.

Note: Be sure to have the numberline helper cards out. They are quite helpful.

The purpose of this activity is to help children become aware of the shapes in their world. Please don't worry about "right" answers. It is a genuine joy when you sit down with a child and he or she shows you how the counting was done. They so often show you things you would not have seen and give you so many insights into their perceptions of counting and searching for shapes.

## MAKING INSTRUCTIONS

### Game Cards (12)

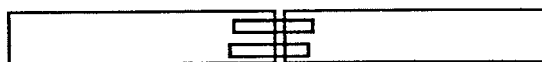
Locate the Shapes Search game cards in the cardstock portion of this packet. Color with

light crayon or water-based felt pens. Laminate or cover both sides with clear Contact paper.

### Numberline Helper Cards (2)

Locate Numberline Helper Cards in the cardstock portion of this packet. Laminate or cover with clear Contact paper. Hinge them on the back side with tape. (These serve as models to help the children see which direction the number faces. It also helps any child who is learning numerals to find the one he or she wants to use.)

*numberline helper cards*



*back side*

Store Numberline Helper cards, gamecards and pens in a standard box. Be sure to have damp and dry paper towels available when children are using this activity during Independent Practice Time.

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## Shapes Race (2 Children)

---

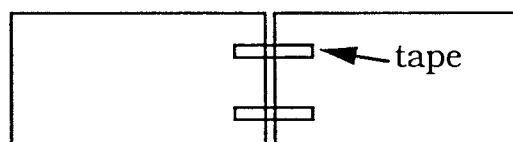
**Box ingredients**→ gameboard  
spinner  
game markers (2)  
standard box for storage



### PLAYING INSTRUCTIONS

1. Set up gameboard.
2. Place markers on "go" arrow.
3. Take turns spinning spinner. If the spinner should point to a square, the player who spun moves to the first available square.
4. The first person to arrive at the "Winner" rectangle wins the game.

desired, the same colors used on your spinner, squares—red, etc. Laminate or Contact on both sides. Hinge with filament tape on back sides, connecting gameboards where Shapes Race names touch.



*back side of gameboards*

### Spinner

Locate Shapes Race spinner top in the blacklines. Color (if desired) every shape in its own color, squares—red, etc. Assemble as directed in General Making Instructions.

### Markers (2)

Use two big colored buttons or two different colored unifix cubes for markers. Store markers, spinner and gameboard in a standard box.

### Gameboard

Locate Shapes Race gameboard in the card-stock portion of this packet. Color the shapes, if

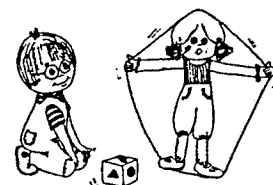
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## Elastic Shapes (2–4 Children)

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See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, Elastic Shapes, for group introduction to this box.

**Box ingredients**→ elastic loops (4)  
shapes die  
half box for storage



### PLAYING INSTRUCTIONS

1. Get an elastic loop.
2. Have someone roll the die.

3. Everyone names the shape.
4. Make the shape with your elastic. If you can't make it alone, could you make it with a partner?

5. After you've made many shapes alone, try making all the shapes with a partner.

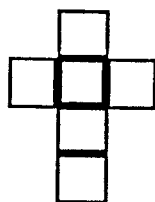
## MAKING INSTRUCTIONS

### Elastic Loops (4)

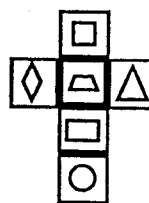
Purchase 8 yards of 1" wide elastic at a fabric store. Cut it into 2 yard lengths. Sew it very firmly into loops.

### Shapes Die

Cut six 1-1/2" squares of railroad board. Using scotch tape or narrow filament tape, join die as illustrated.



1. Tape it together as shown.



2. Draw shapes on each surface.  
3. Cover with clear Contact paper.  
Trim extra edges.



4. Fold up to form cube.  
5. Tape edges.

Note: A hazard of this activity is that the die occasionally gets stepped on. The sturdier the cardboard you choose, the better chance it has of survival!

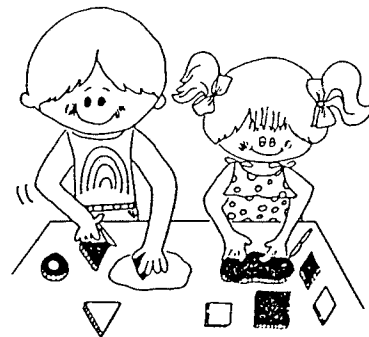
Store shapes die and elastic loops in half box.

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## Play Dough Shapes (1-4 Children)

---

**Box ingredients→** rolling pins (4)  
solid Bakers Dough shapes (10)  
play dough (2 tubs)  
plastic knives (4)  
standard box for storage



## PLAYING INSTRUCTIONS

1. Choose a solid dough shape.
2. Roll out some play dough with your hands and your rolling pin.
3. Form a shape just like the solid shape you chose.
4. Show it to a friend.
5. Can you form more shapes?

## MAKING INSTRUCTIONS

### Rolling Pins or Doweling (4)

Purchase small rolling pins at a toy store or find someone to cut 5" lengths of 1" wooden doweling (purchased at a lumber store).

### Solid Bakers Dough Shapes (10)

Mix thoroughly 3 cups white flour and 1 cup salt. Add 1-1/4 to 1-1/2 cups of water. Mix until

moist throughout. Knead on floured surface about five minutes until it is smooth and no longer sticky.

Roll it out about 1/2" thick. Form the following solid shapes or more:

- two rectangles, each a different size
- two triangles, each a different type
- two squares of different sizes
- one circle
- one doughnut-type circle
- one oval
- one diamond

If your shapes look like they will crack, smooth them lightly with a bit of water. (Some will split in baking anyway, but the children won't mind.)

Bake 1-1/2 to 2 hours at 300 degrees.

Note: Plastic or wooden shapes could be used instead.

### Play Dough (2 tubs)

Mix following dry ingredients thoroughly:

- 2 cups white flour
- 1 cup salt
- 1 tablespoon of powdered alum (available in spice section of many grocery stores)

Boil:

- 2 cups water
- 2 tablespoons of salad oil
- food coloring
- flavoring extract, if desired, for a nice fragrance

Add boiling ingredients to dry ingredients. Mix thoroughly. Don't worry yet about the lumps.

Let it cool until it can be easily handled. Knead for about five minutes until it is completely smooth. Let it continue to cool until all warmth is gone. At that time, seal it into margarine tubs. It will last weeks and weeks unless the lids get left off.

### Plastic Knives (4)

Get a small package of durable plastic knives in the picnic section of your grocery store. Store knives, margarine tubs of playdough, solid bakers dough shapes and rolling pins in a standard box.

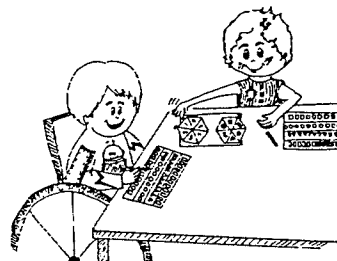
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## Spin and Count (2 Children)

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See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, CHAPTER 15, Spin and Count, for group introduction to this box.

**Box ingredients→** double spinner  
gameboards (2)  
Vis-a-Vis or overhead projector pens (2)  
standard box for storage



### PLAYING INSTRUCTIONS

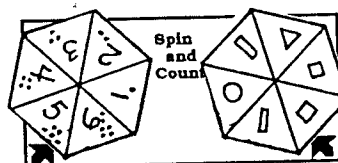
Take turns to:

1. Spin both sides of the double spinner.
2. Mark off appropriate number of shapes indicated by the spinners.
3. The first person who completely fills his or her shape board wins.

### MAKING INSTRUCTIONS

#### Double Spinner

Cut a sturdy piece of cardboard 5 X 10-1/4. Use spinner tops from blacklines. Follow spinner assembly directions in General Making Instructions but mount tops on base as pictured.



*Edge of spinner overlaps spinner base about an inch (both sides).*

*Draw an arrow in each corner.*

#### Gameboards (2)

Locate Spin and Count gameboards in the cardstock portion of this packet. Laminate or cover with clear Contact paper. Store gameboards, double spinner, and pens in a standard box. Be sure to have damp and dry paper towels available when children are using this activity during Independent Practice Time.

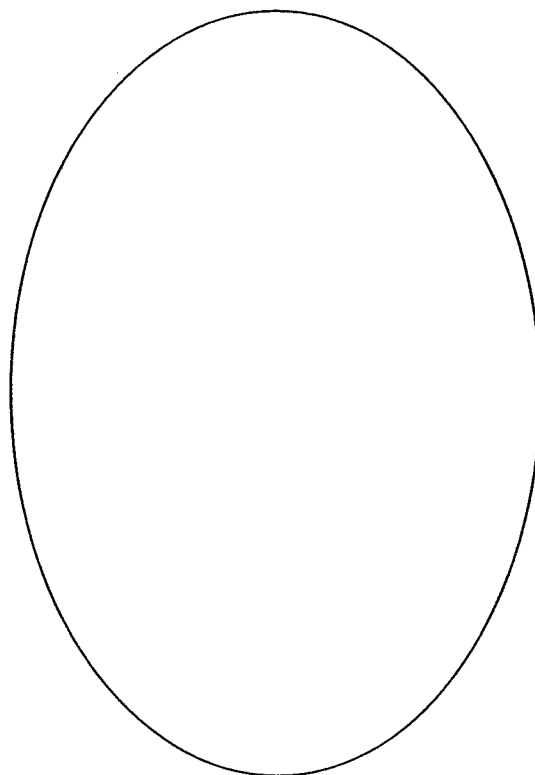
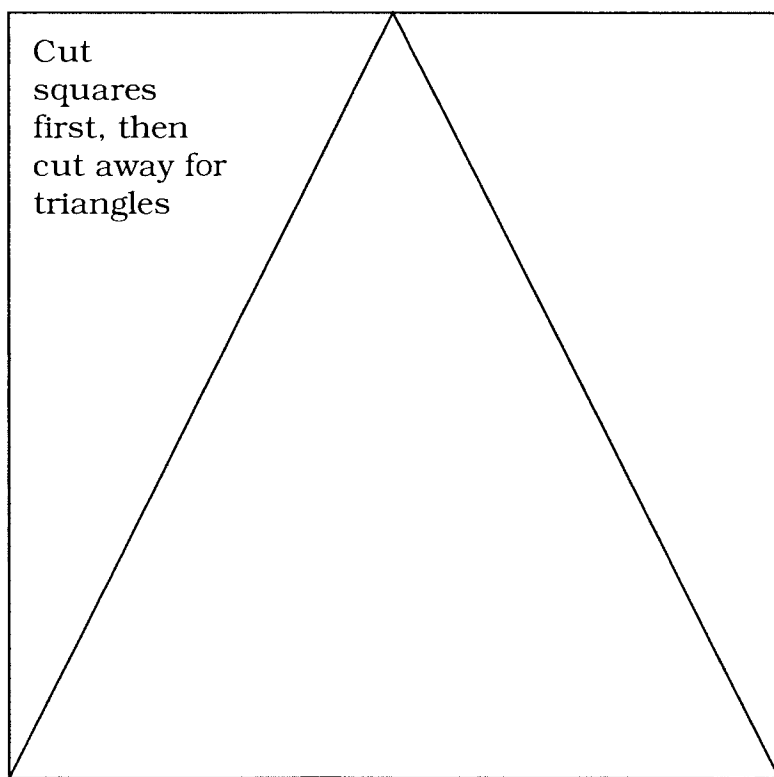
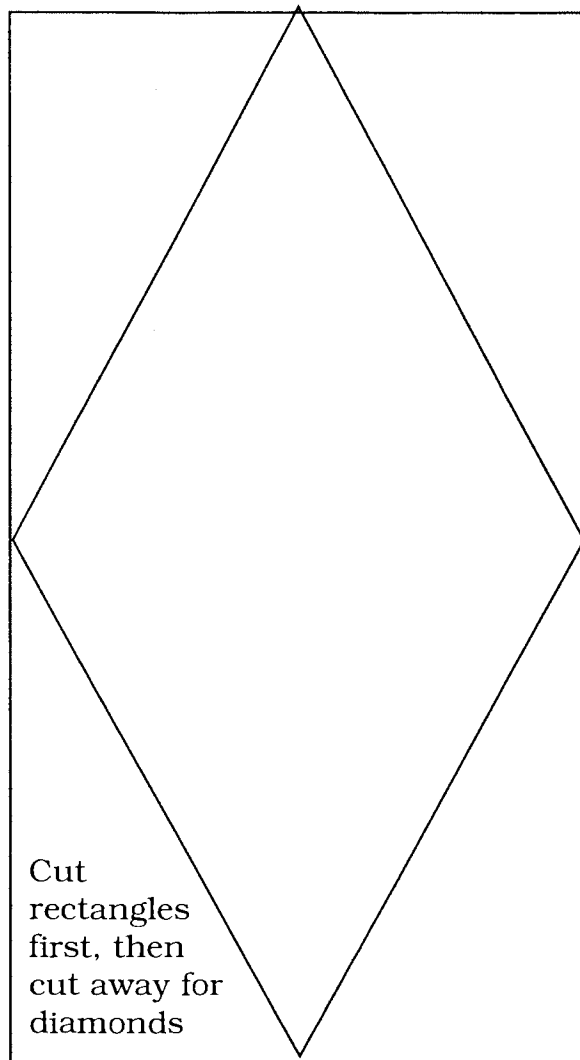
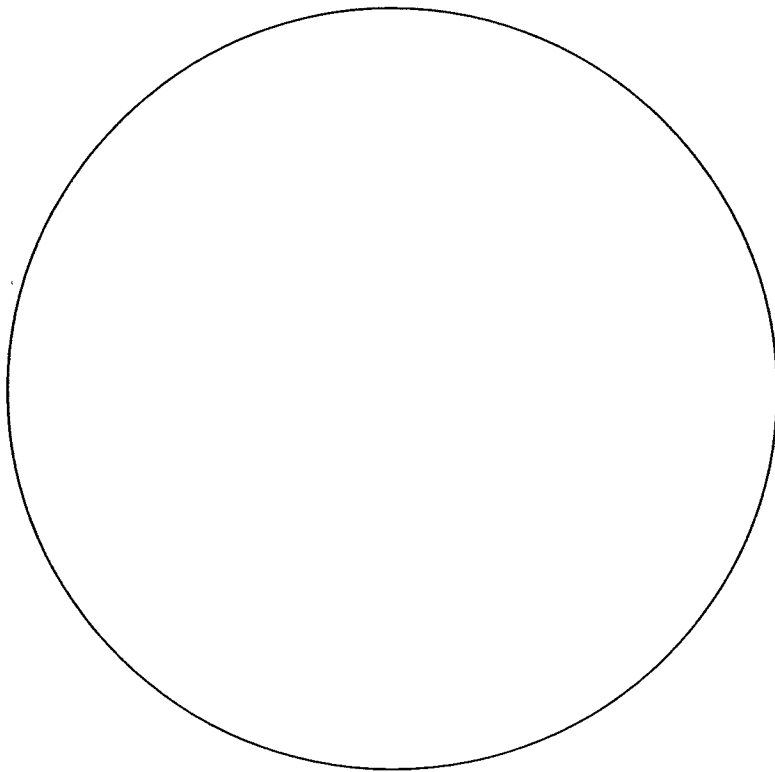
# Blacklines

Patterns, cards, spinners, and other materials you'll make for the  
Practice & Enrichment Boxes described in this packet.

## Shapes Floor Graph

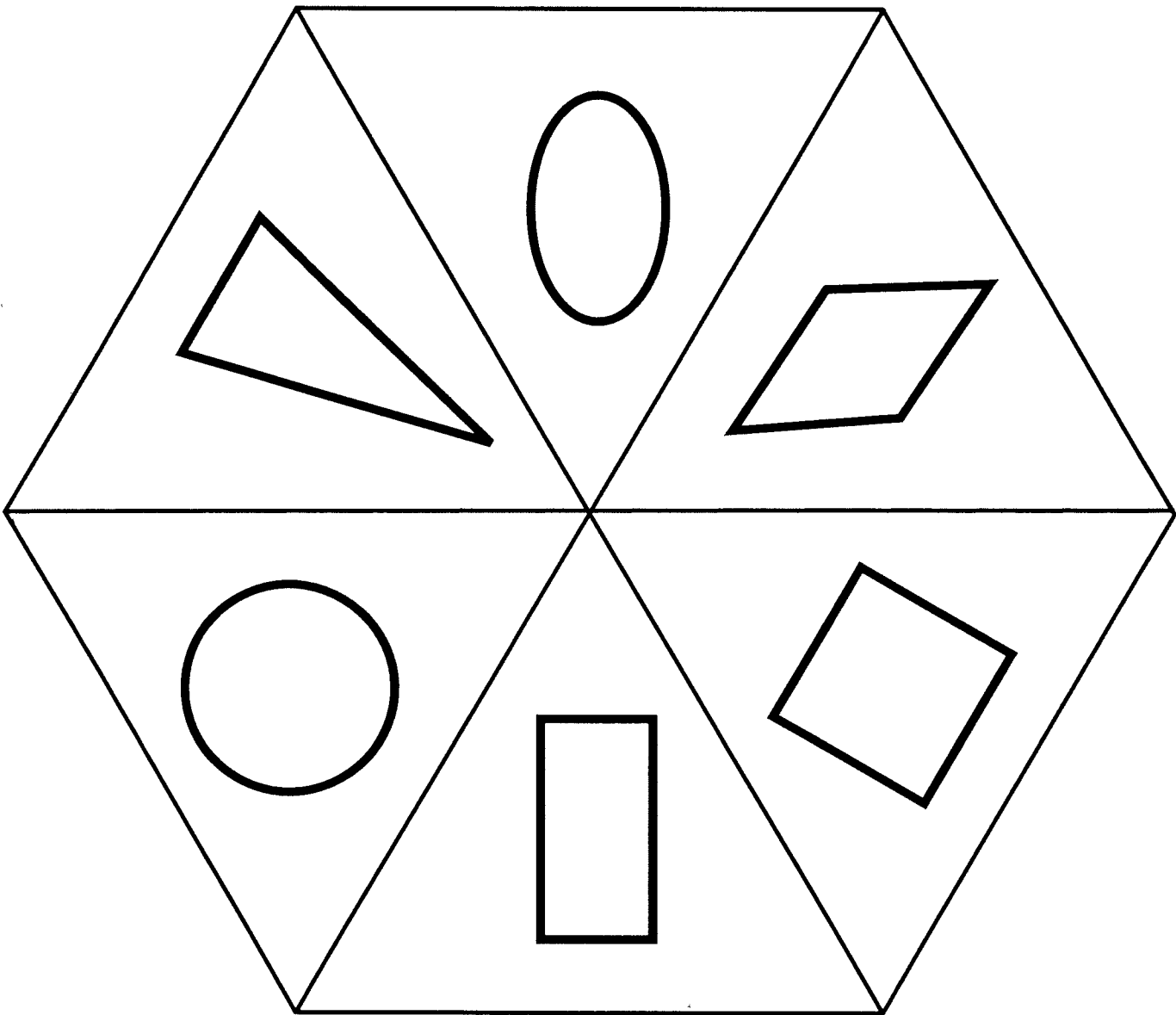
Patterns to cut shapes for each packet

Cut 6 of each shape

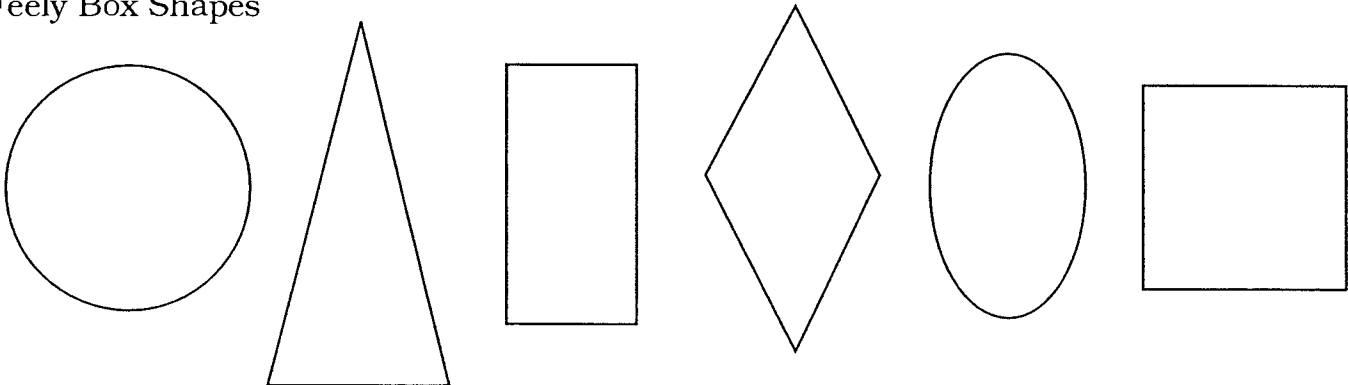


**Feely Box Shapes Spinner Top**

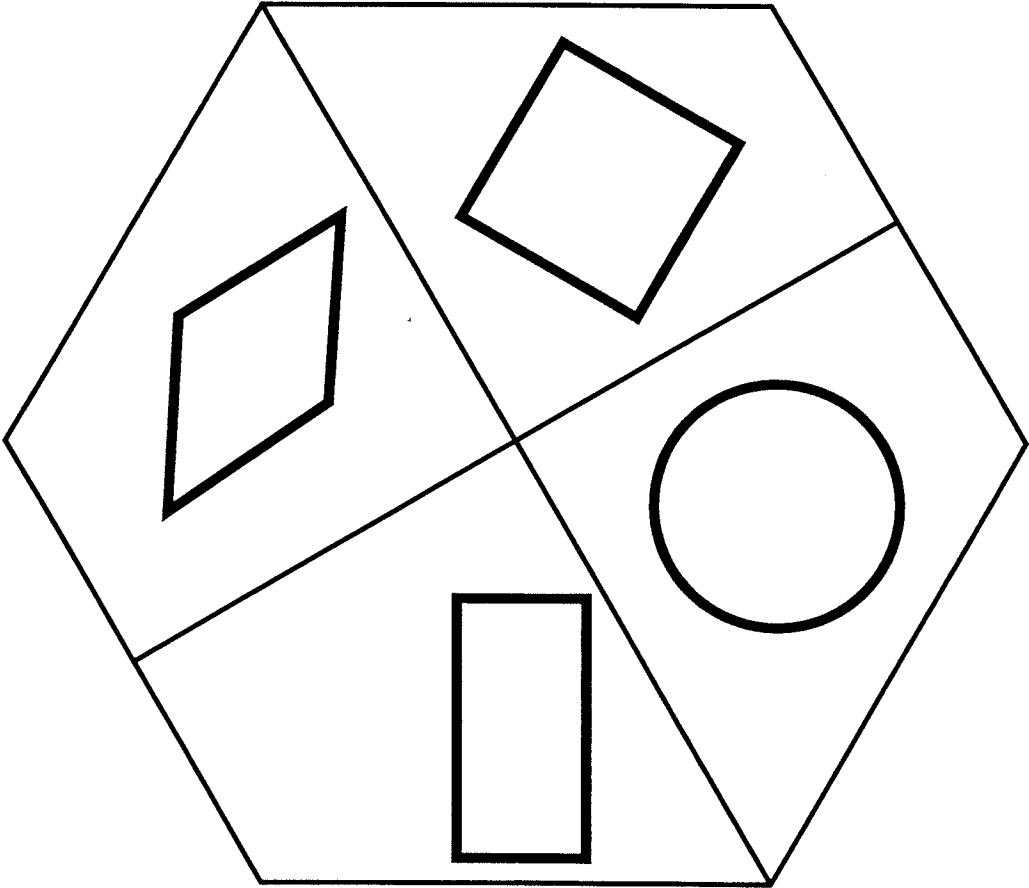
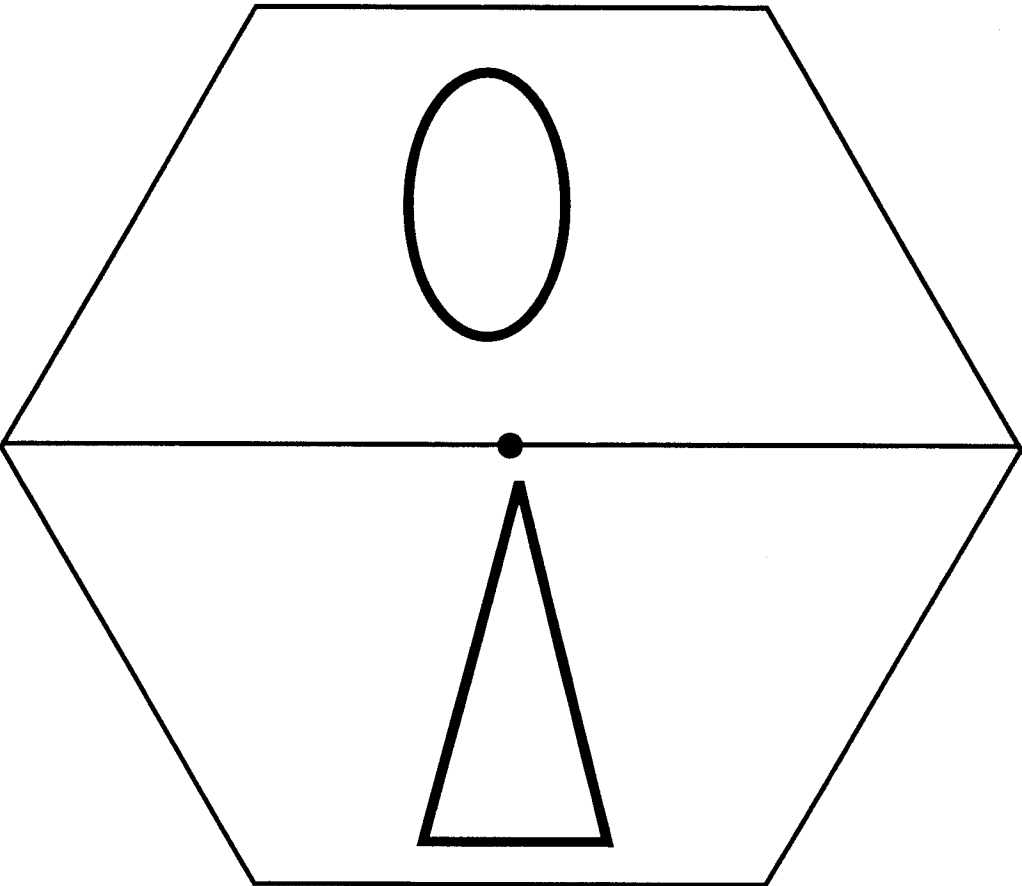
Make up all 3 spinners (pages 17 and 18 ).  
Children choose level of difficulty.



Patterns for cutting out  
Feely Box Shapes



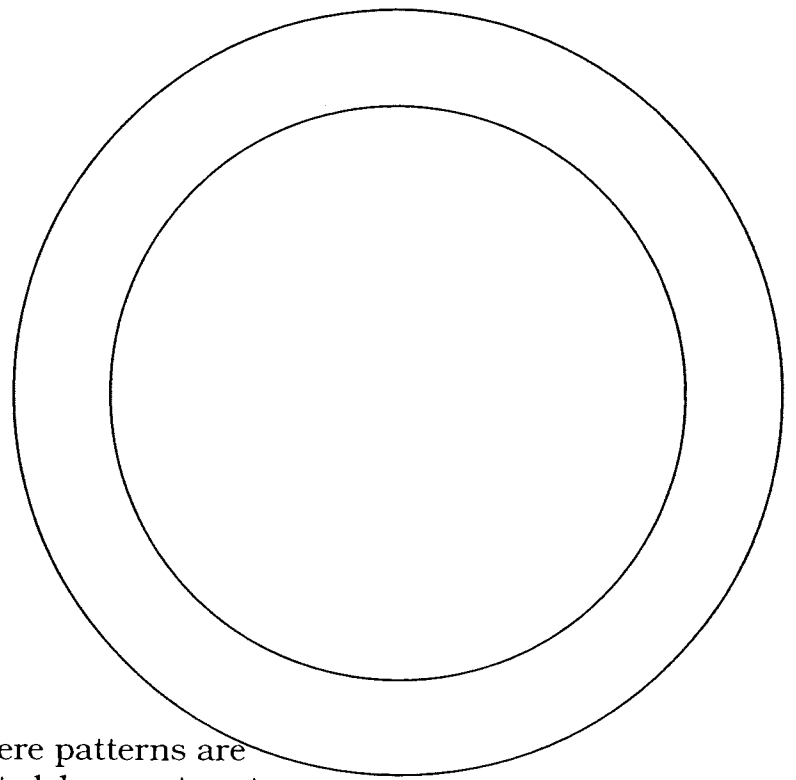
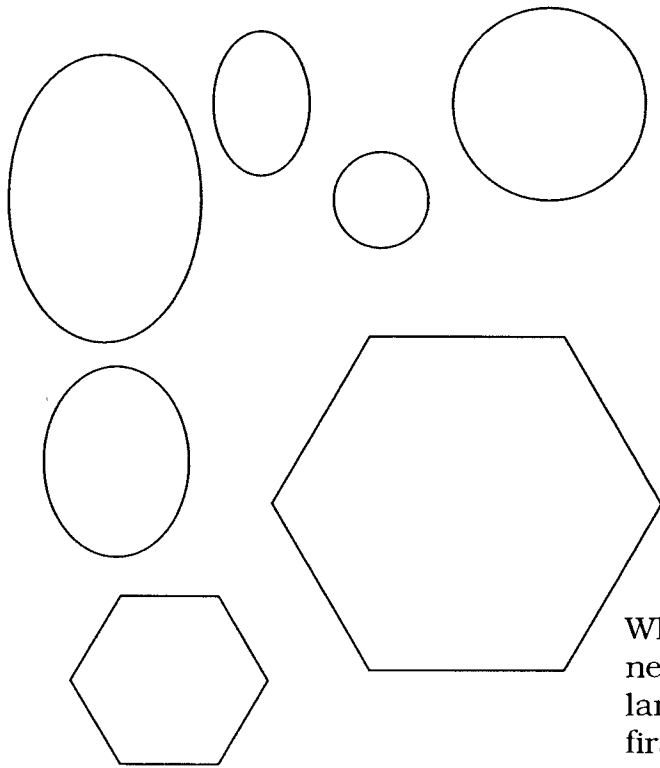
**Feely Box Shapes Spinner Tops**



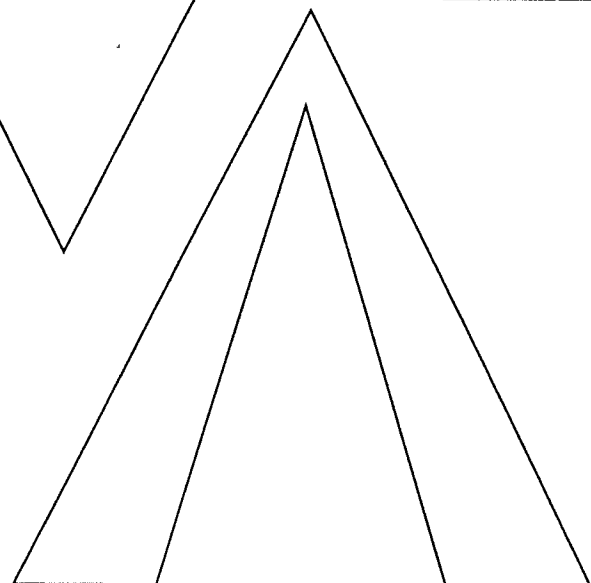
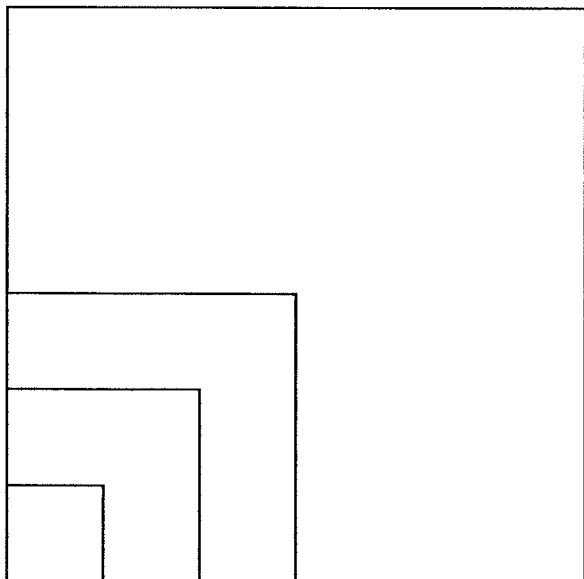
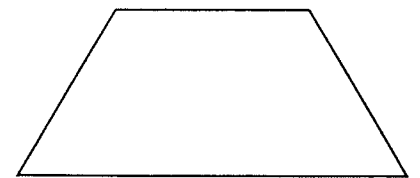
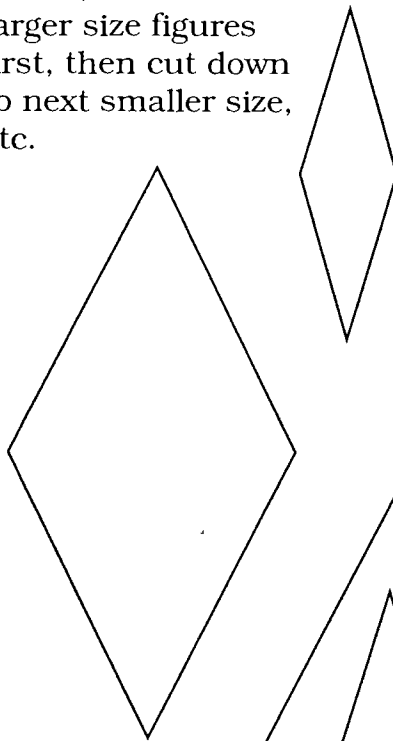
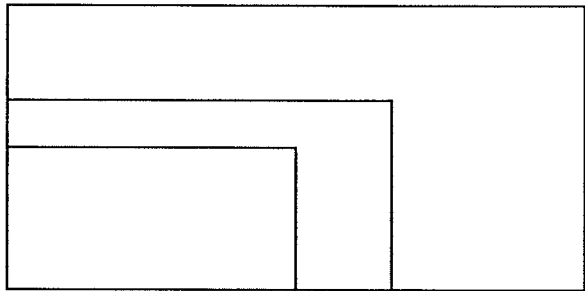


## Felt Shapes

Shapes to use for cutting felt

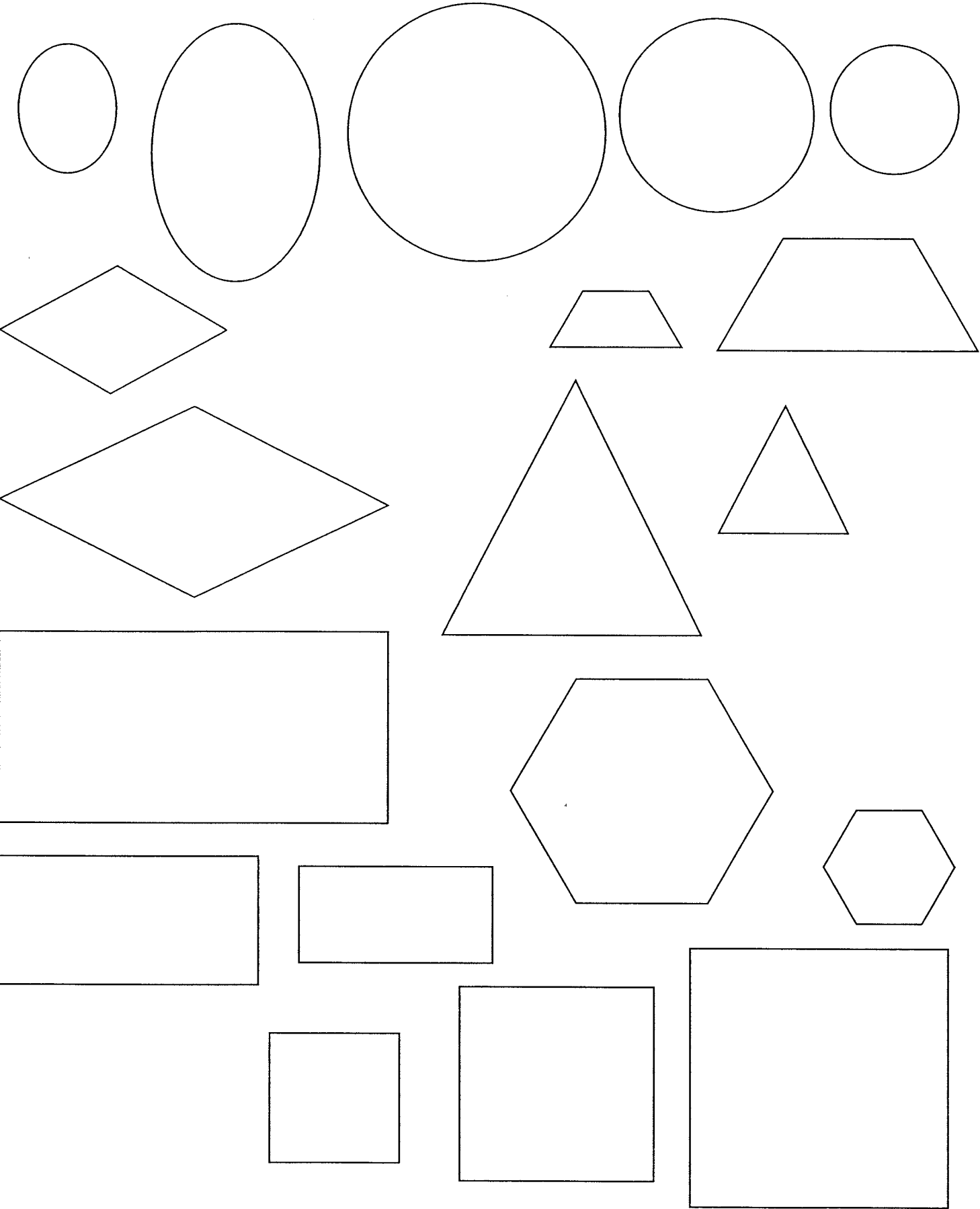


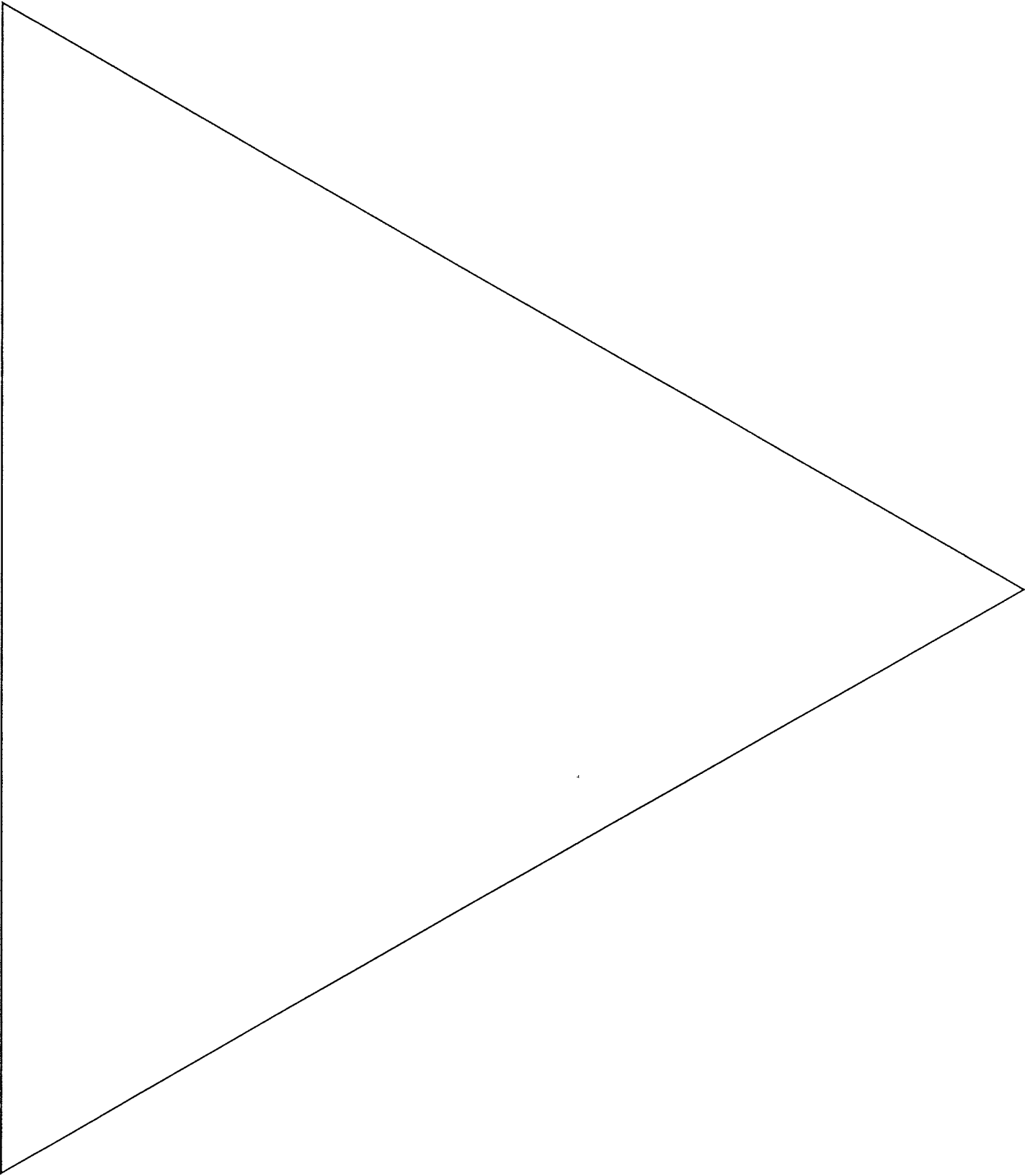
Where patterns are nested, be sure to cut larger size figures first, then cut down to next smaller size, etc.



**Shapes Templates**

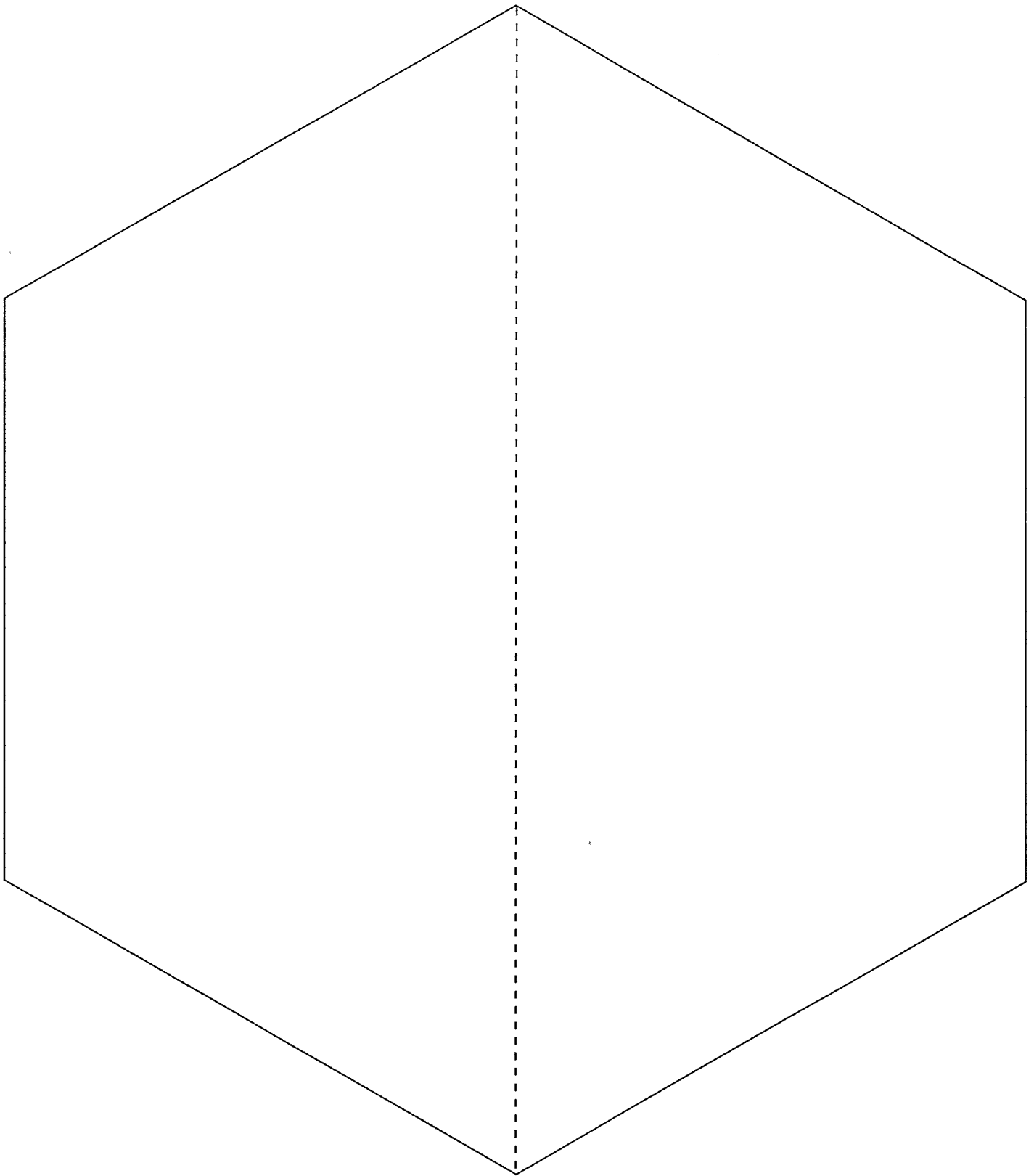
Shapes to help you cut individual templates  
from small margarine lids.

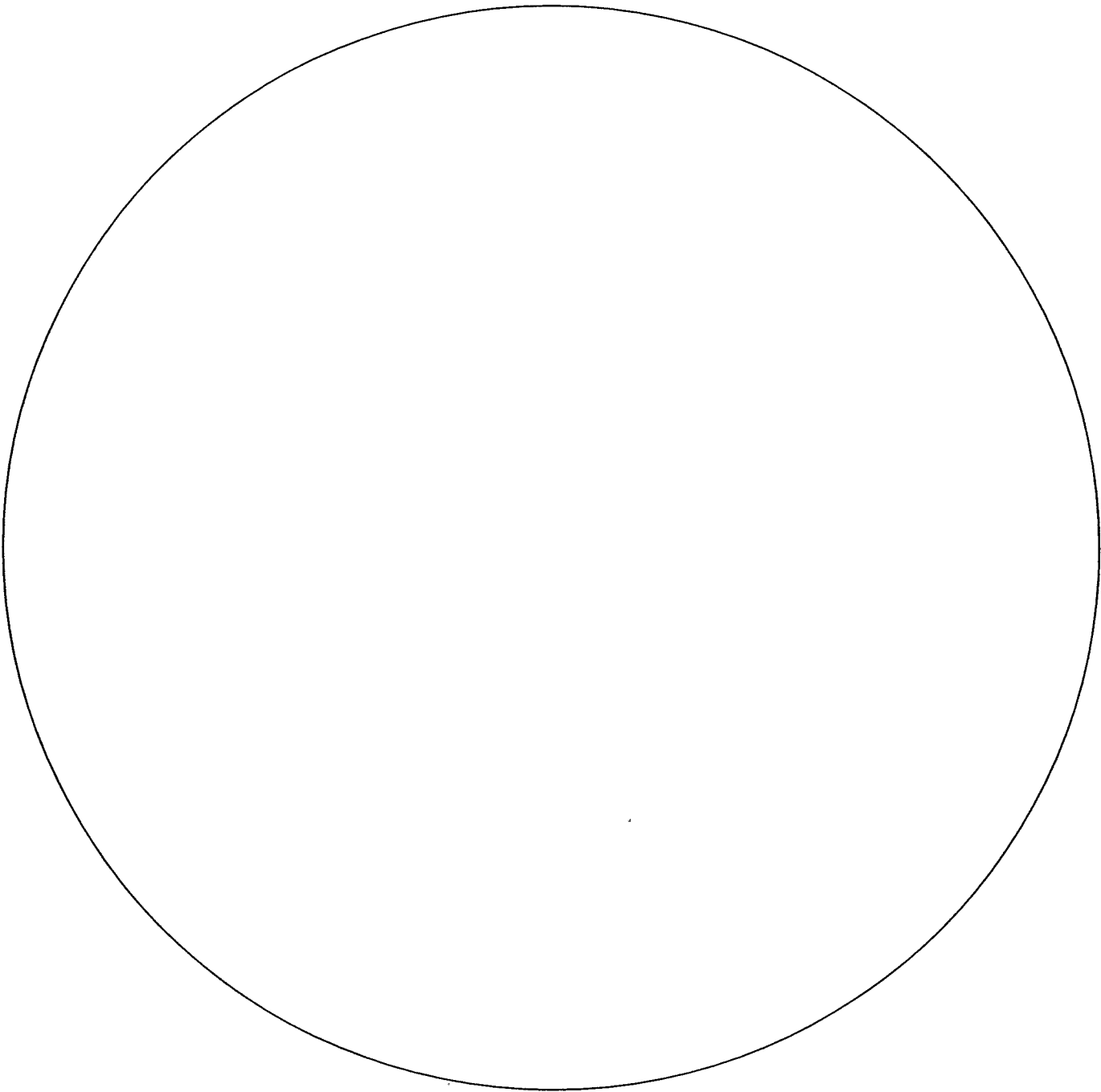


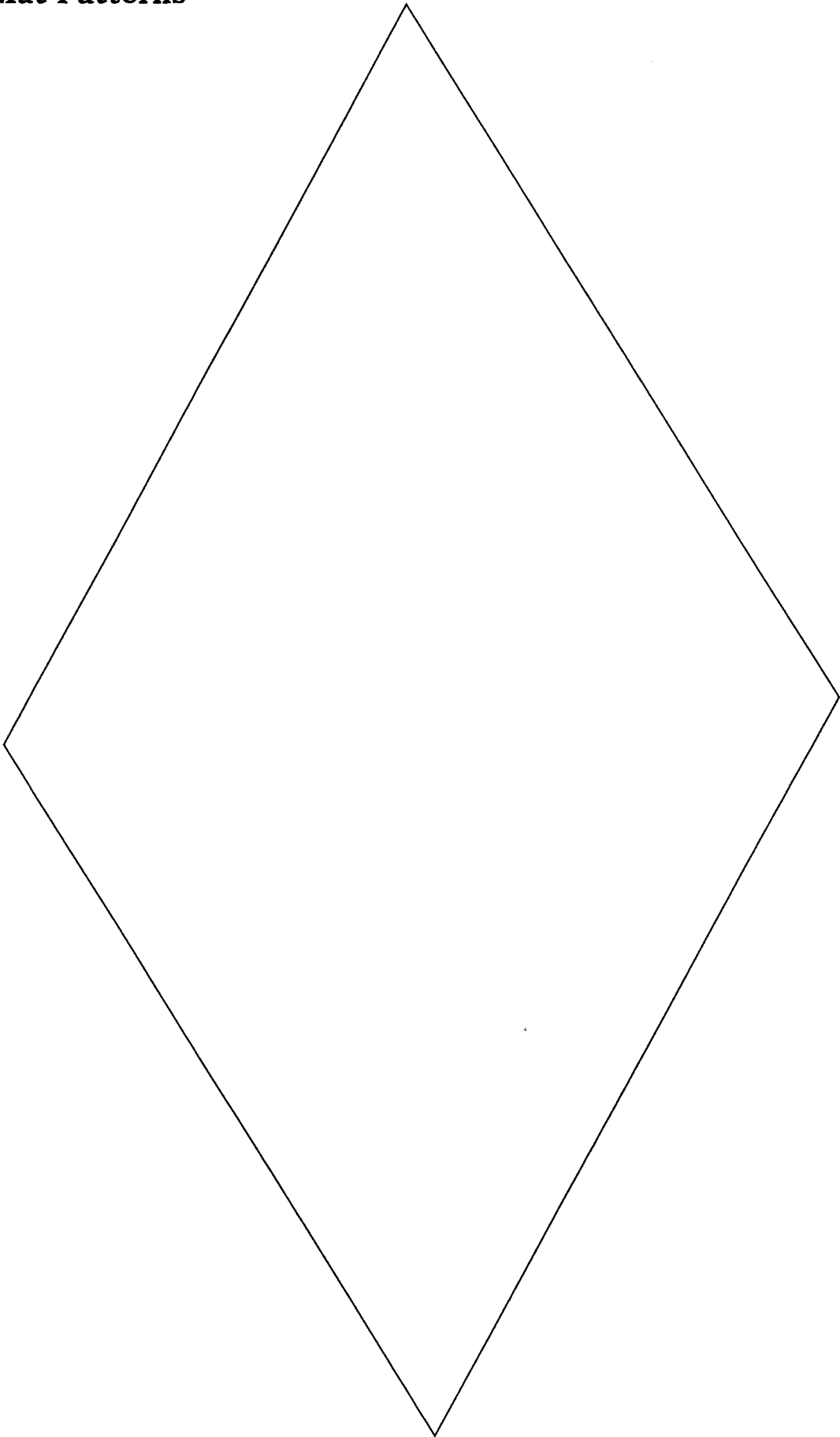


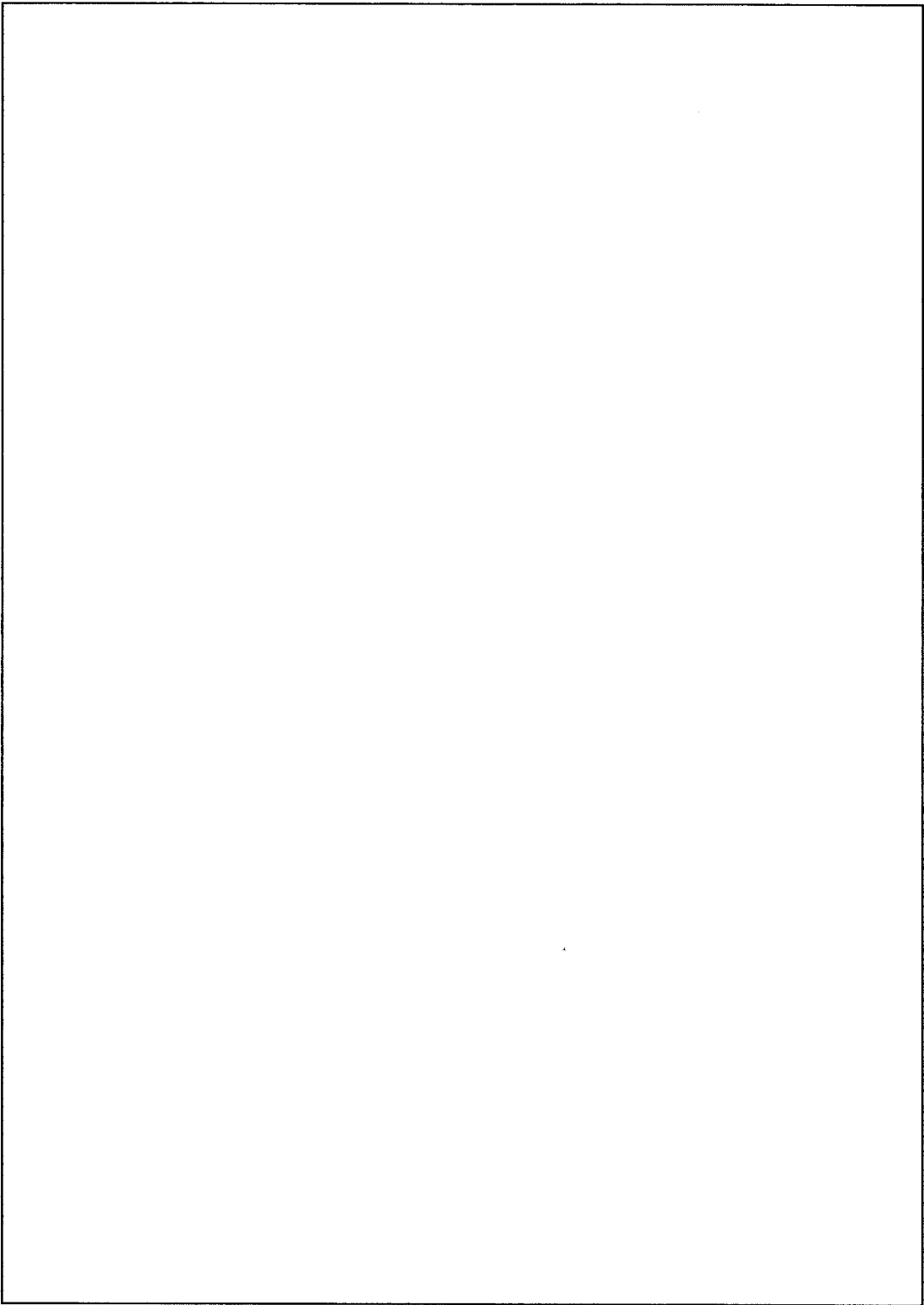
## Shapes Mat Patterns

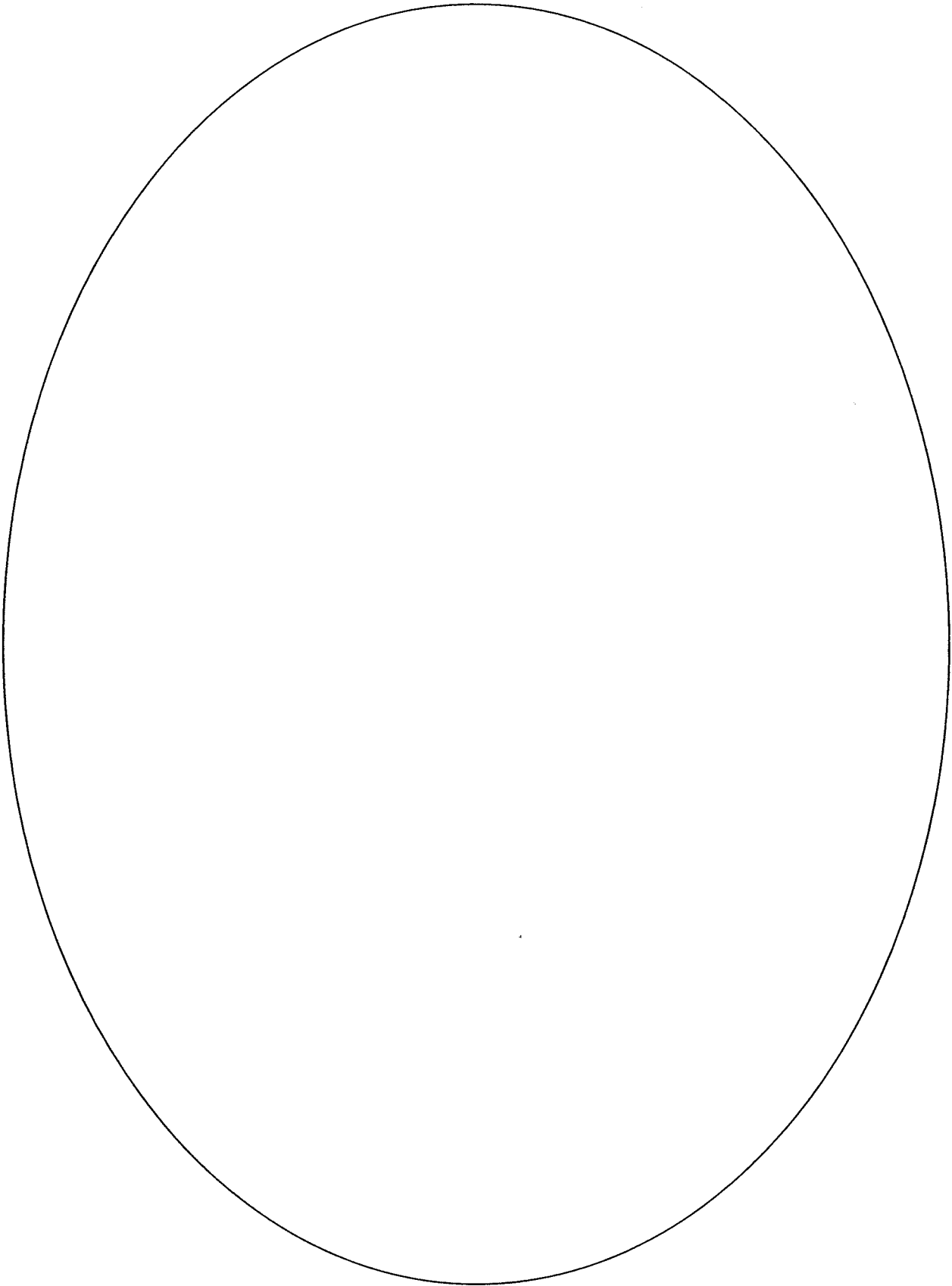
To cut trapezoid, fold  
hexagon pattern in half on  
dotted line.



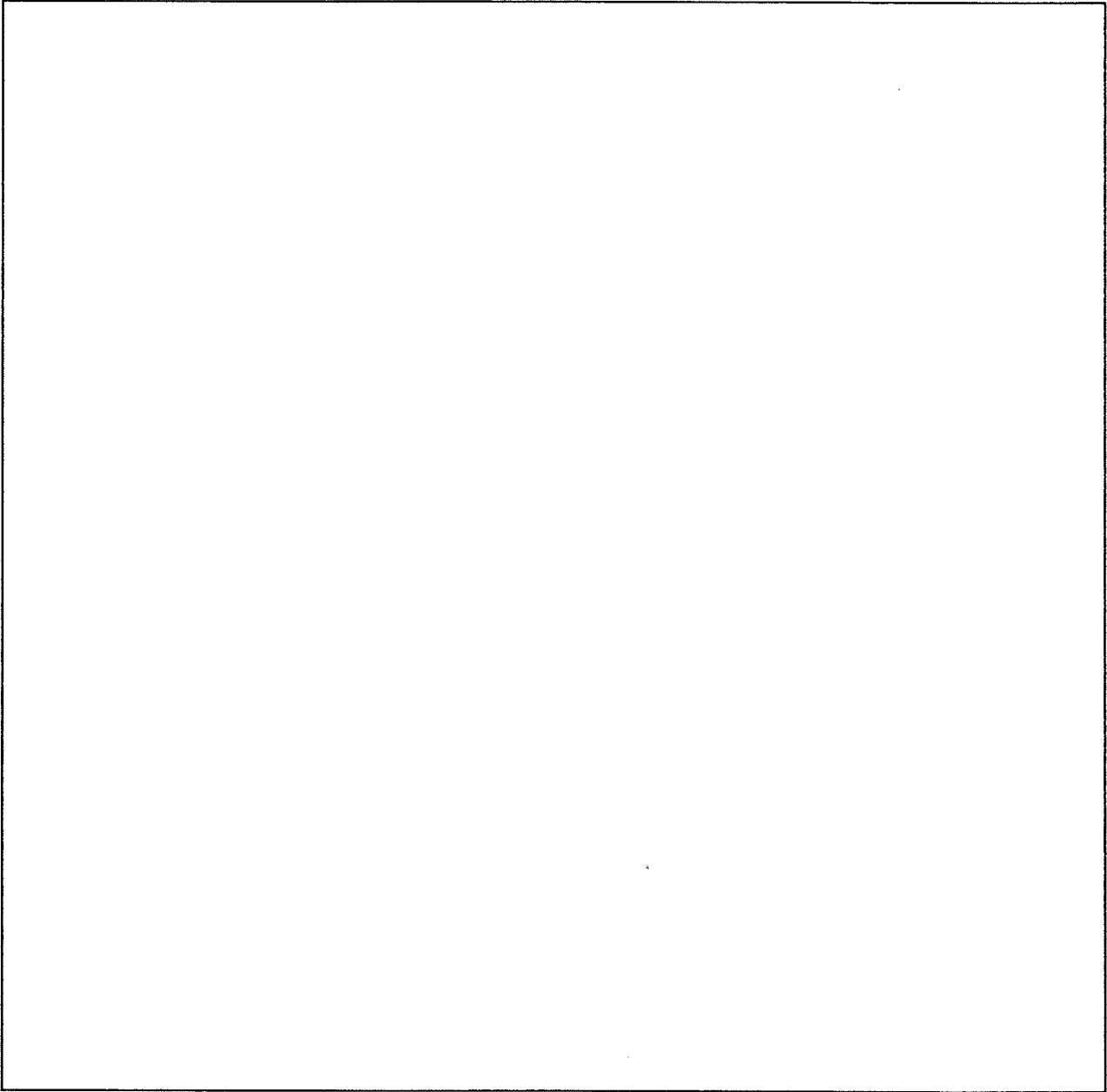






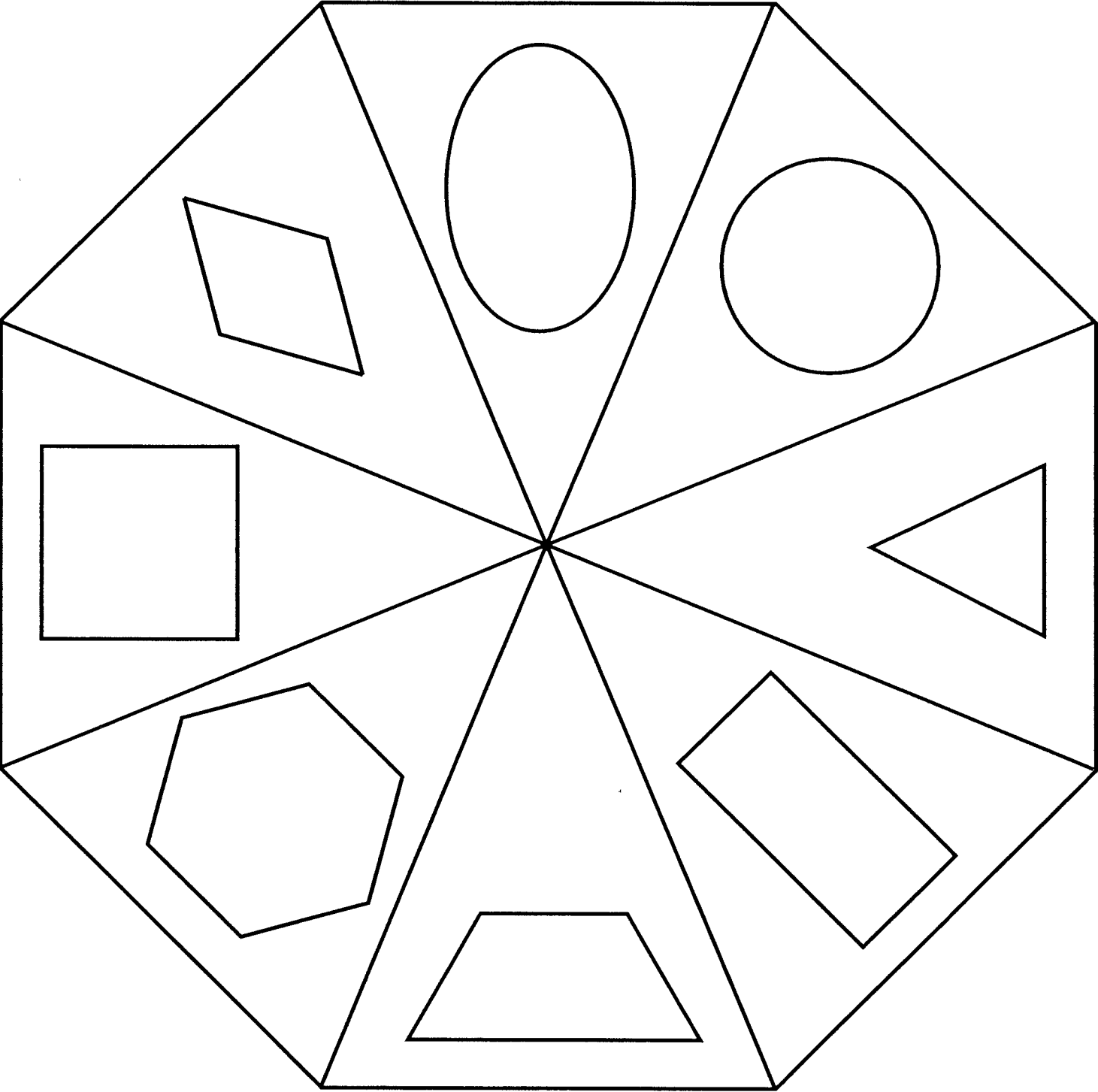




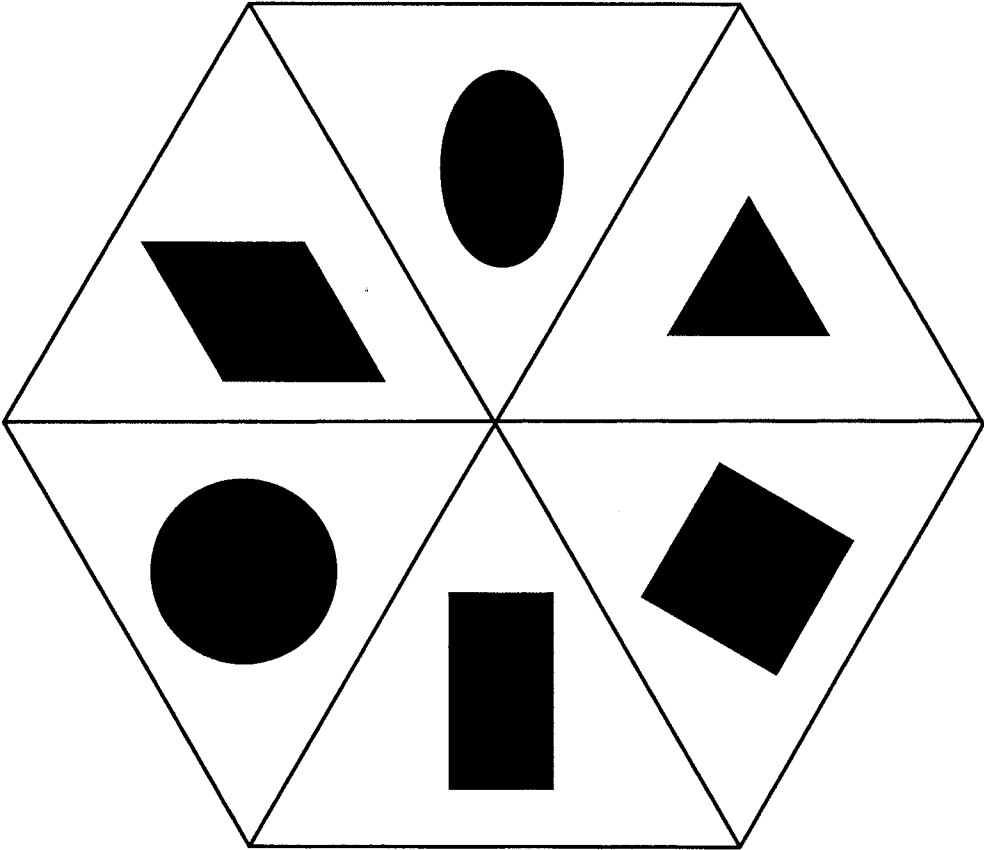
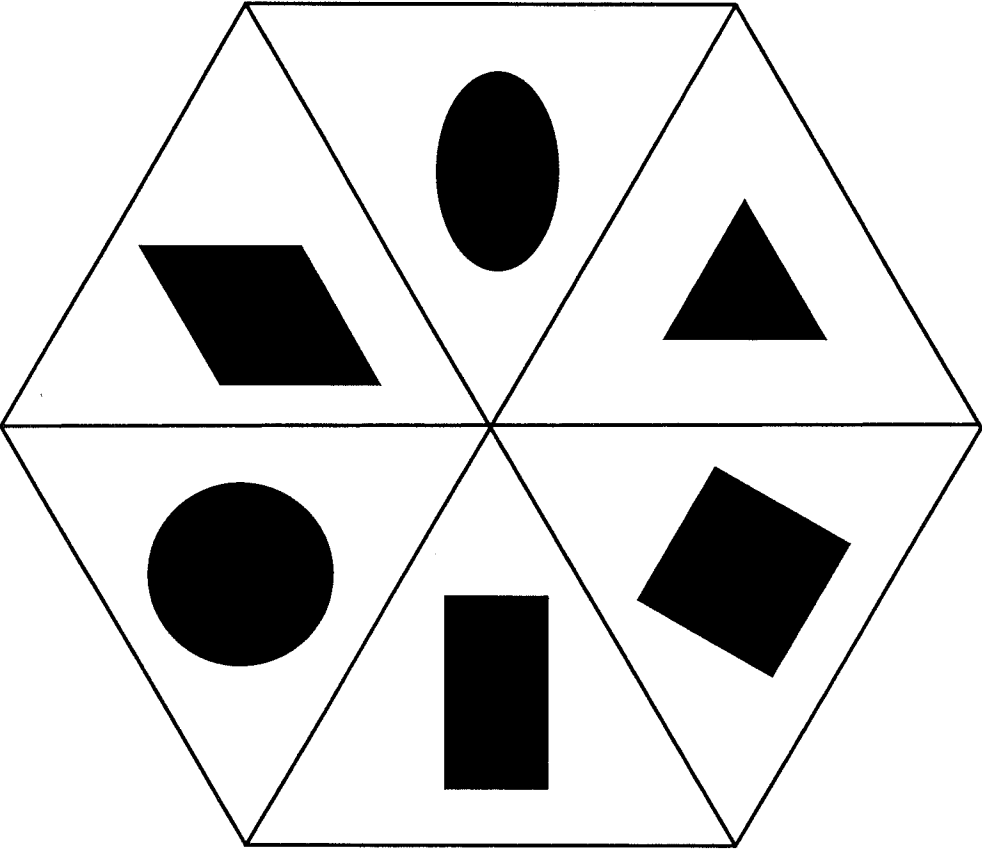


Shapes Mat

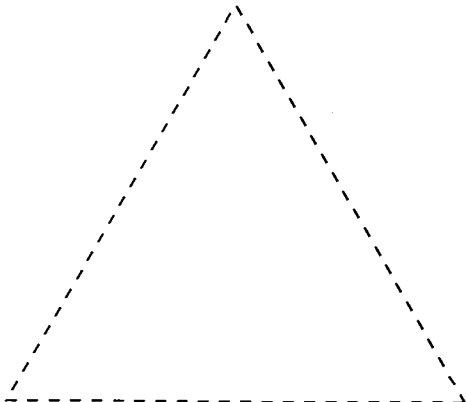
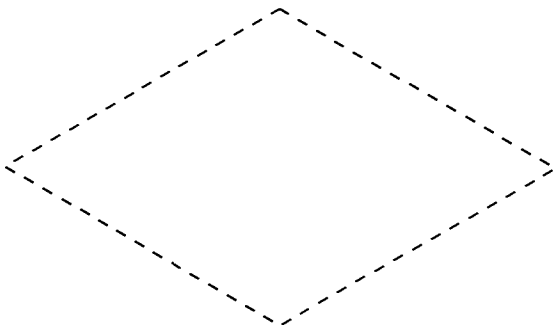
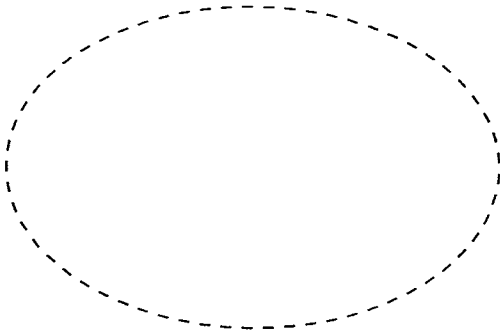
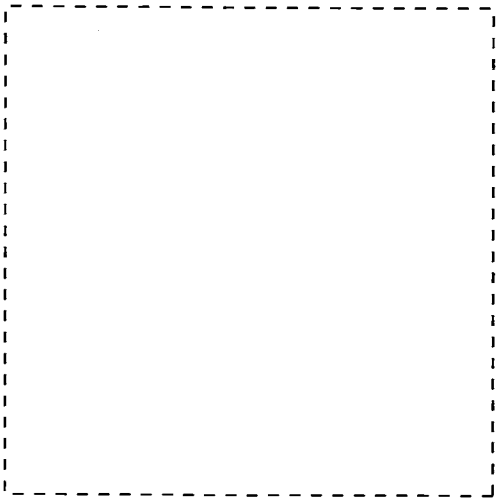
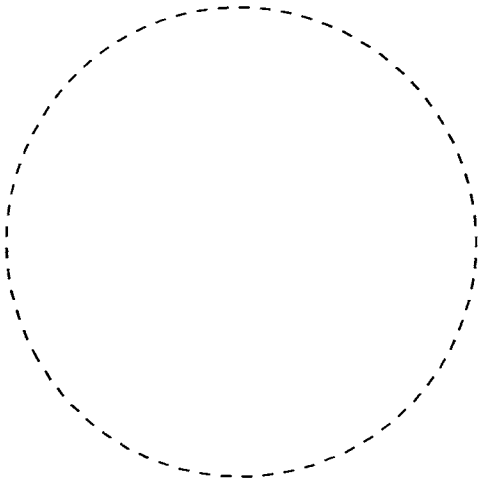
spinner top



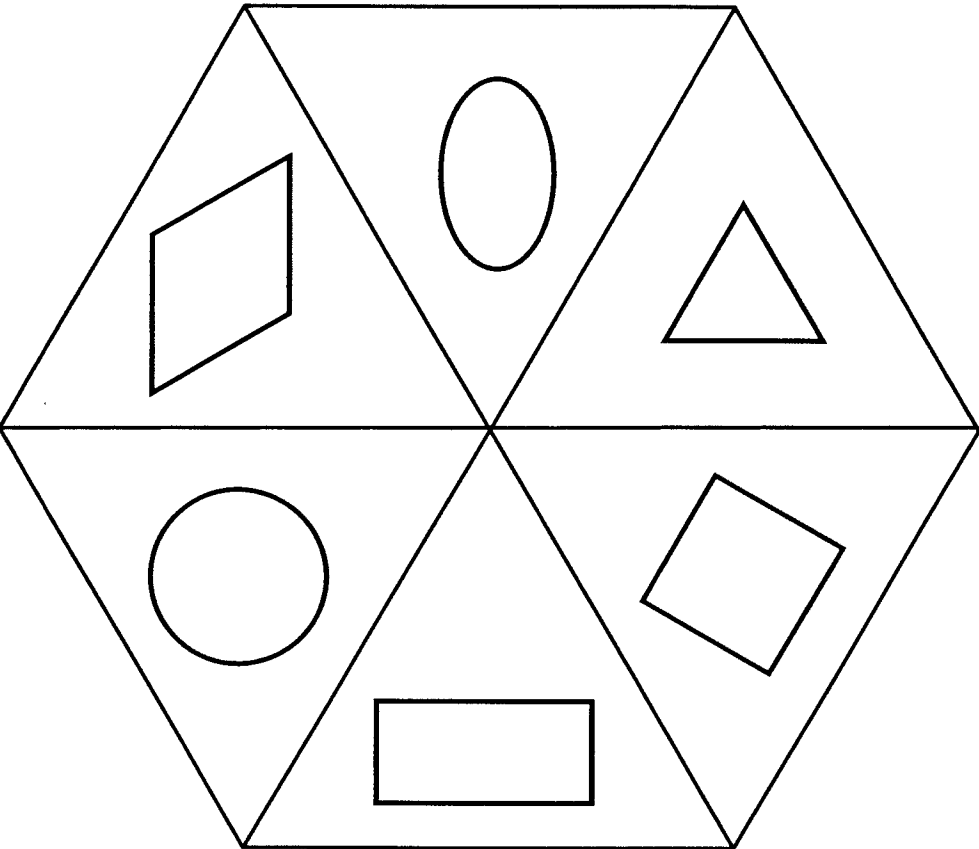
Shapes, Spinners and Scissors



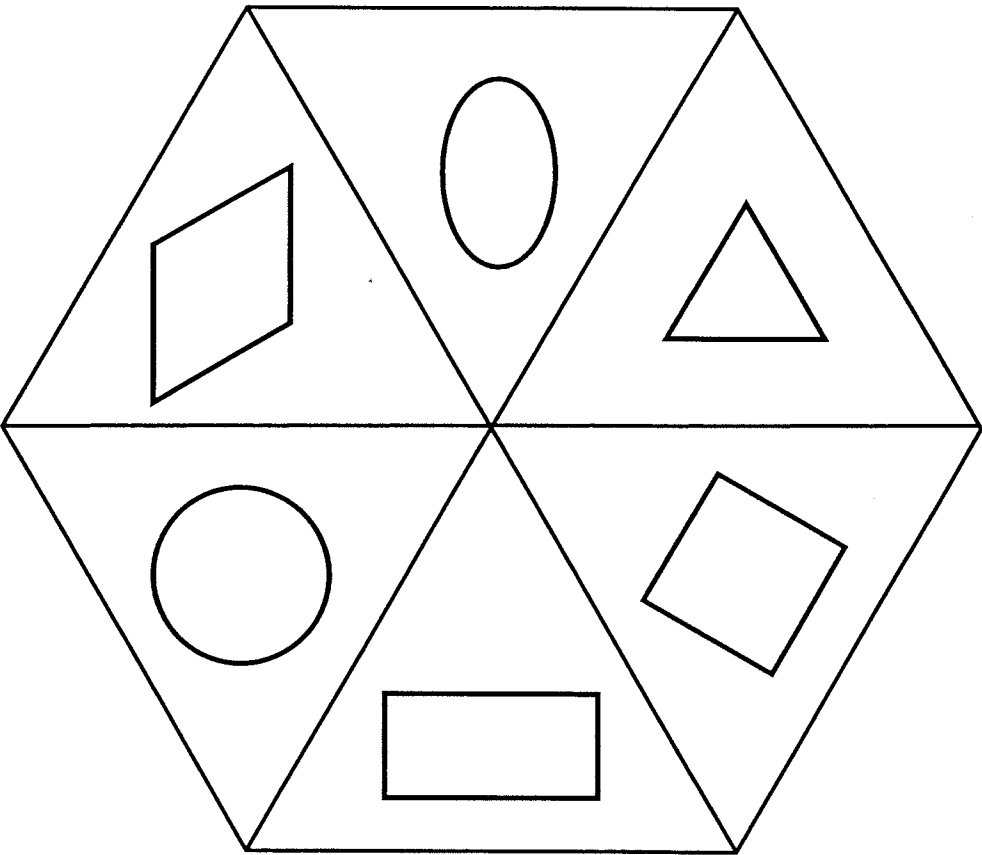
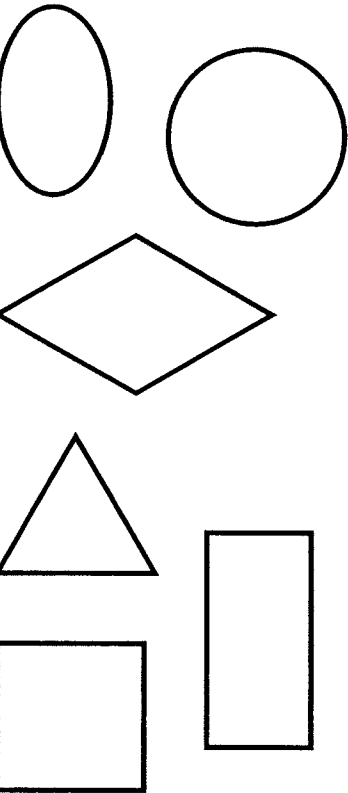
Shapes, Spinners and Scissors



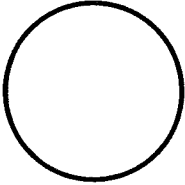
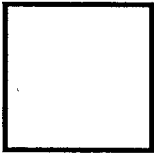
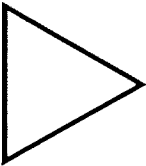

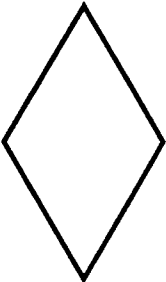
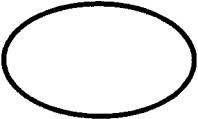
**Templates and Spinners**



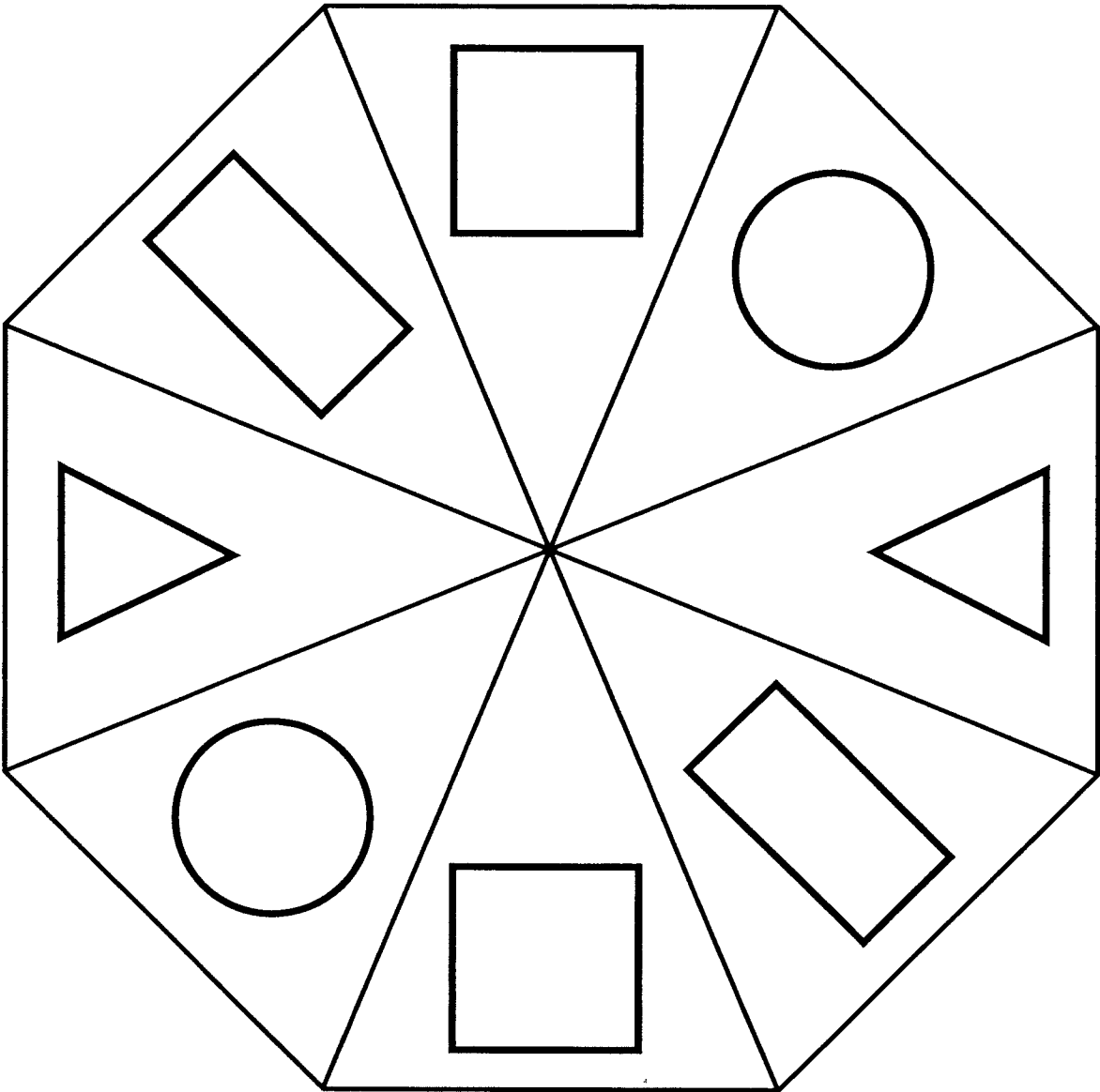
Patterns to help cut  
 plastic lids



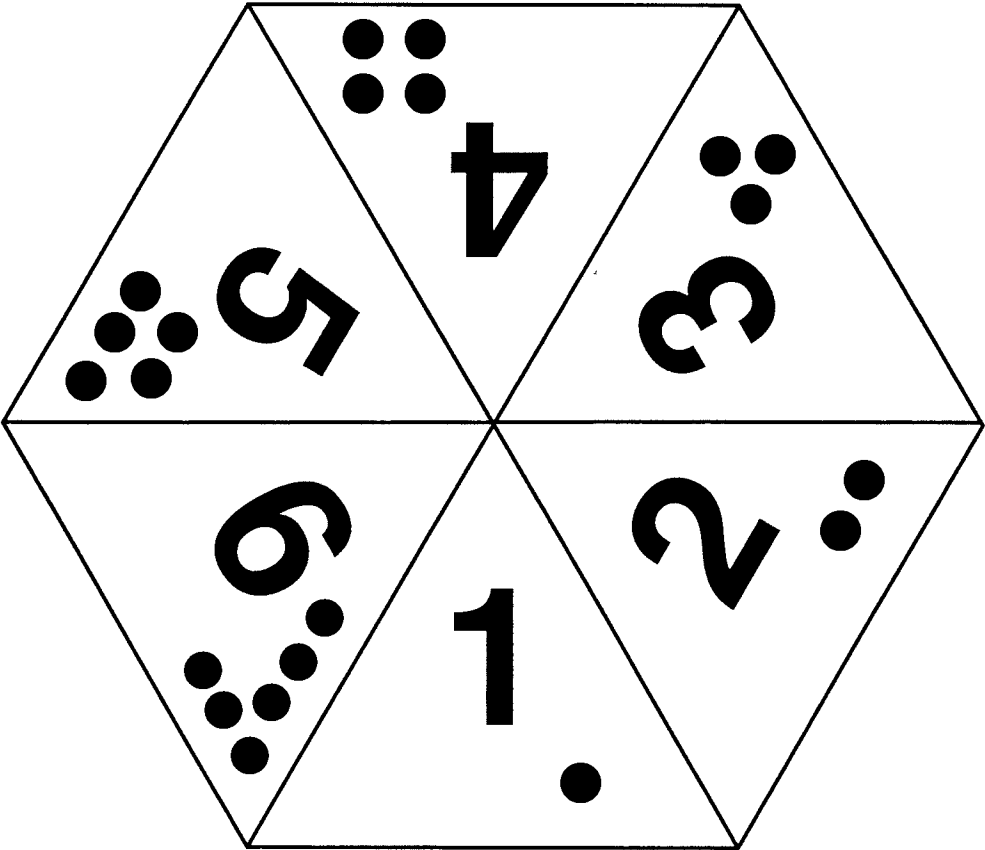
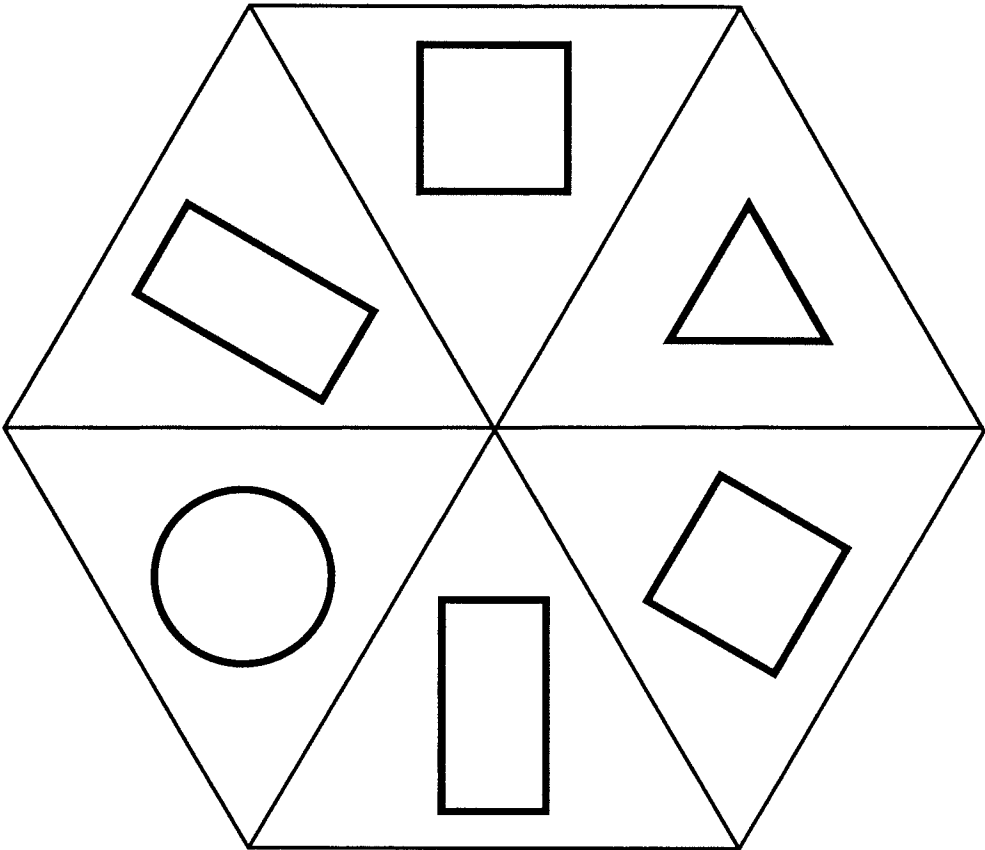
**Templates and Spinners record sheet**

Shapes Race

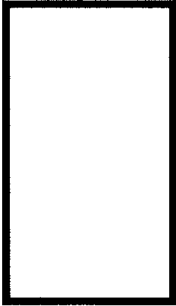
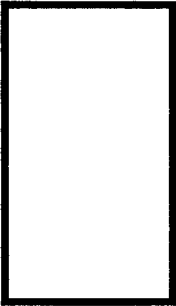
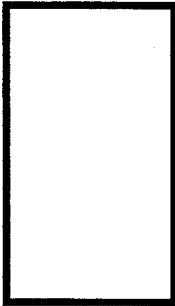
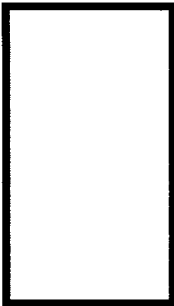
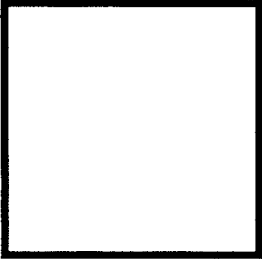
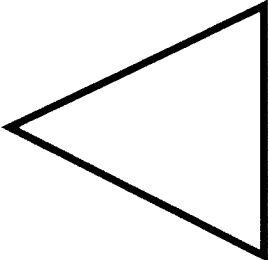
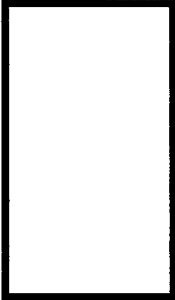
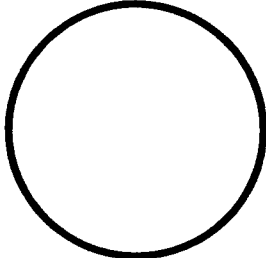
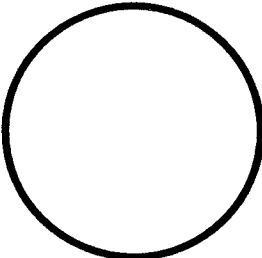
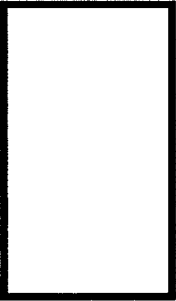
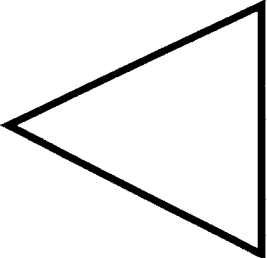
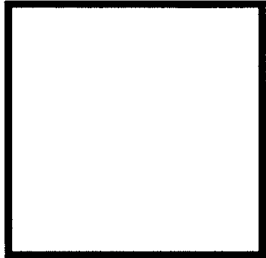
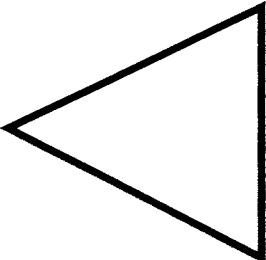
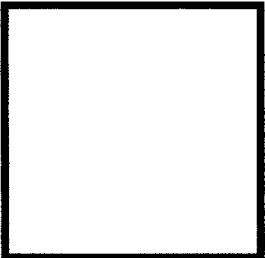
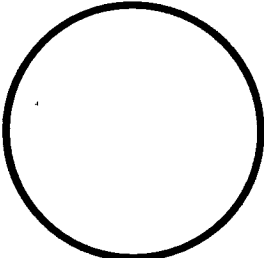
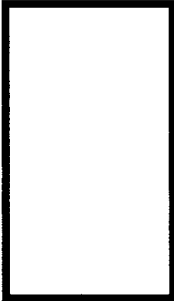
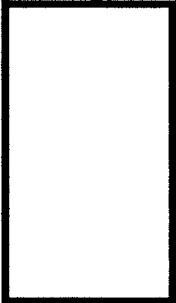
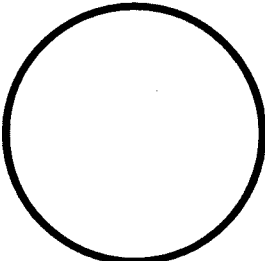
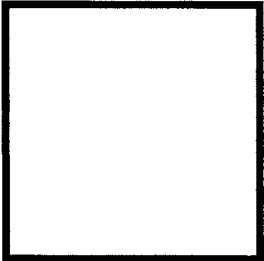
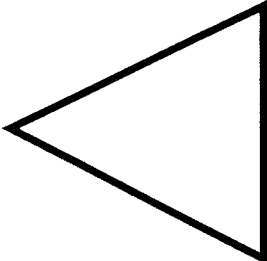


Spin and Count Double Spinner

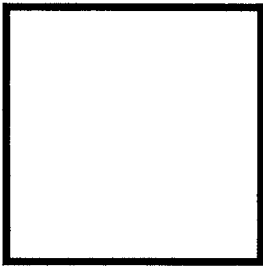
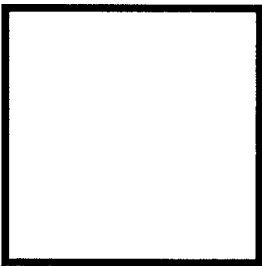
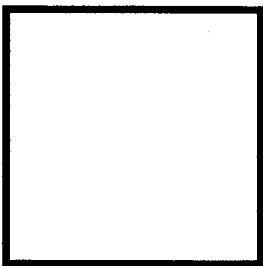
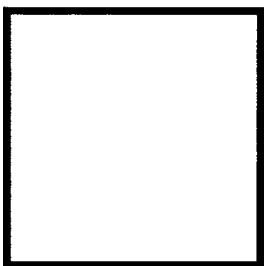




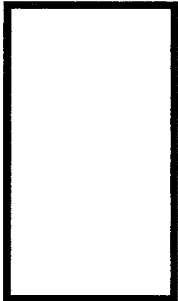
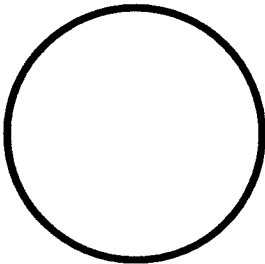
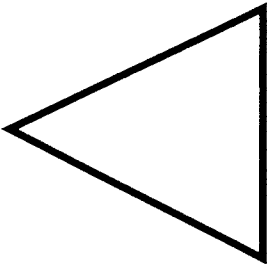
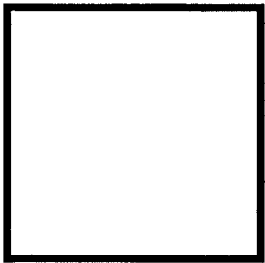
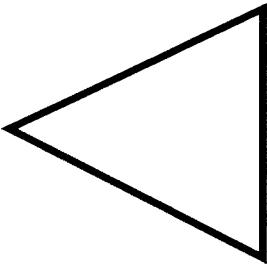
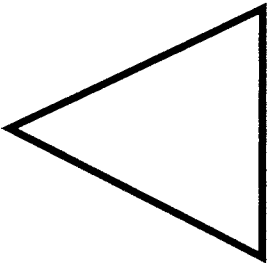
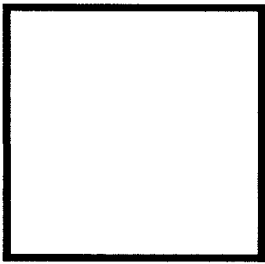
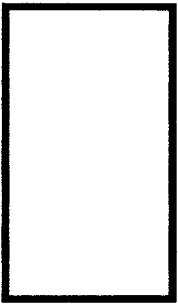
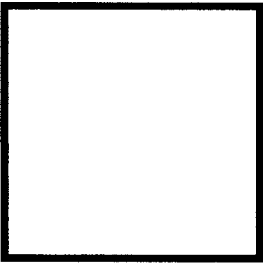
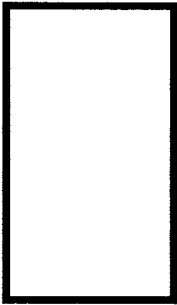
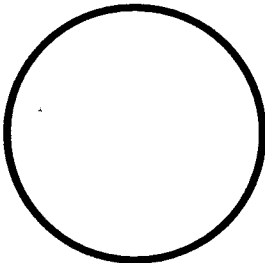
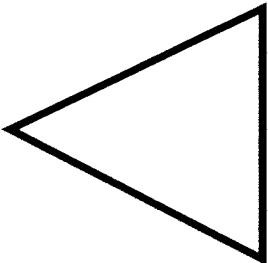
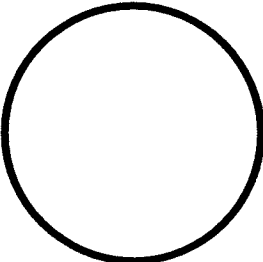
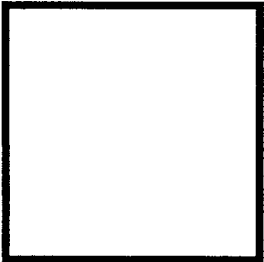
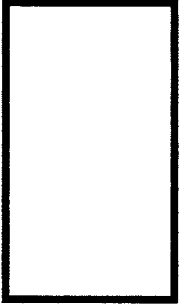
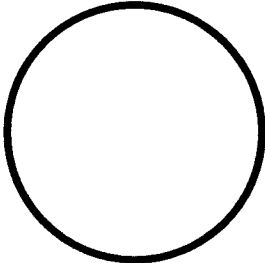
Shapes Lotto

			
student Lotto board ▼		▲ leader cards—cut into 4 parts	
			
			
			
			

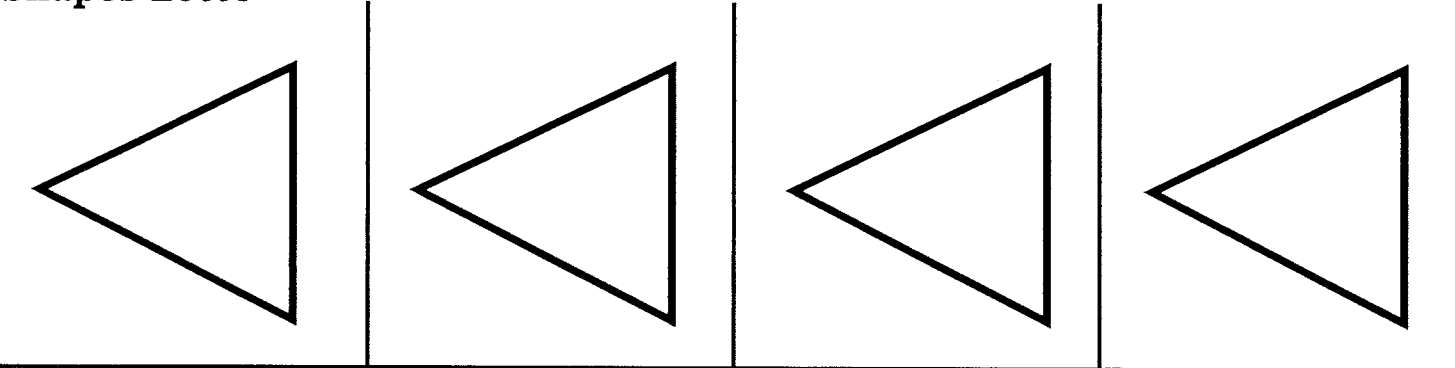
Shapes Lotto

			
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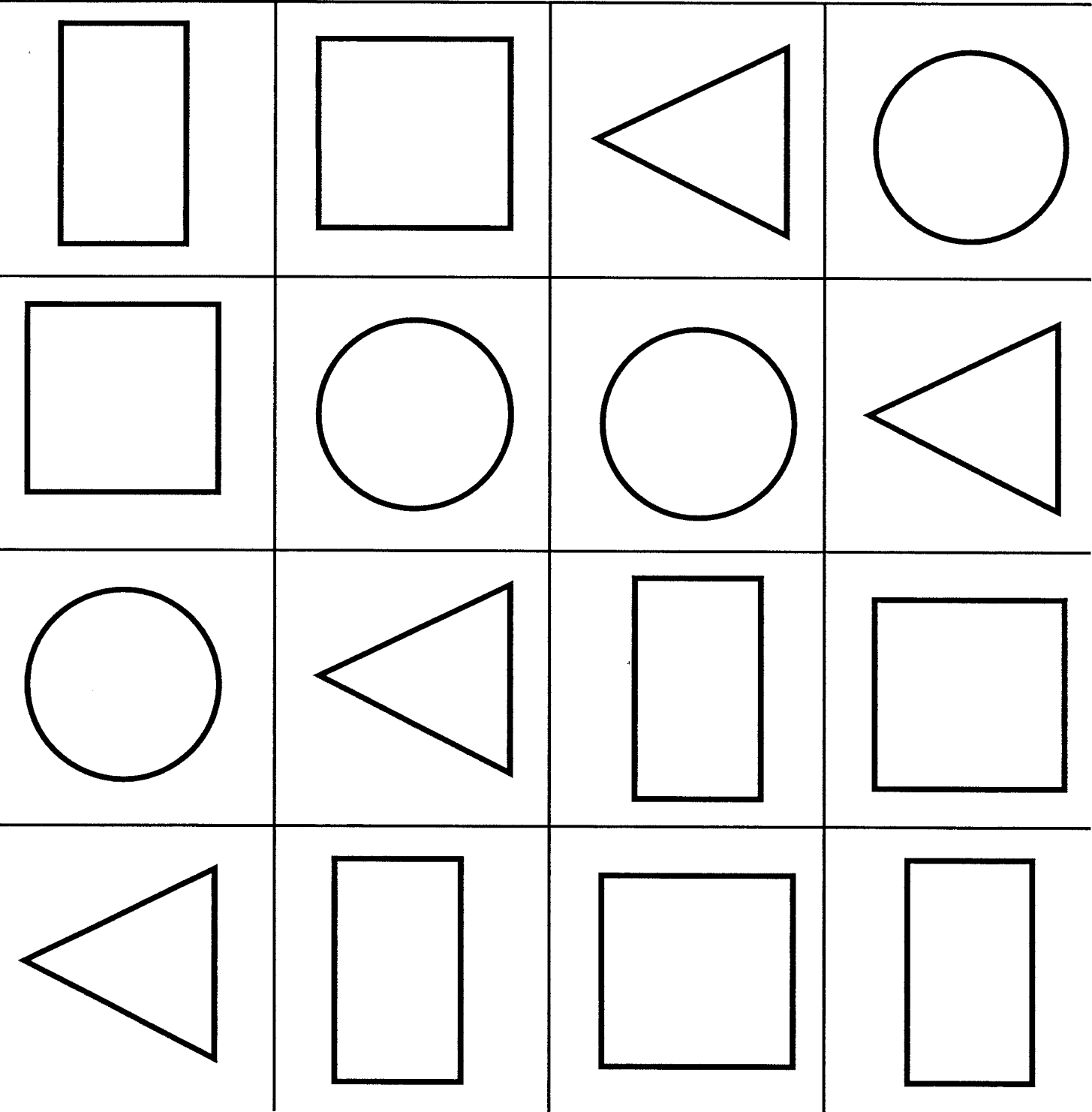
student Lotto board ▼ ▲ leader cards—cut into 4 parts

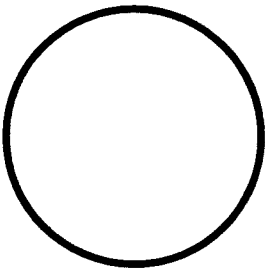
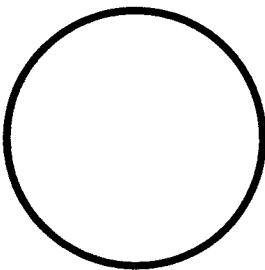
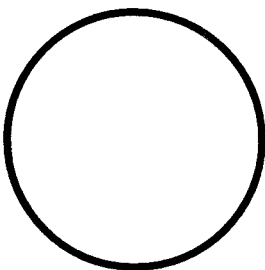
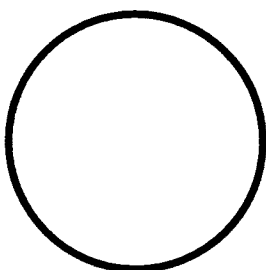
Shapes Lotto



student Lotto board ▼ ▲ leader cards—cut into 4 parts

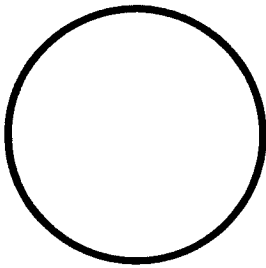
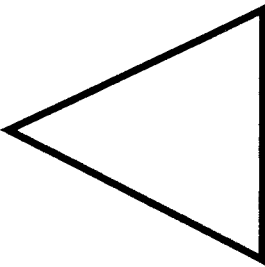
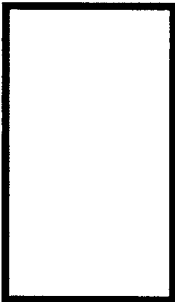
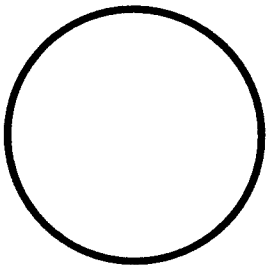
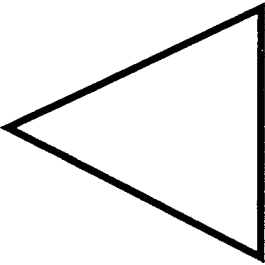
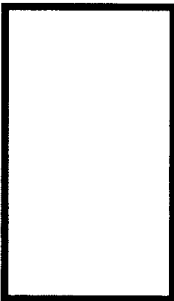
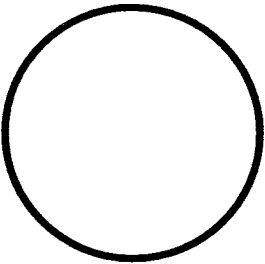
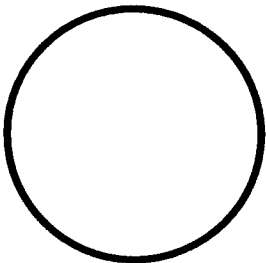
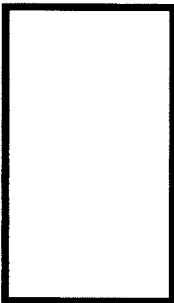
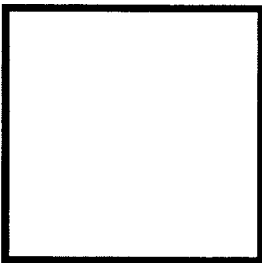
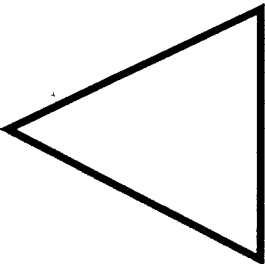
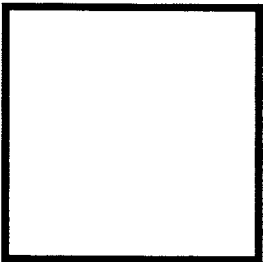
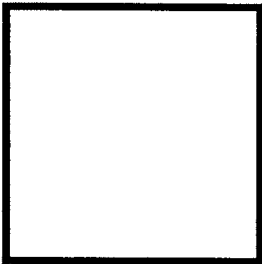
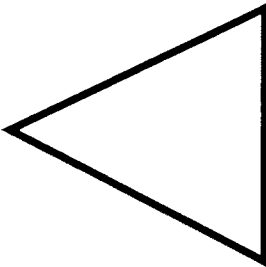
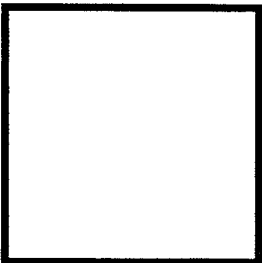
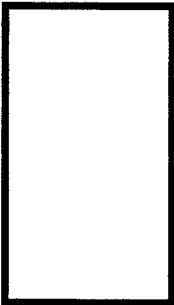


Shapes Lotto

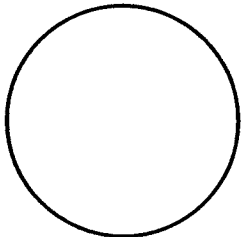
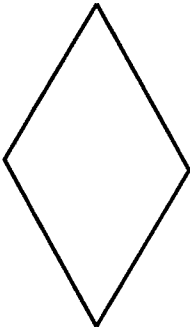
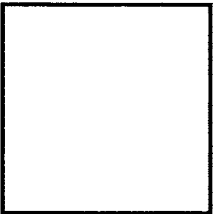
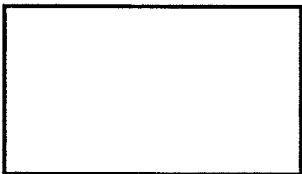
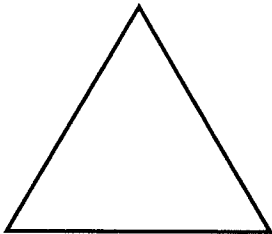
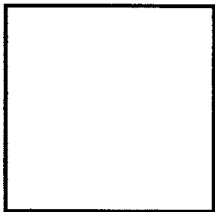
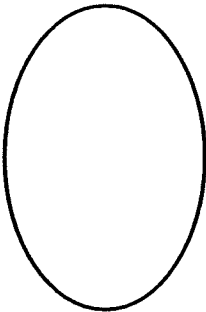
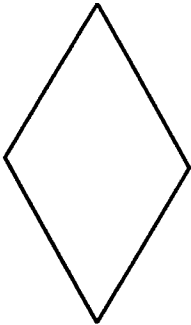
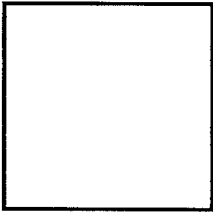
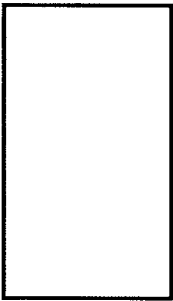
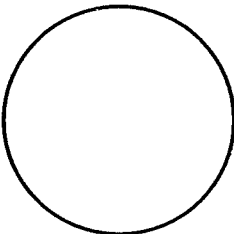
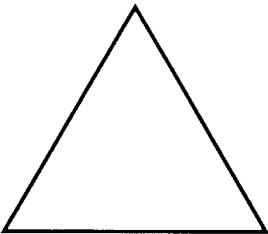
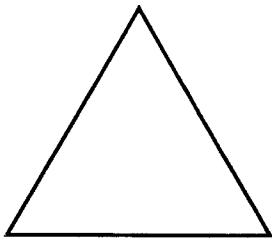
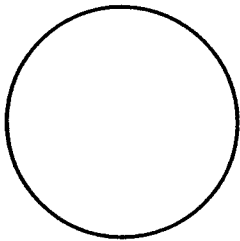
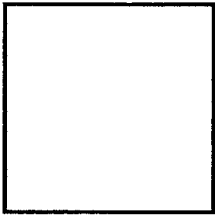
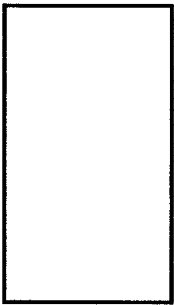
			
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student Lotto board ▼

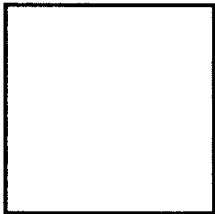
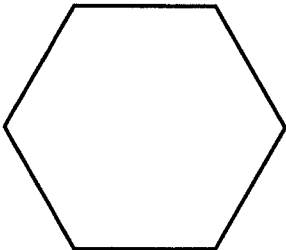
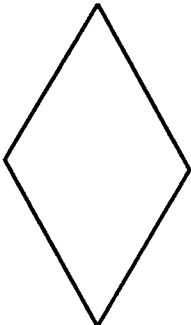
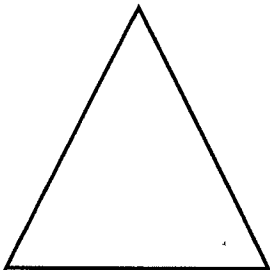
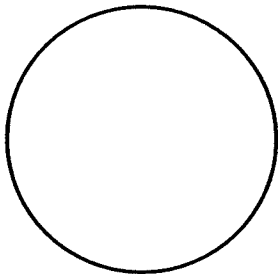
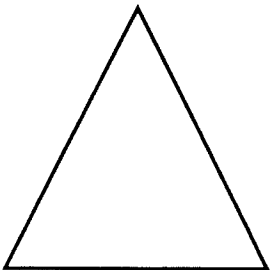
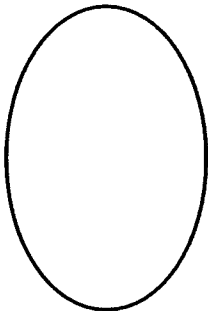
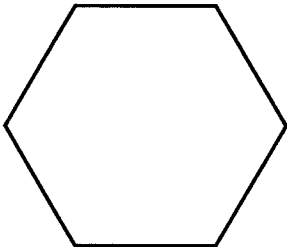
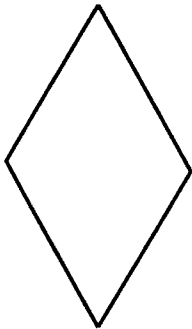
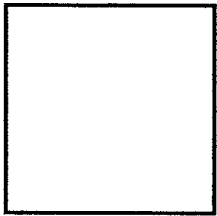
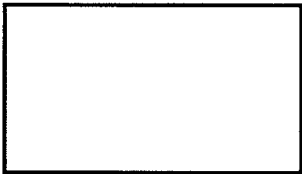
▲ leader cards—cut into 4 parts

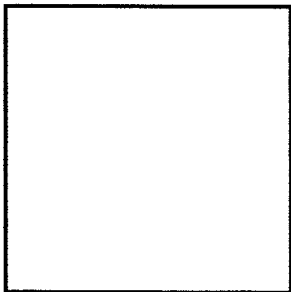
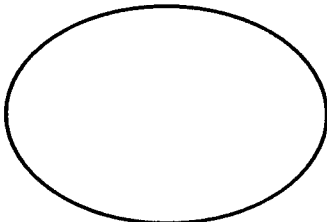
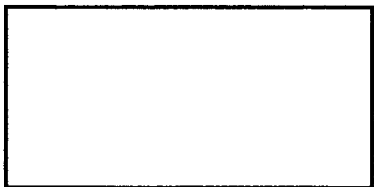
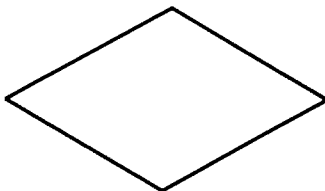
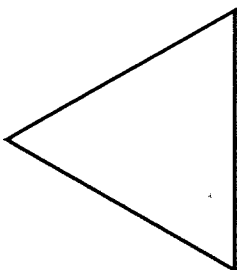
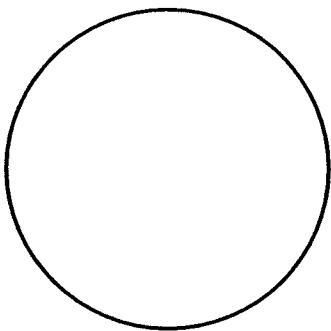
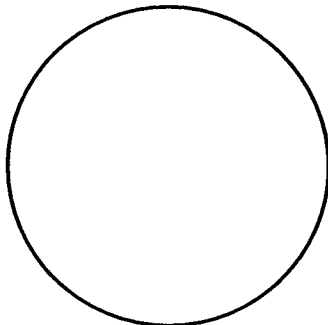
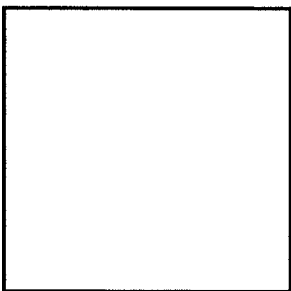
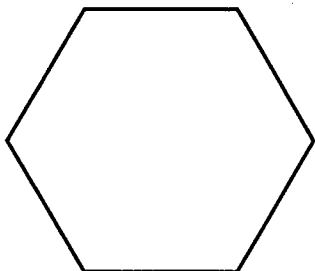
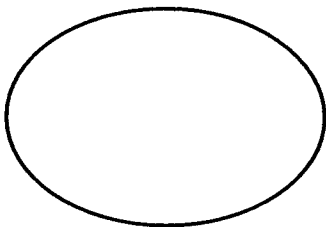
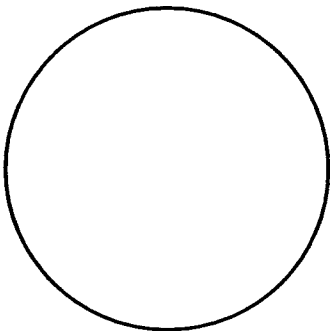
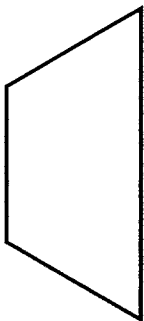
Shapes Mat Memory Cards



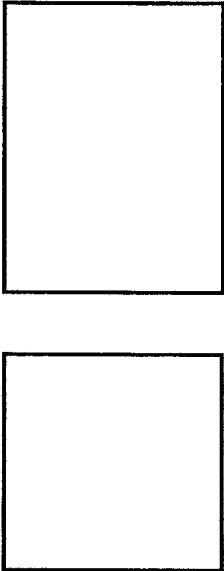
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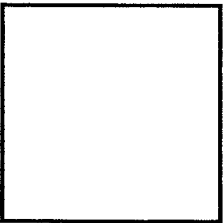


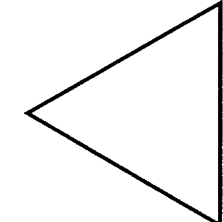
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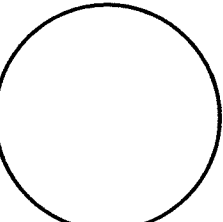



What's Missing?





































































































































































































































































































































































































































































































































































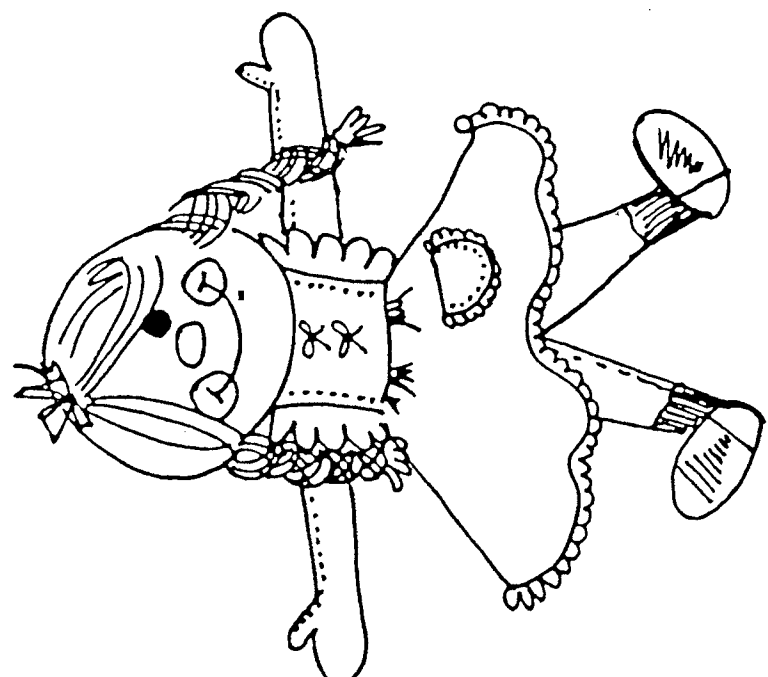
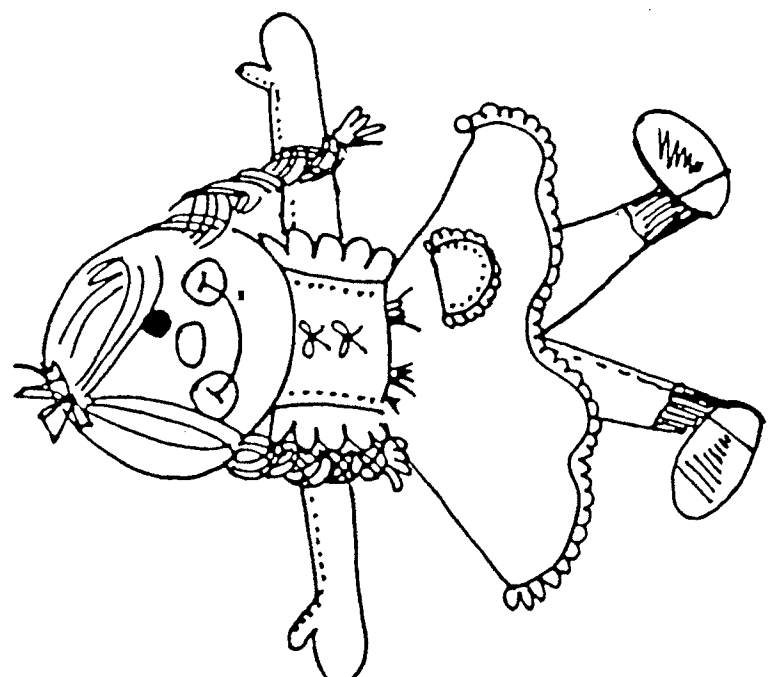
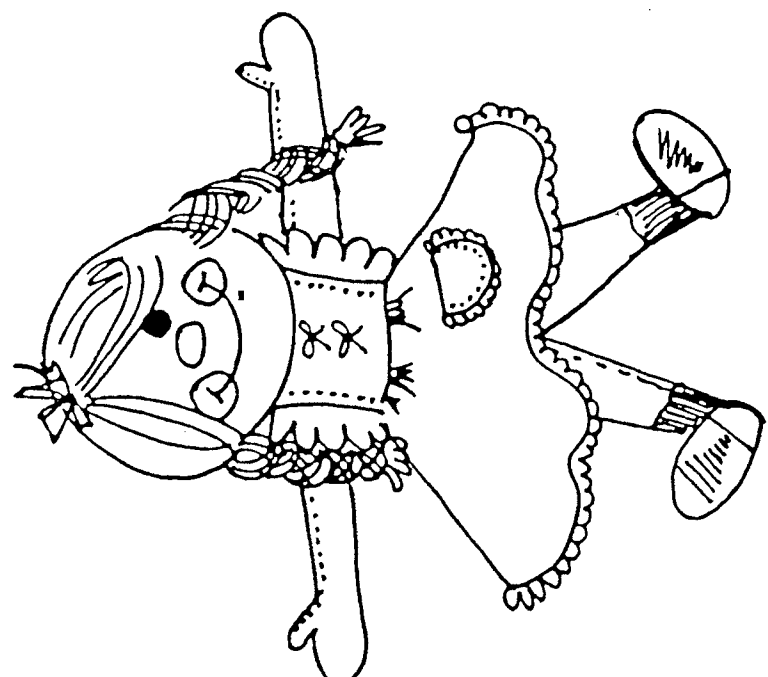
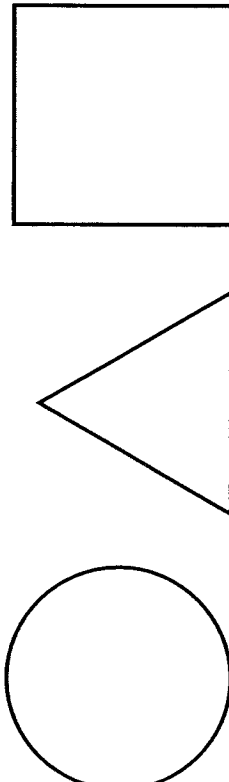




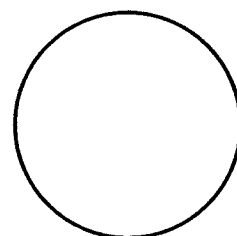
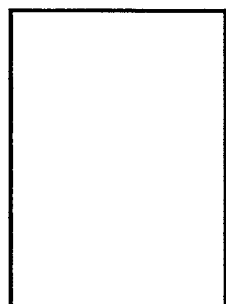
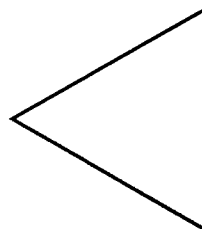
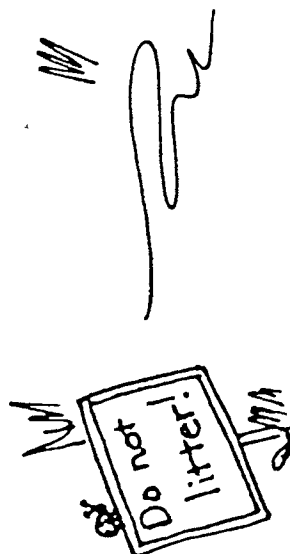
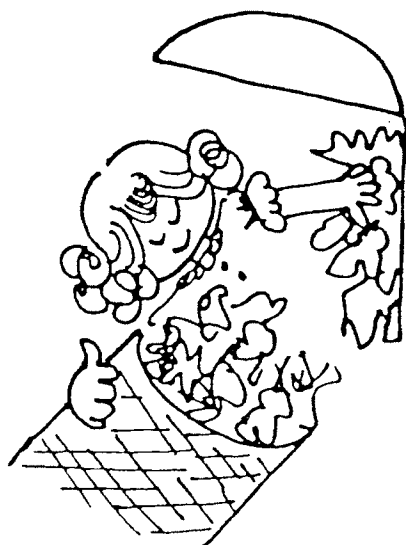
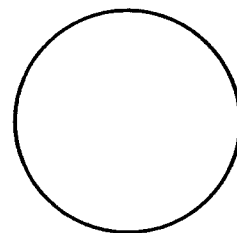
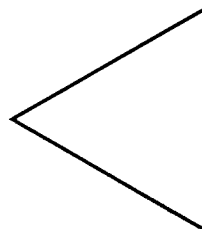
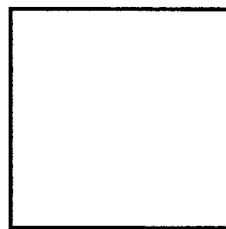
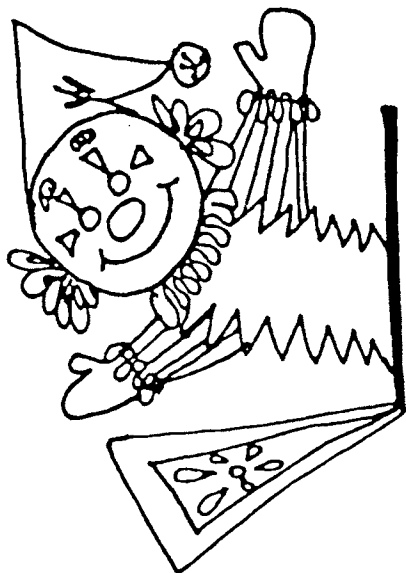




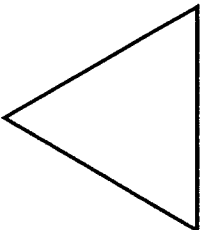
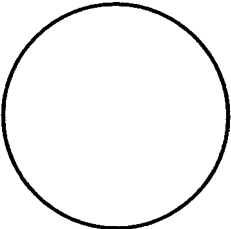
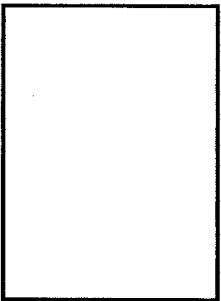
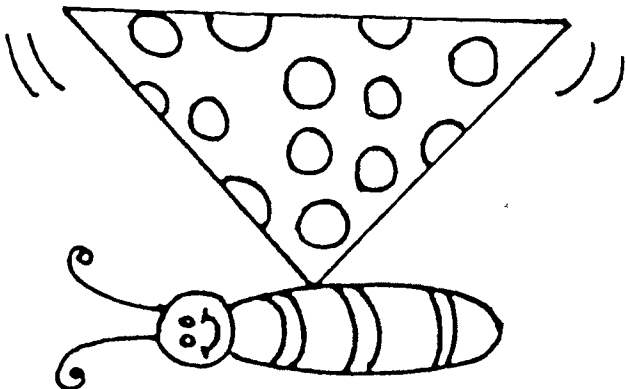
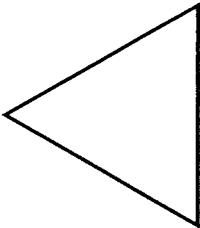
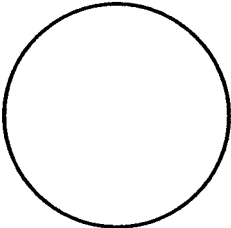
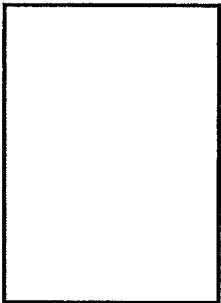
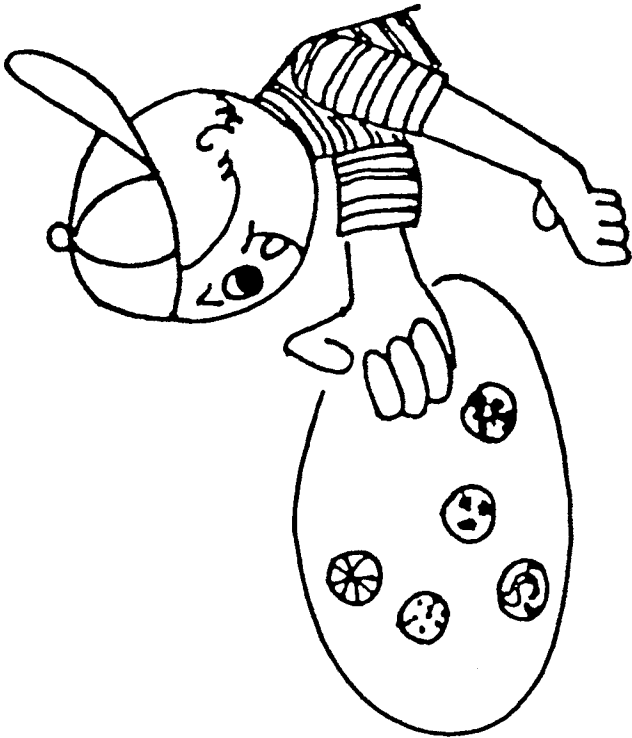
What's Missing?



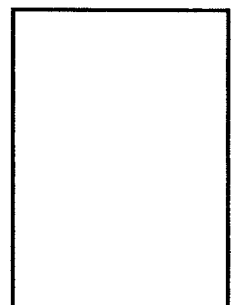
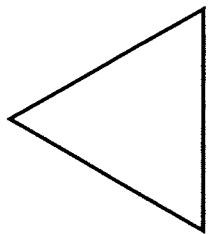
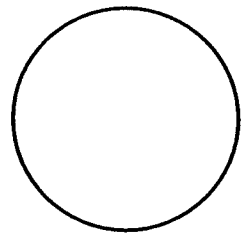
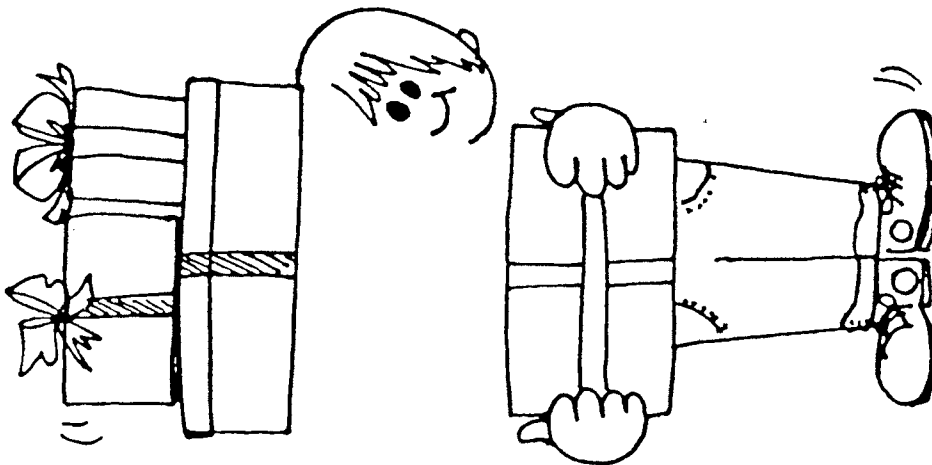
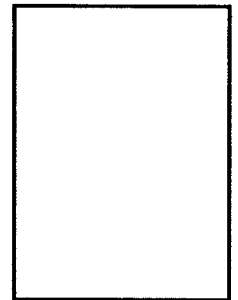
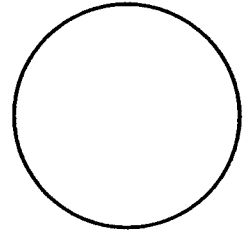
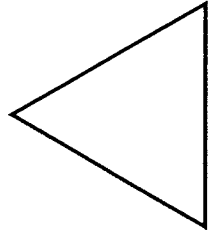
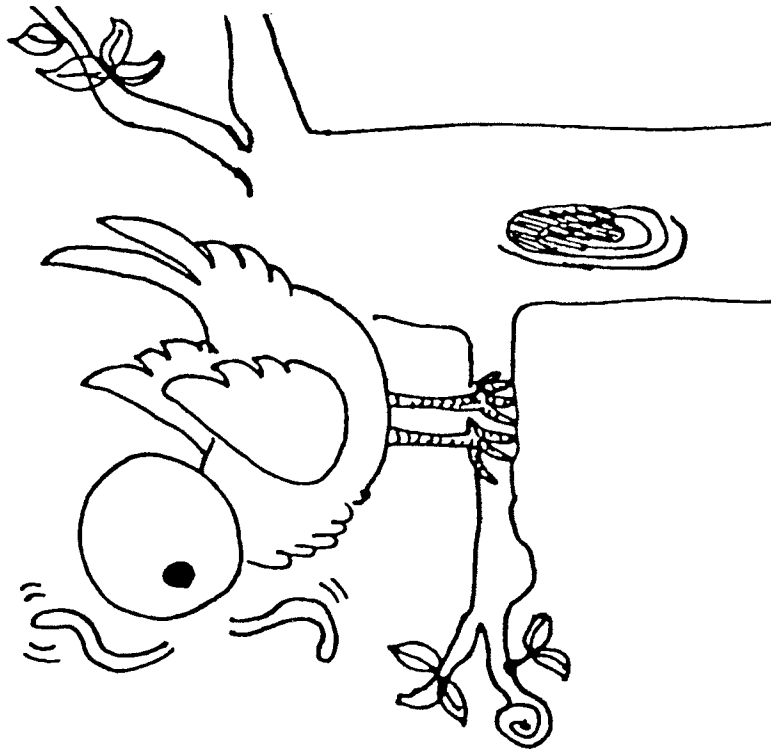
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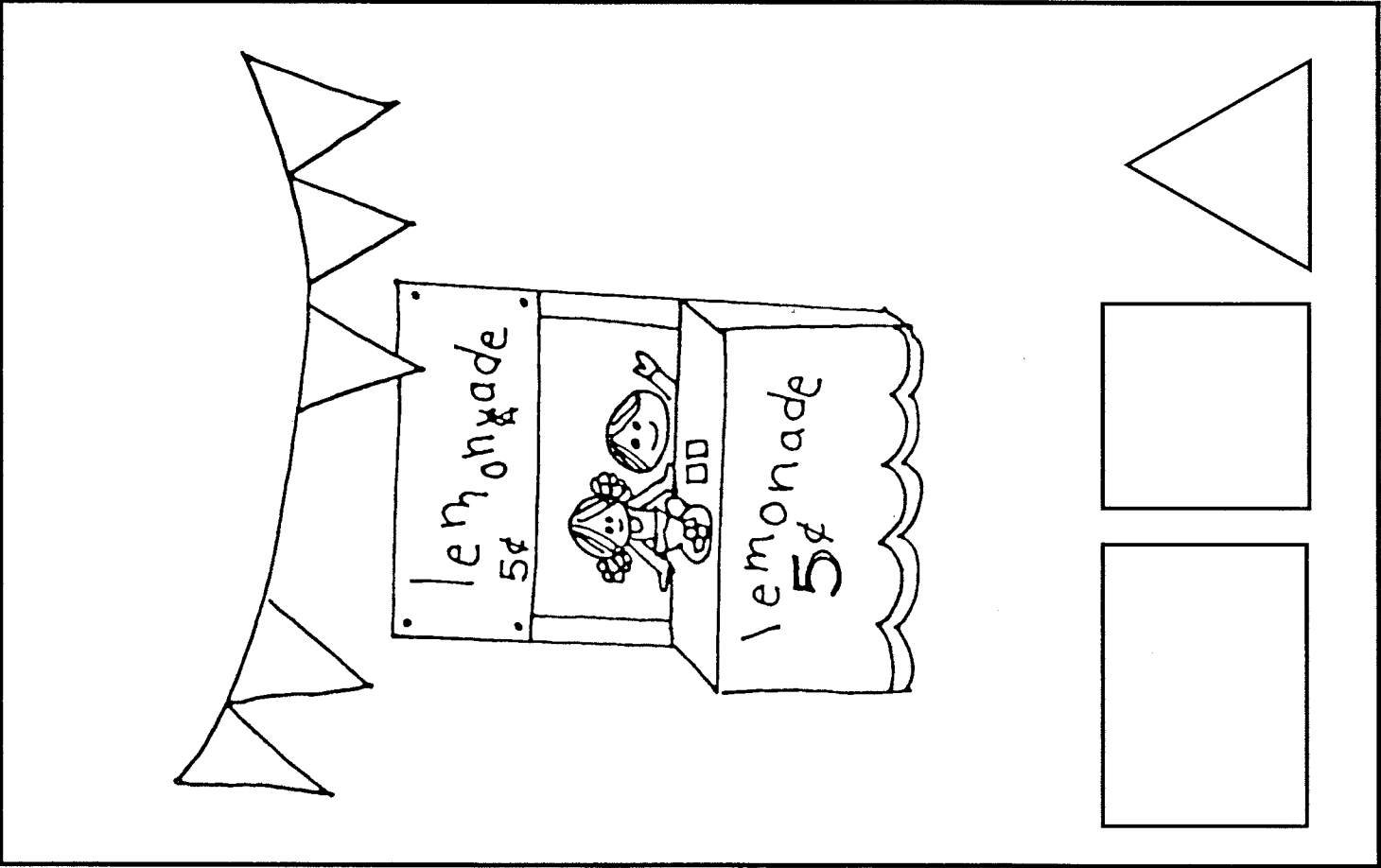
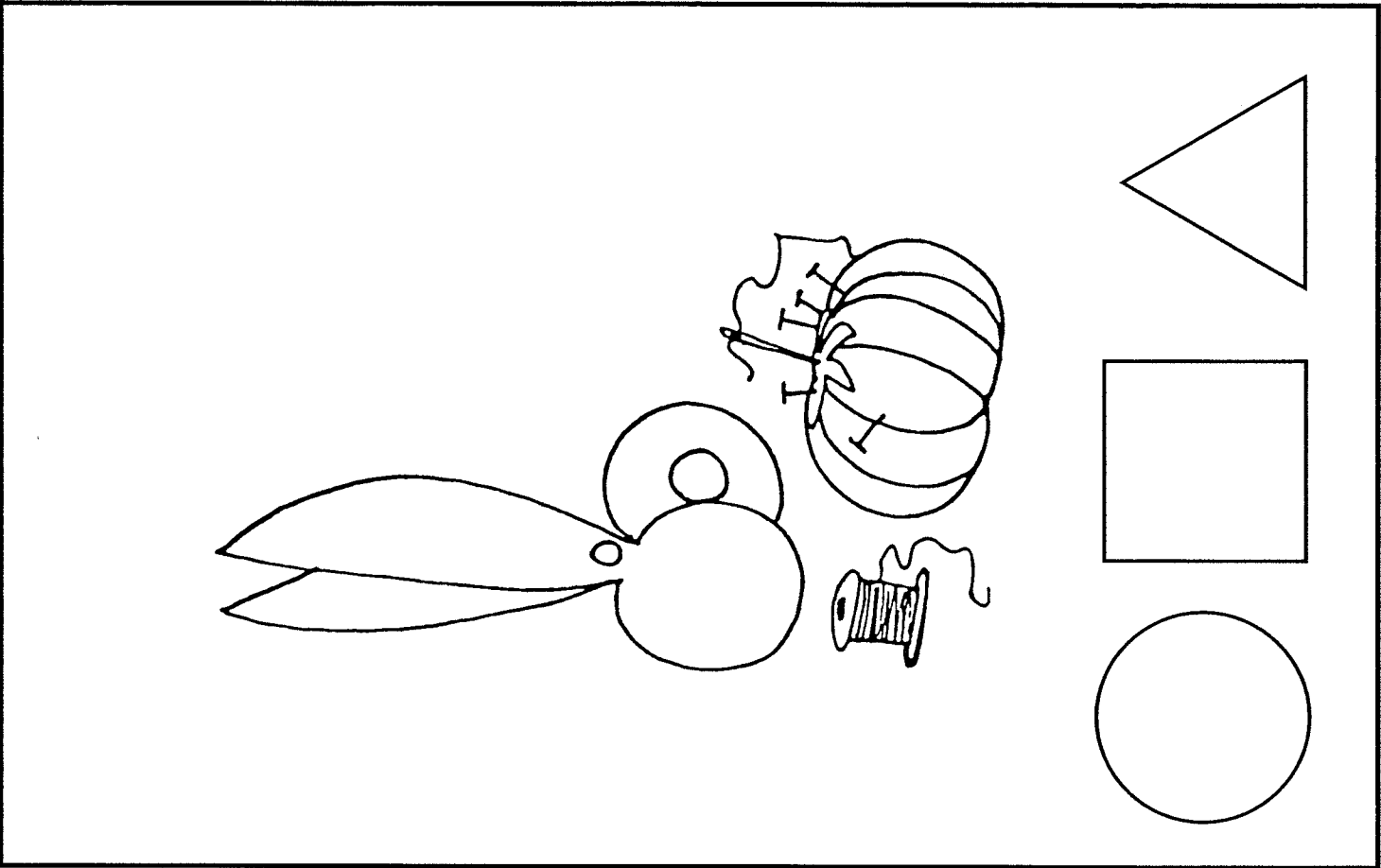
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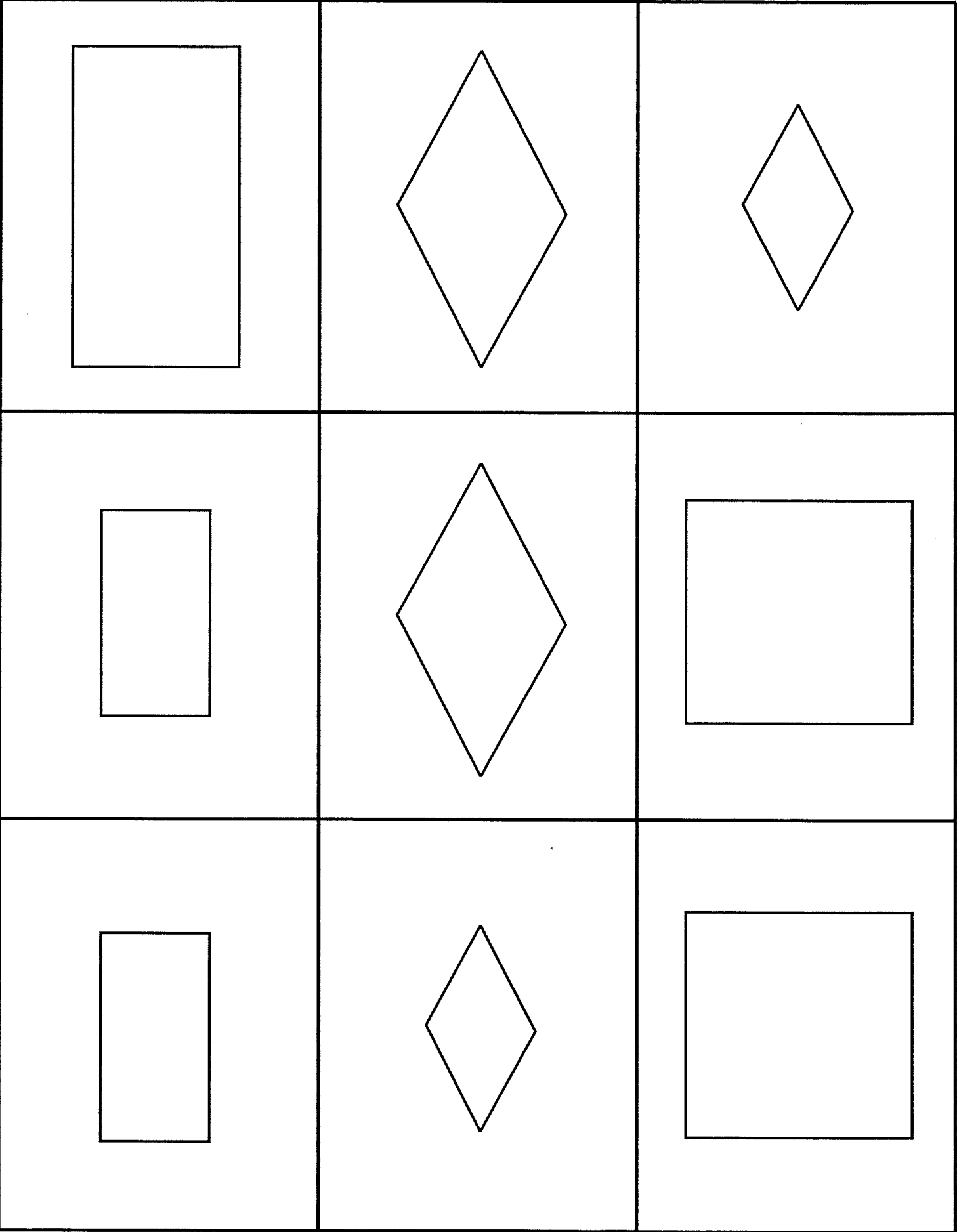
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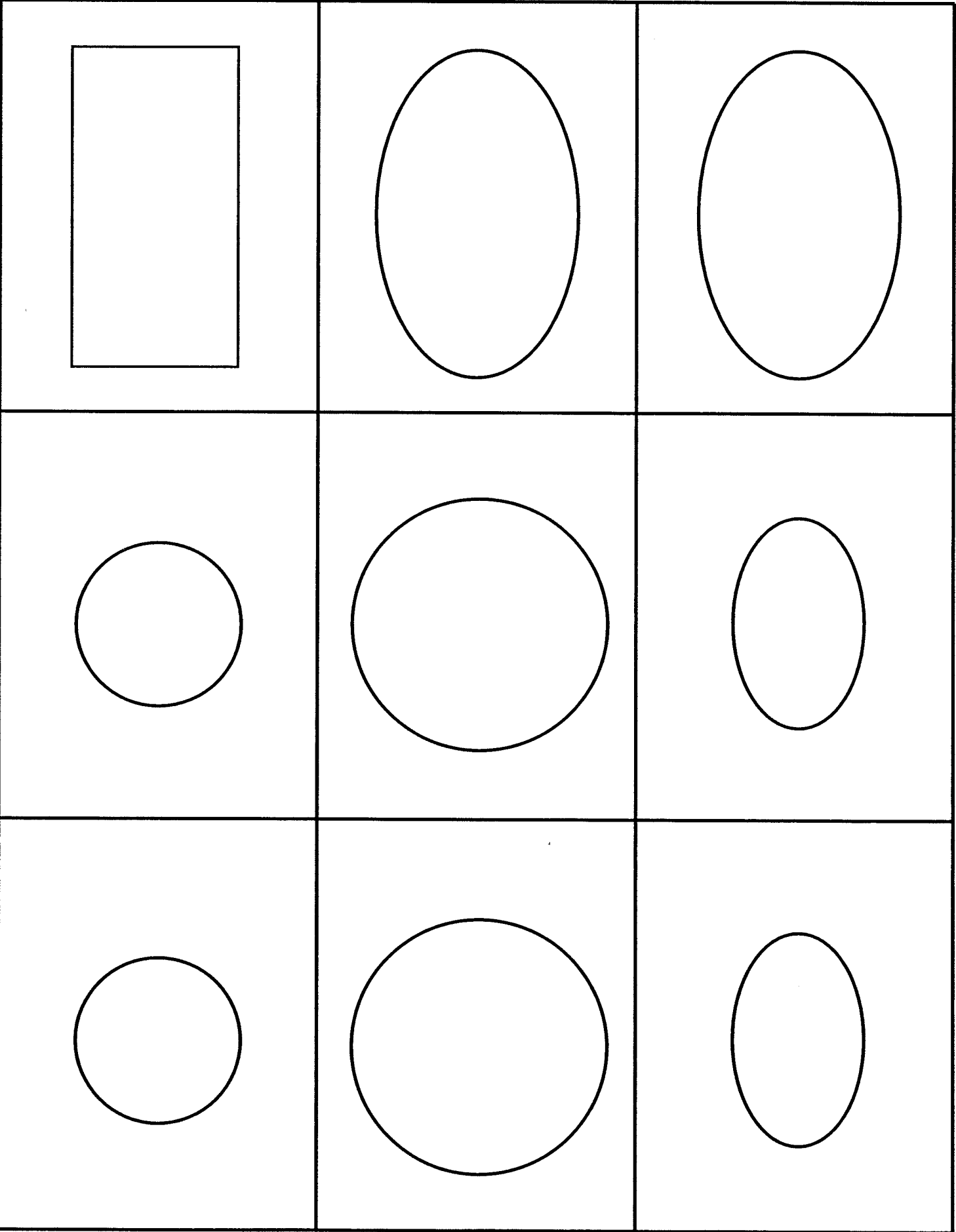
What's Missing?



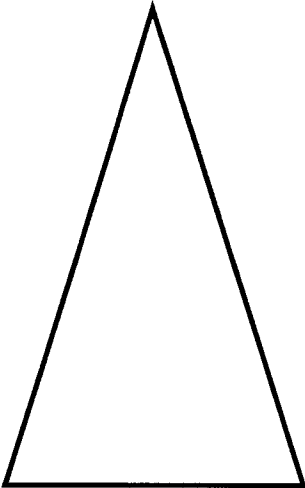
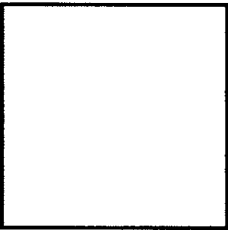
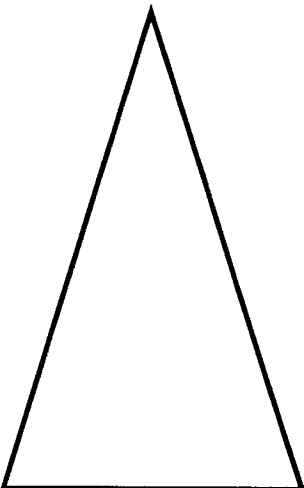
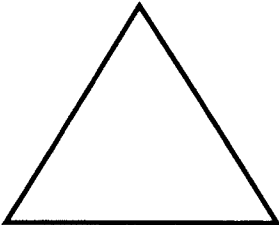
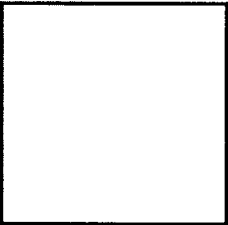
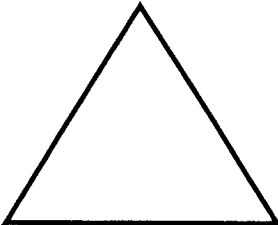
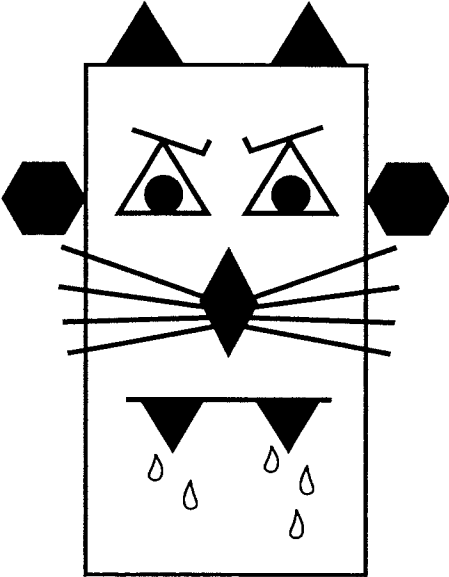
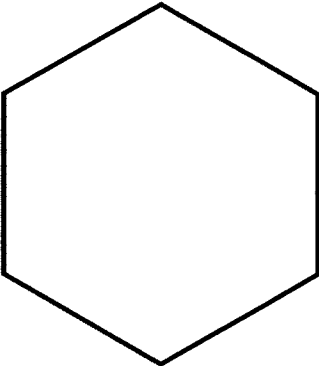
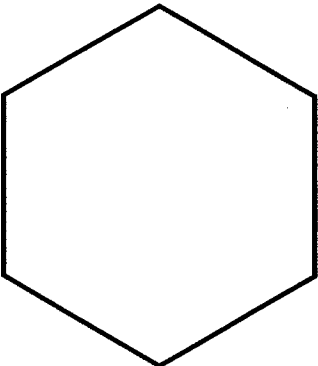
**Rotten Rectangle**



**Rotten Rectangle**



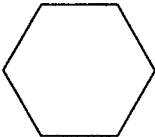
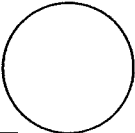
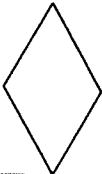

Rotten Rectangle

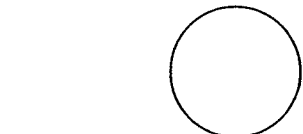
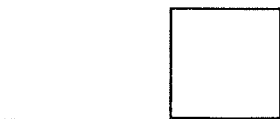


Shapes Search

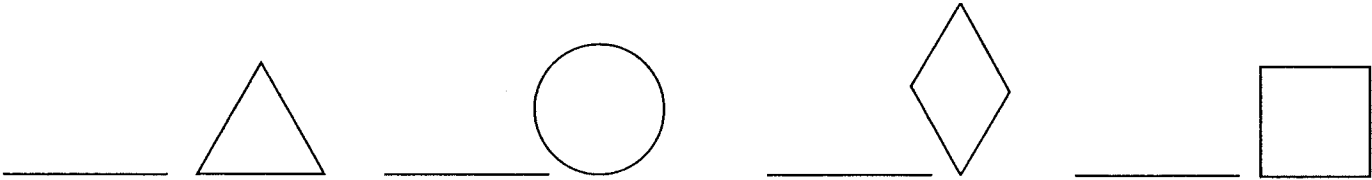
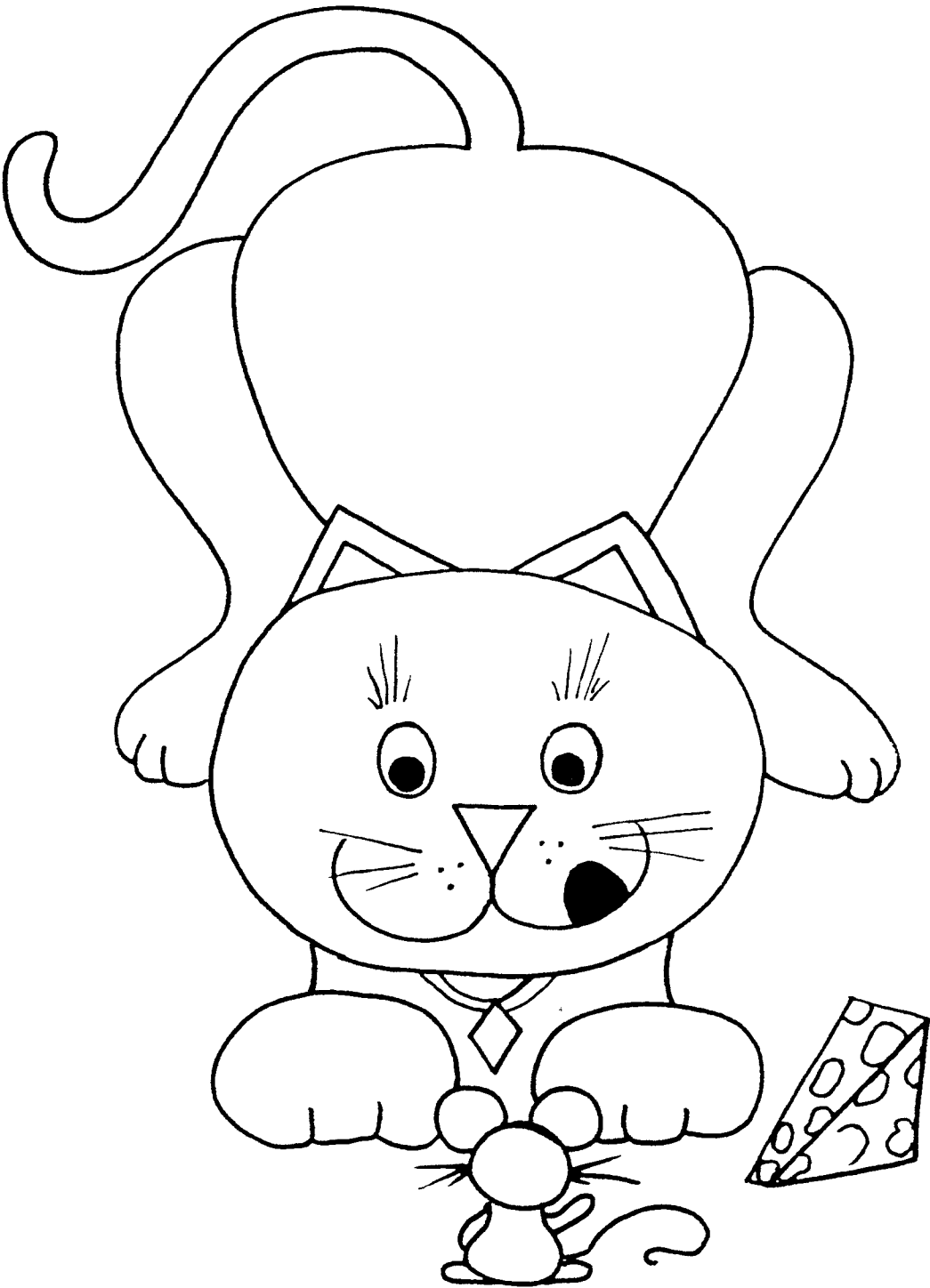


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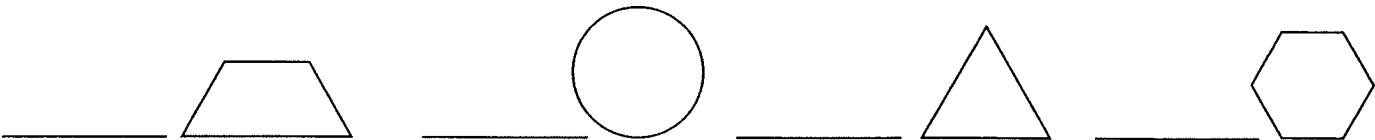
Shapes Search



Shapes Search



Shapes Search



Shapes Search

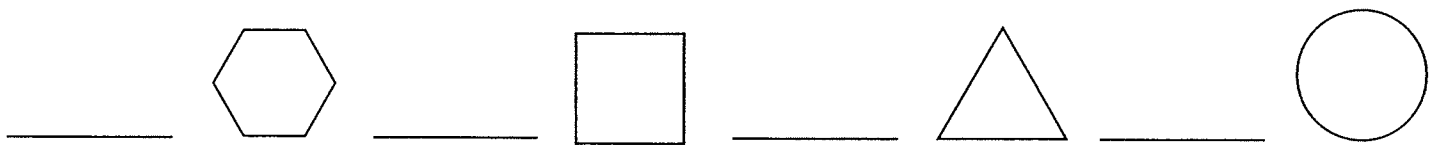
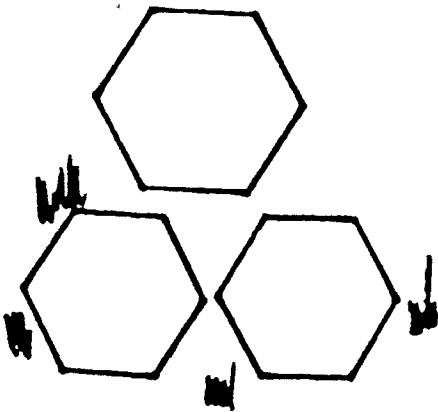


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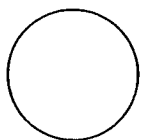
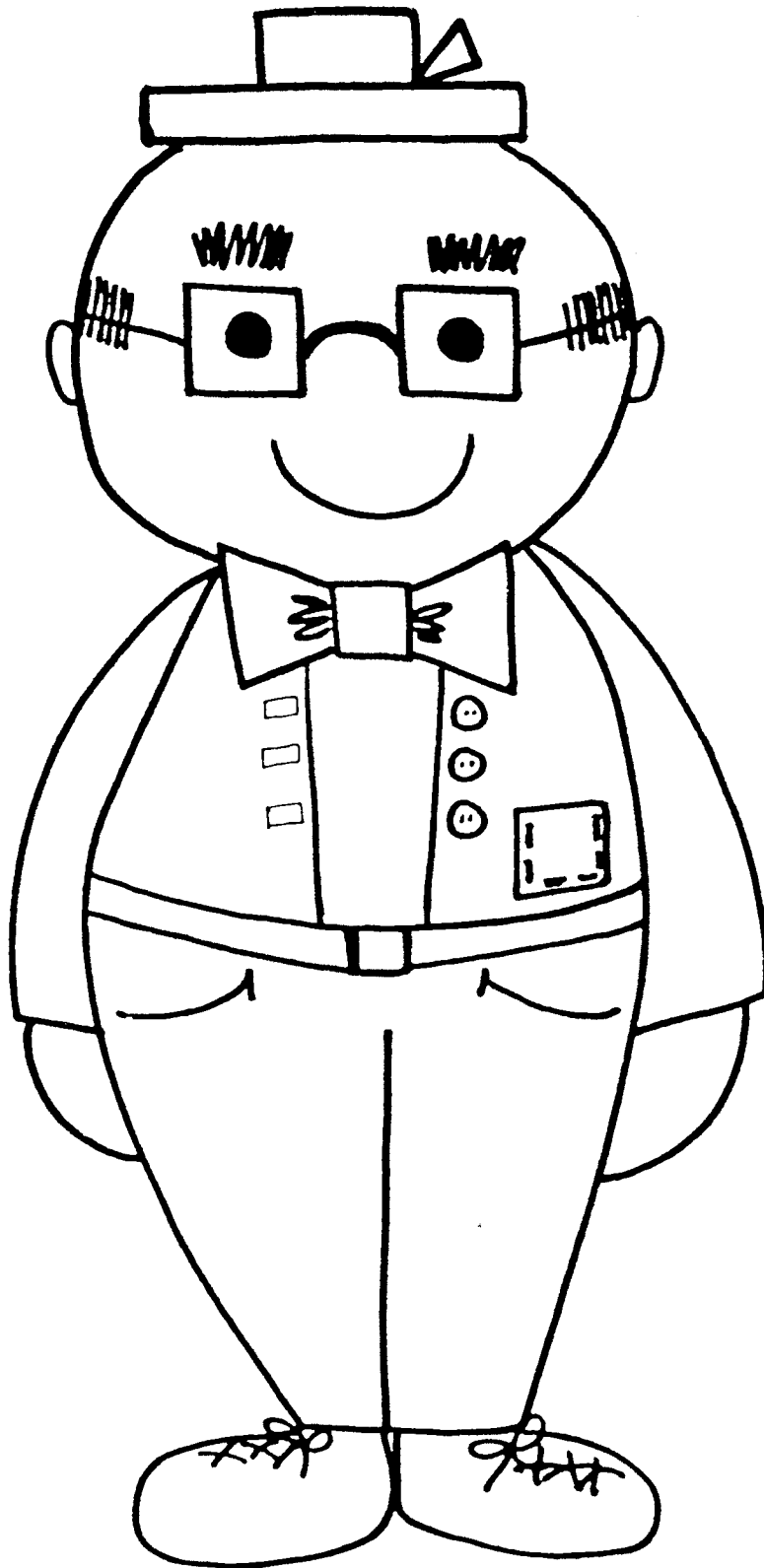
Shapes Search



Shapes Search

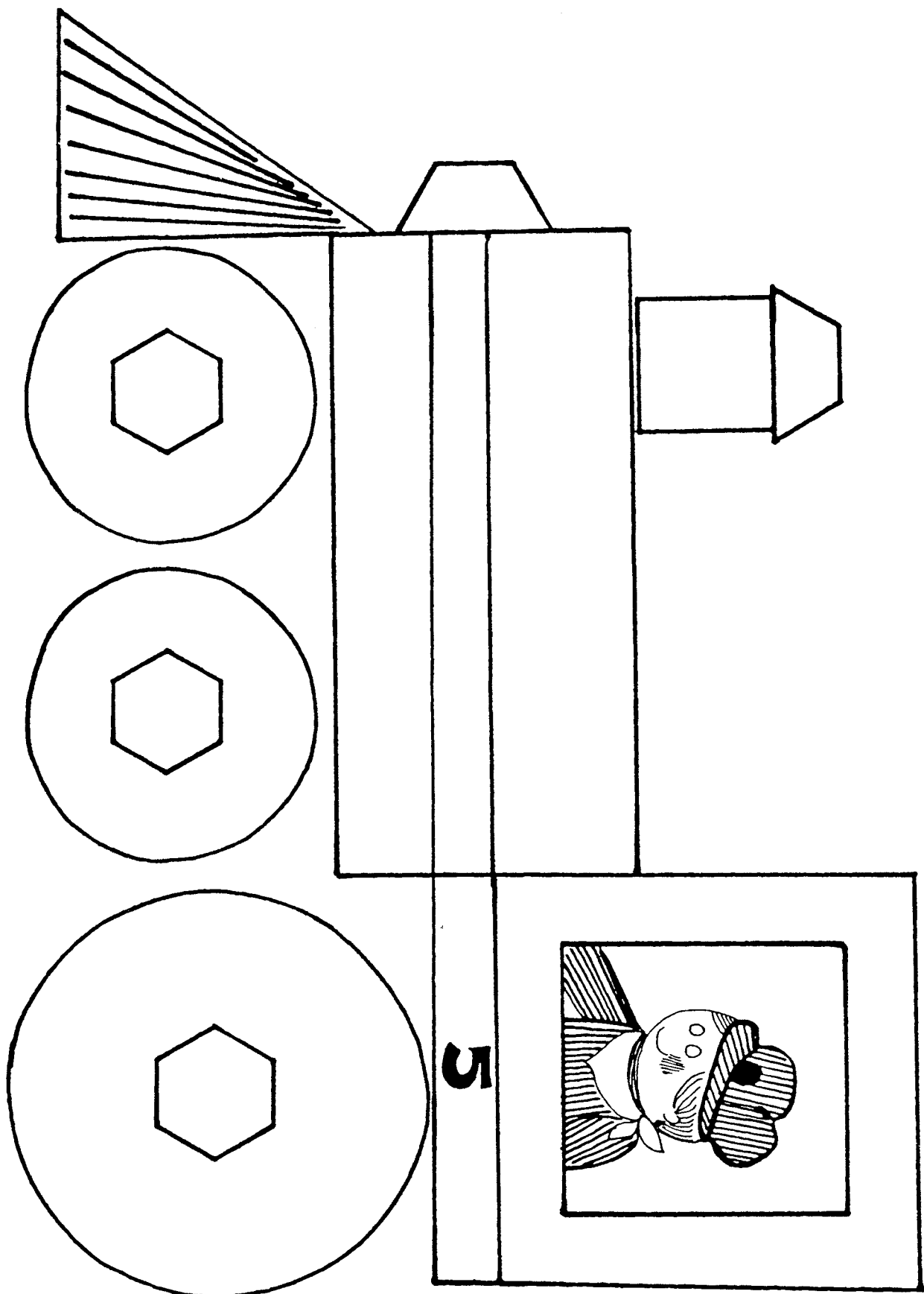
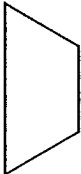
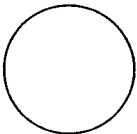
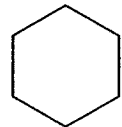


# Shapes Search

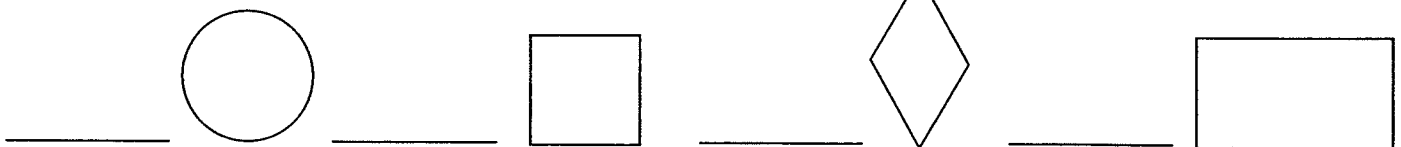
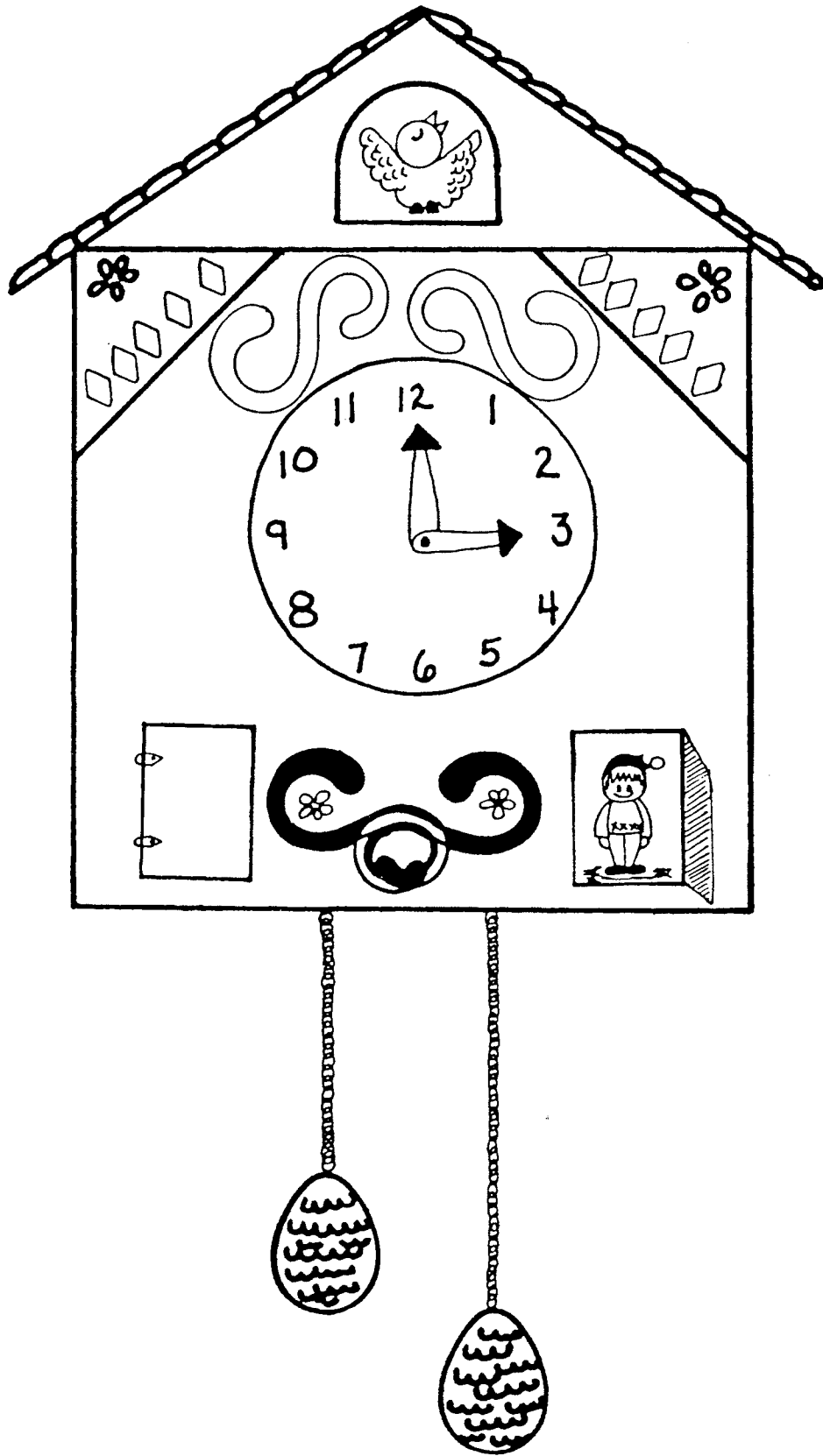




Shapes Search



# Shapes Search

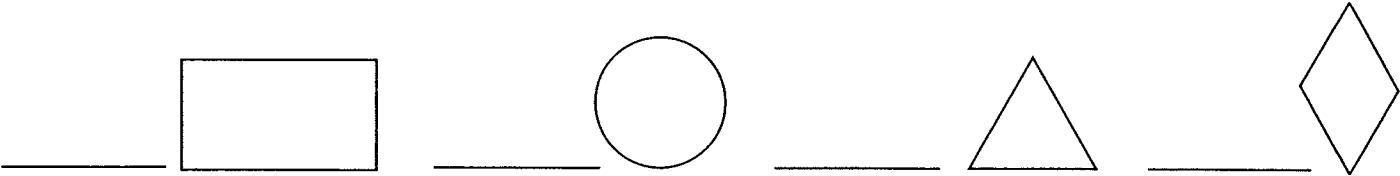
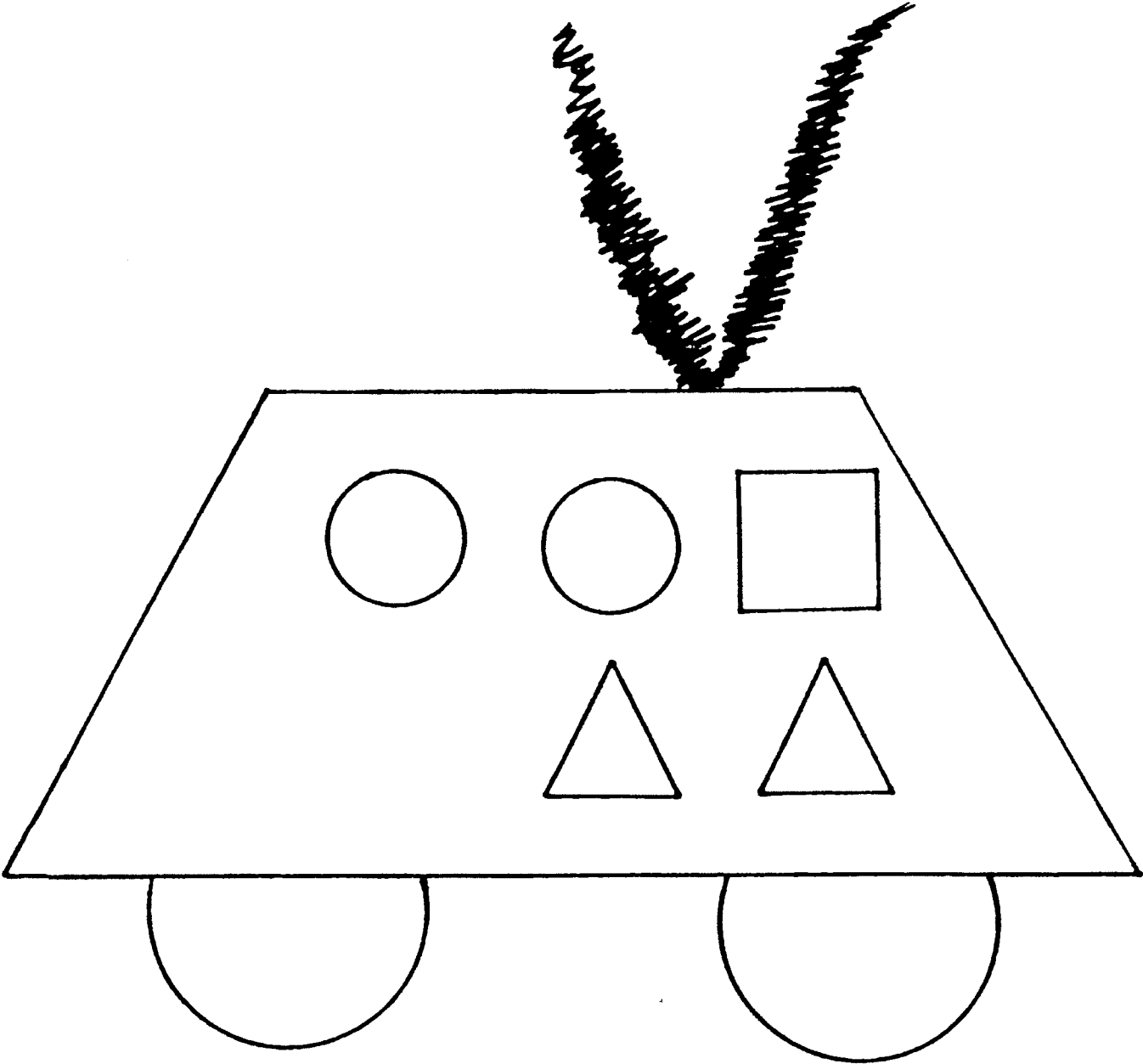


Shapes Search



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Shapes Search



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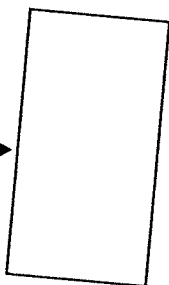
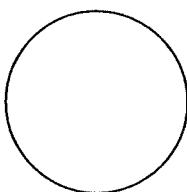
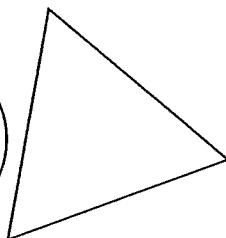
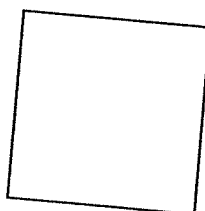
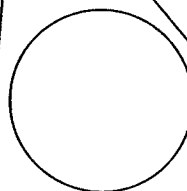
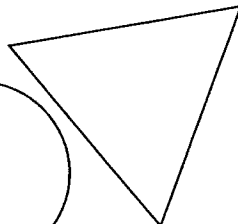
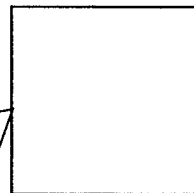
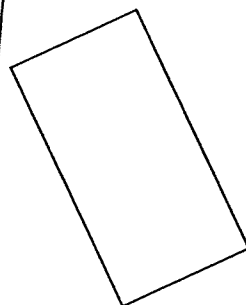
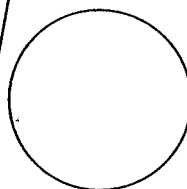
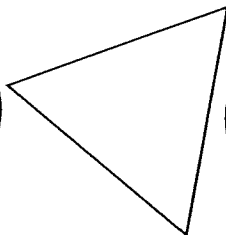
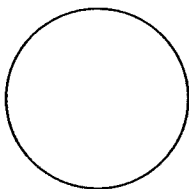
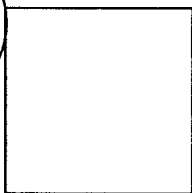
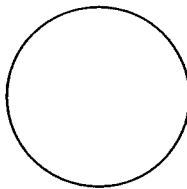
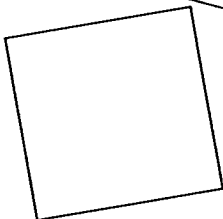
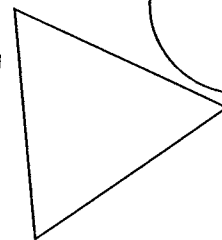
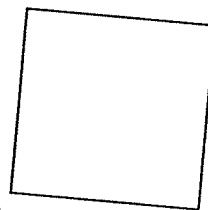
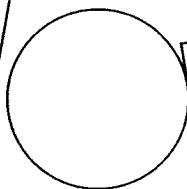
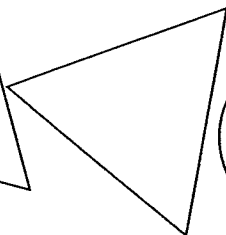
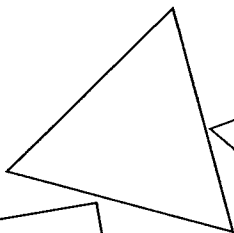
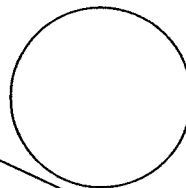
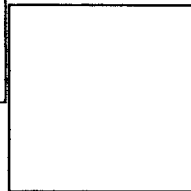
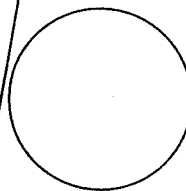
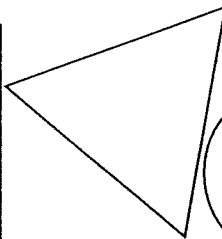
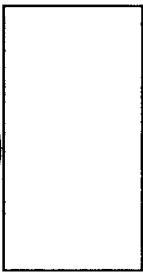
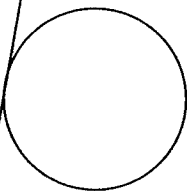
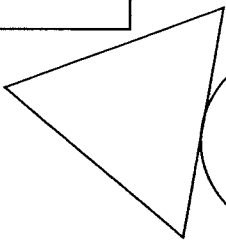
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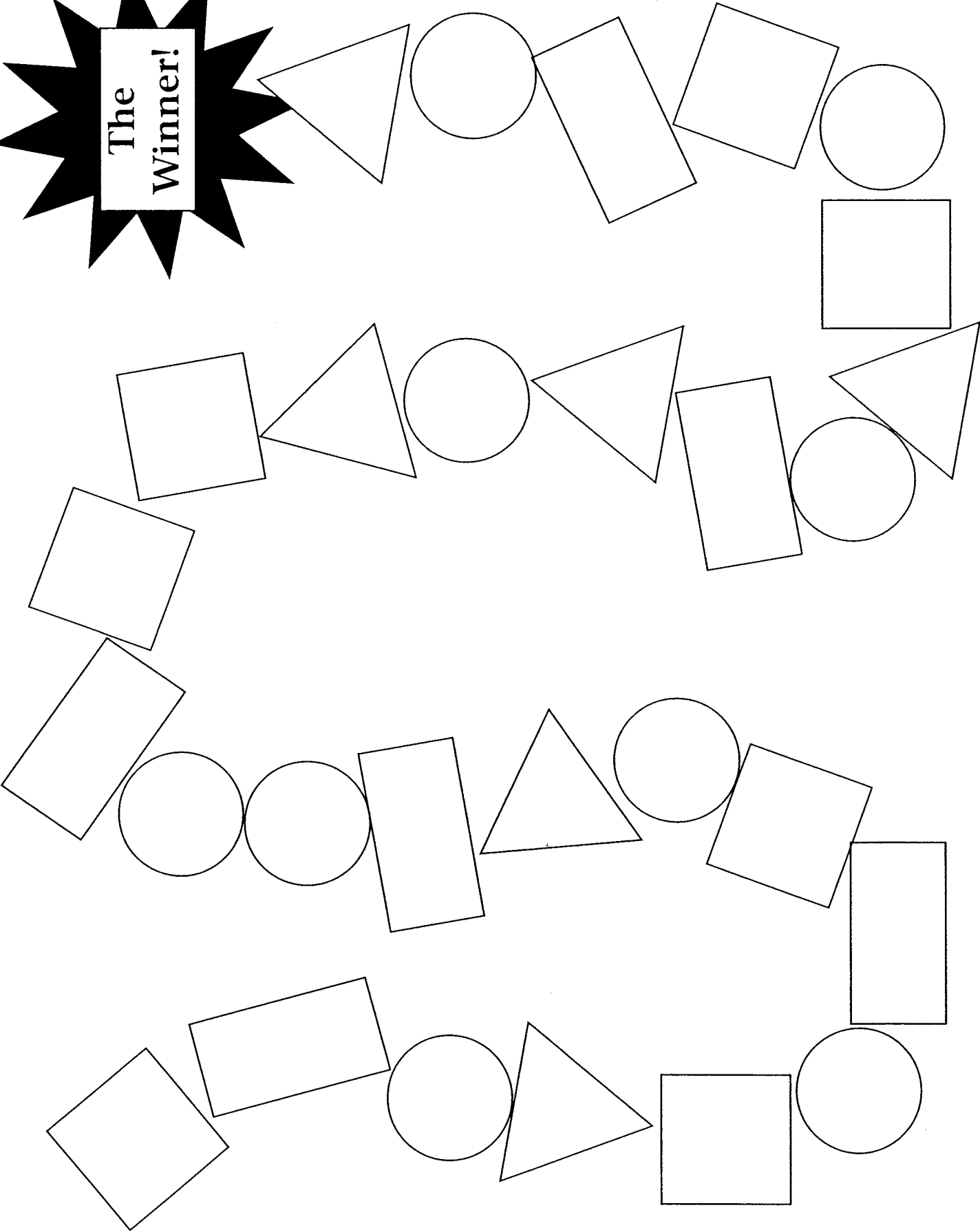
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10.



Shapes Race



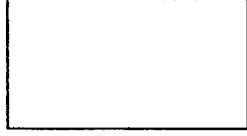
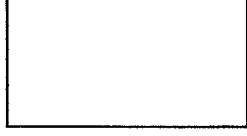
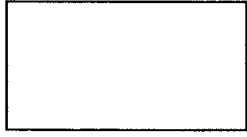
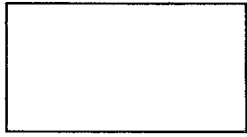
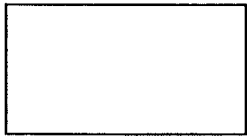
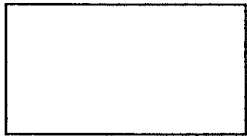
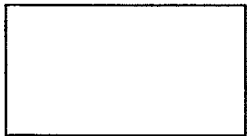
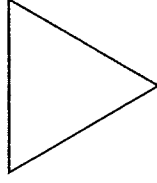
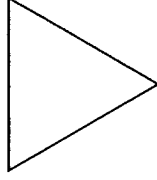
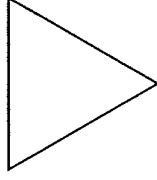
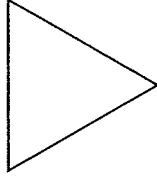
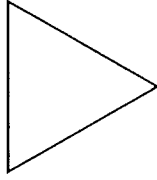
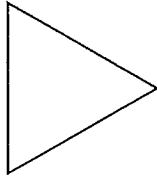
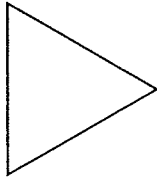
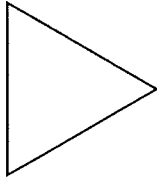
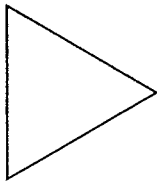
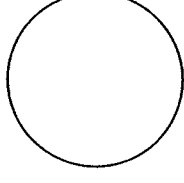
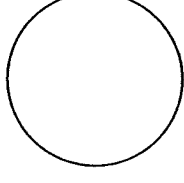
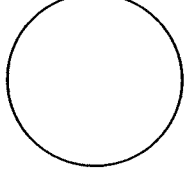
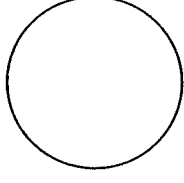
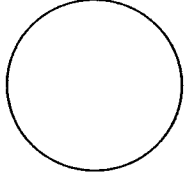
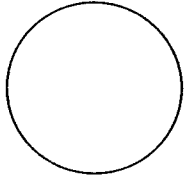
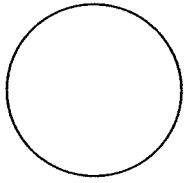
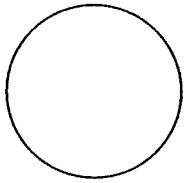
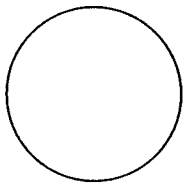
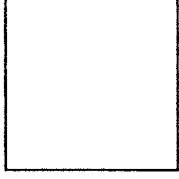
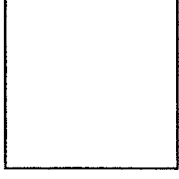
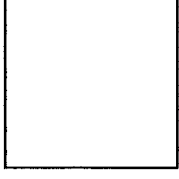
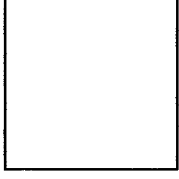
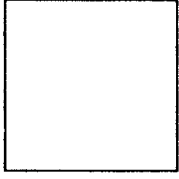
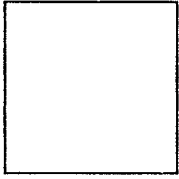
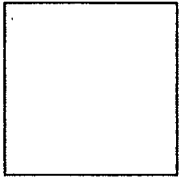
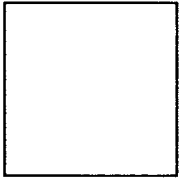
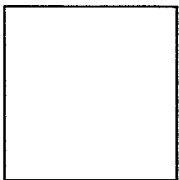
Spin and Count







Spin and Count



Apply the appropriate labels on both ends of each box lid. Either run the labels on full-sheet Avery Labels No. 5165, cut apart and attach; or simply cut apart these pages and glue or tape on.



### Shapes Floor Graph

**A PRACTICE & ENRICHMENT BOX**



### Feely Box Shapes

**A PRACTICE & ENRICHMENT BOX**



### Shapes Sorting

**A PRACTICE & ENRICHMENT BOX**



### Shapes Lotto

**A PRACTICE & ENRICHMENT BOX**



### Felt Shapes

**A PRACTICE & ENRICHMENT BOX**



### Shape Templates

**A PRACTICE & ENRICHMENT BOX**



### Shapes Mat

**A PRACTICE & ENRICHMENT BOX**



### Shapes, Spinners & Scissors

**A PRACTICE & ENRICHMENT BOX**



### Templates and Spinners

**A PRACTICE & ENRICHMENT BOX**



### What's Missing?

**A PRACTICE & ENRICHMENT BOX**



### Rotten Rectangle

**A PRACTICE & ENRICHMENT BOX**



### Shapes Search

**A PRACTICE & ENRICHMENT BOX**



### Shapes Race

**A PRACTICE & ENRICHMENT BOX**



### Elastic Shapes

**A PRACTICE & ENRICHMENT BOX**



### Shapes Floor Graph

**A PRACTICE & ENRICHMENT BOX**



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**A PRACTICE & ENRICHMENT BOX**



## **Play Dough Shapes**

**A PRACTICE & ENRICHMENT BOX**



## **Spin and Count**

**A PRACTICE & ENRICHMENT BOX**



## **Play Dough Shapes**

**A PRACTICE & ENRICHMENT BOX**

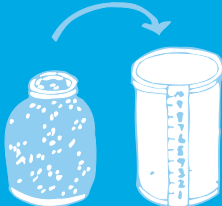


## **Spin and Count**

**A PRACTICE & ENRICHMENT BOX**

# introduction to Measuring

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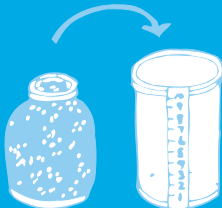
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**MATHEMATICS**

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# introduction to Measuring

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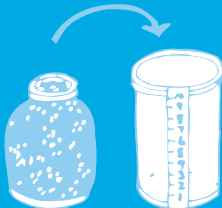
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# introduction to Measuring

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**Practice & Enrichment Boxes**

**Donna Burk • Allyn Snider  
Paula Symonds**

**Published by The Math Learning Center**

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**Box It or Bag It Mathematics, Practice & Enrichment Box:  
Introduction to Measuring**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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# Getting Started

*Once you've introduced Measuring through a variety of group lessons (be sure to see Box It or Bag It Mathematics Teachers Resource Guide, Kindergarten, INTRODUCTION TO MEASURING), you will want children to practice and extend their understanding using the activities in this packet. We've found the following ideas helpful for successful Independent Practice Time.*

*Provide no more than eight to twelve boxed activities at one time for a class of 30. Too many activities create more than tolerable chaos. Each Box is designed to be used by one to four children.*

*Model each activity thoroughly until children can tell you what to do, step by step. You'll find "box ingredients" and "playing instructions" for each activity in this packet. We use clear contact paper to secure this information inside the box lids so WE can remember what goes in each Box and how each game is played. Reading the directions would be too difficult for most primary children.*

*Resist the temptation to put out all your challenging Boxes at once—provide an equal balance of easy and hard. (If you set out too many difficult Boxes, all the children will need you at once and the noise level will be almost unbearable as your children try to cope with the stress of too many difficult tasks.)*

*When you construct these Practice and Enrichment Boxes, cover your box tops with the same design contact paper. That way, you'll be able to pull your Introduction to Measuring Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from The Math Learning Center in three sizes: standard (9 X 12 X 2), half size (9 X 6 X 1-7/8), and junk (4 X 7 X 1-1/8). See the Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.*

*The Boxes themselves can be used for group instruction and are ideal for an aide or parent to use with small groups. Some of the Boxes can be easily adapted for use with your whole group.*

*During Independent Practice Time, it's critical that you be available and in circulation to make sure things go smoothly. Once routines even out, you'll have ample opportunity to observe individual students at work. You can readily spot children with problems or with understandings beyond your predictions. See the next page for some observation guidelines to use as instruction progresses.*

*Be sure to see the Box It or Bag It Mathematics Teachers Resource Guide, INTRODUCTION, for more implementation strategies.*



## Introduction to Measuring Observation Sheet

															Children's Names
															Child is able to share materials and work cooperatively
															Child is able to establish order
															Child is able to talk about his or her work
															Child is able to compare length (shorter/longer)
															Child is able to compare weight (heavier/lighter)
															Child is able to compare capacity (holds more/holds less)
															Child is able to compare duration (more time/less time)
															Child is able to compare quantity (more than/fewer than)

---

# Length

---

## WHICH STRING? (1-4 Children)

**Box ingredients→** box of eight crayons  
eight measuring strings  
with masking tape flags  
record booklets  
half box for storage



### PLAYING INSTRUCTIONS

1. Put your name on your record booklet.
2. Find a measuring string that matches each thing in your room that the record booklet shows. Color the dot on each page as you find the string that matches.
3. Have your finished booklet checked.

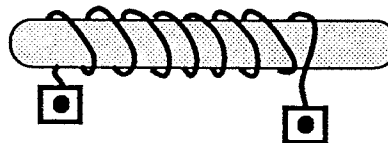
### MAKING INSTRUCTIONS

#### Measuring Strings

1. Put up lengths of masking tape in your room to match the children's record booklets. You'll have to mark the width of the door, the circumference of a wastepaper basket, the back of a chair, and five other items. See Which String? blacklines.
2. Cut a length of string to match each marked item in the room. Mark each string with two colored dots as illustrated.



3. Wrap each string around a popsicle stick to prevent tangling.



#### Record Booklets

Locate Which String? record sheets in the blacklines. Run copies, cut into fourths, and collate pages. Store booklets, crayons and measuring strings in a half box.

NOTE: If this activity is especially popular in your room, you might want to make a second box.

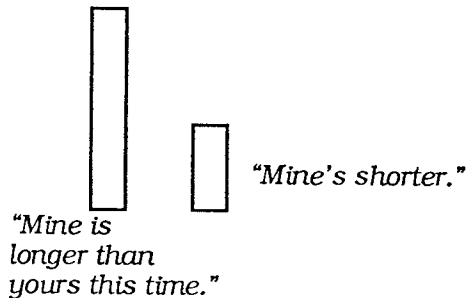
## STICKS IN A BAG (2 Children)

**Box ingredients→** twelve sticks of varying lengths  
cloth bag  
more/less spinner  
standard box or half box  
for storage depending on  
the size of your sticks



## PLAYING INSTRUCTIONS (Easy Game)

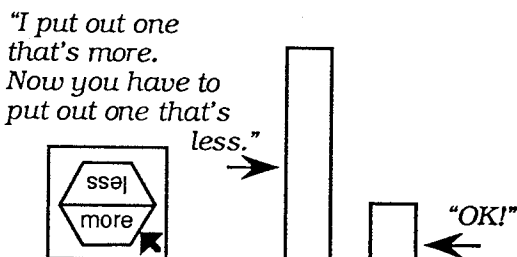
1. Put all the sticks into the cloth bag.
2. Reach in and pull out one stick. Let your partner reach in and pull out one stick. Lay them side by side and compare them.



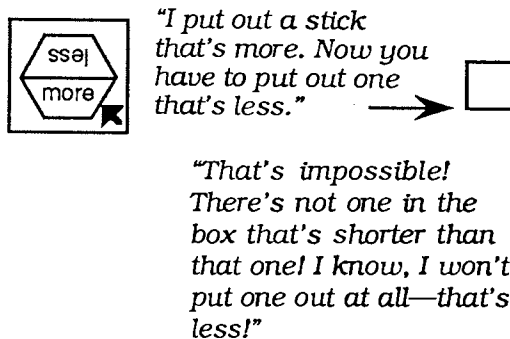
3. Repeat, letting your partner pull a stick out of the bag first this time. Continue pulling sticks out of the bag and comparing their lengths until you've used up all the sticks.

## PLAYING INSTRUCTIONS (Tricky Game)

1. Don't put the sticks in the bag this time; lay them out in the box lid so you and your partner can both see them.



2. Spin the more/less spinner. Choose a stick to represent what the spinner says and lay it on the table. Your partner has to choose a stick from the box that is the opposite. This can get tricky.



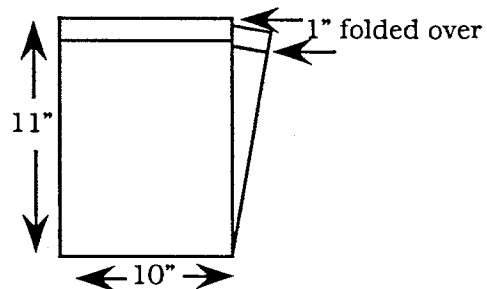
## MAKING INSTRUCTIONS

### Sticks (12)

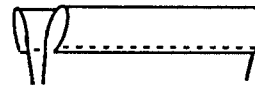
Use 3/4" dowels or sticks cut to lengths varying between 1" and 11" (8-1/2" if you want your sticks to fit in a half box). Be sure to cut a pair or two the same length, too. You could use old Sterns Blocks or Cuisenaire Rods if you have them.

### Cloth Bag

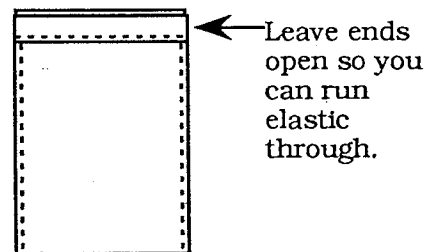
You'll need a piece of sturdy cotton-type fabric 10 X 24 and a 7" length of soft 3/8" elastic.



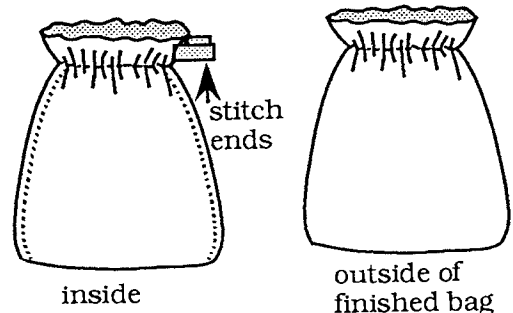
1. Stitch top folds. Leave open at the ends.



2. Stitch sides of bag (1/2" seam allowance), leaving 1" folds at top unstitched on both ends so you can run elastic through.



3. Run elastic through the top. Stitch ends of elastic together when you get the strip pulled through.



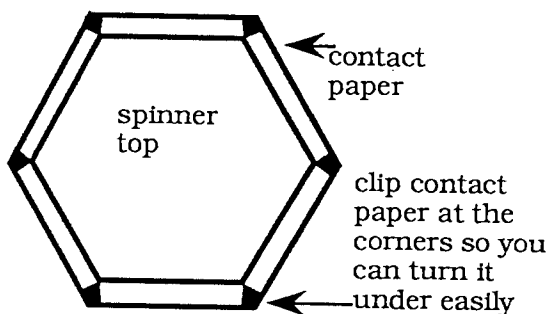
## More/Less Spinner

Four of the activities in this packet include more/less spinners. Here are directions for assembling the spinners.

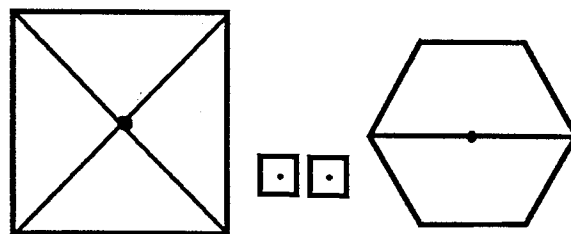
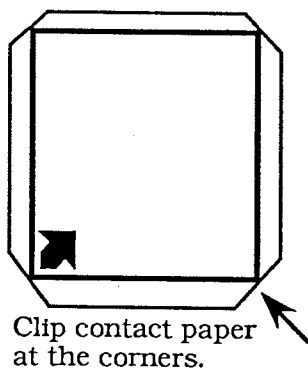
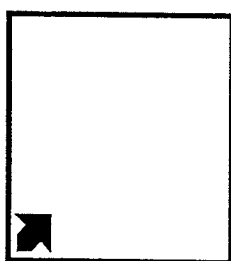
For each spinner you'll need:

- spinner top from blacklines
- two 6 X 6 square pieces poster or matte board, any light color
- one regular-sized paper clip
- clear contact paper
- two 1"-square scraps of posterboard

1. You may want to color in spinner top with felt pens or crayons before you start.
2. Glue spinner top to one of the 6 X 6 pieces of poster board. Cut it out.
3. Cut a piece of clear contact paper somewhat larger than the spinner top. Place the contact paper over the top and smooth it down. Snip the edges of the contact paper and turn them under the spinner top.

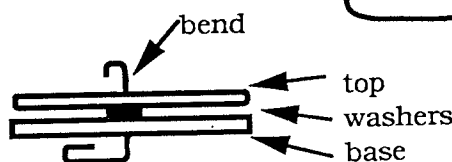


4. Draw a small arrow at the corner of the other 6 X 6 piece of railroad board. Cover the square with clear contact paper, turning the edges under.

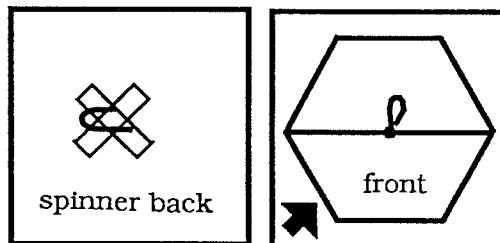


Draw lines diagonally across the back of the 6 X 6 square to help locate the midpoint.

5. To assemble the spinner, poke holes through the center of the 6 X 6 square, two 1"-square "washers", and the center of the spinner top.
6. Unfold a paper clip by pulling out the middle section and bending it upwards.



7. Poke it upwards through the squares, the two washers, and the spinner top.



8. Tape the paper clip with an "X" of strapping tape to the back of the 6 X 6 square to hold the spinner together. Bend down the top point of the paper clip in front to prevent injury.

Store the spinner, folded bag, and sticks in a standard box.

## CUBES IN A BAG (2 Children)

**Box ingredients→** 50 unifix cubes in two different colors (25 of each)

two pieces of 6 X 9 poster board to match the colors of your unifix cubes

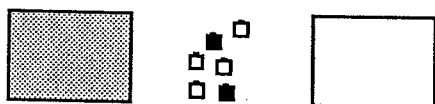
cloth bag

half box for storage



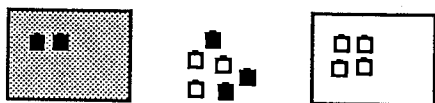
### PLAYING INSTRUCTIONS

1. Have each player decide which color to be. Take the poster board card of that color and put it in front of you. Your partner does the same.
2. Put all 50 unifix cubes into the cloth bag and shake them around to mix the colors.
3. Pull out a handful of cubes. Sort them by color. Take the cubes of your color. Put them on your card. Give the others to your partner to put on his or her card.



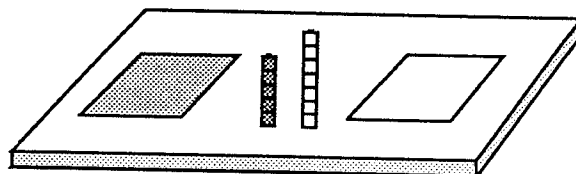
*"I only get 2 this time. You get 4."*

4. Let your partner do step number three.



*"This time we got the same number of cubes."*

5. Both of you stack all the cubes on your cards. Compare the heights of your towers.



*"Your tower is taller than mine. You got more cubes than I did this time around."*

6. Repeat the procedure—pull cubes out, sort; pull cubes out, sort; stack cubes; compare tower heights—until there are no more cubes in the bag. Share your results with someone.

### MAKING INSTRUCTIONS

#### Cloth Bag (1)

See Sticks in a Bag for instructions. Store unifix cubes, poster board cards, and folded cloth bag in a half box.

## SECRET EGGS (2 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, INTRODUCTION TO MEASURING, Secret Eggs, for group introduction to this Box.

- Box ingredients→** twelve plastic hollow Easter eggs,  
each filled with a rolled-up  
length of grosgrain ribbon
- empty egg carton, bottom only
- standard box for storage



### PLAYING INSTRUCTIONS

1. Set the twelve eggs into the egg carton.
2. Choose one egg. Open it and unroll the length of ribbon. Let your partner do the same. Lay the ribbons side by side and compare.



*"Look how long yours is compared to mine!"*

3. Repeat, letting your partner choose an egg and open it first this time. Continue choosing eggs, opening them and comparing the lengths of ribbon until all the eggs are open. (You'll get to open and compare six times.)
4. When you're finished, roll the ribbons up carefully and put each inside an egg (it doesn't matter which) so the game is ready for someone else.

### MAKING INSTRUCTIONS

#### Eggs (12)

Buy the hollow plastic eggs that are the same size as regular chicken eggs. (It's nearly impossible to find them at any other time of year than Easter.)

#### Ribbons

Buy two yards of 1" wide grosgrain ribbon and cut into the following lengths: 2", 4", 4", 8", 8", 9", 10", 11", 6", 5", 3", 1". It's even more fun to have different colored ribbons in your eggs, so if you have scrap pieces, that's fine. Be sure to use wide grosgrain—other types of ribbon are hard to roll up, tend to get crumpled in the eggs, and don't lie flat as children try to compare them.

Store ribbons in the eggs. Store the eggs and egg carton bottom in a standard box.

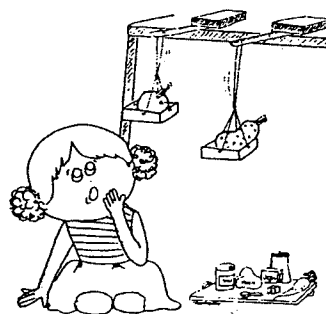
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# Weight

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## WEIGHING CARDS (1-2 Children)

**Box ingredients→** two milk box scales  
two rulers  
heavy books or blocks to anchor rulers  
things to weigh in a tub or other large container  
weighing record cards  
half box for storage



### PLAYING INSTRUCTIONS

1. Set up milk box scales.
2. Pick two objects. Set one in each scale.  
Compare their weights.
3. Set the things you weighed on a weighing card.
4. When finished, have your work checked.

### MAKING INSTRUCTIONS

#### Milk Box Scales (2)

See Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for making instructions.

#### Things to Weigh (15-20 objects, all heavier than a box of crayons)

Here are some ideas: a can of tomato sauce, a can of green chilies, a candle, a block, a big old dog bone, a large bolt, a screwdriver, a wrench, a small (8-oz. size) box of detergent sealed with strapping tape, a bag of metal washers, a lump of clay in a plastic bag, and so on. Scrounge around your kitchen cupboards, your children's rooms, your garage—common, everyday items seem to capture children's interest best. Store objects, scales and rulers in a plastic dish tub or other sturdy container.

#### Weighing Record Cards

Locate weighing record cards in the cardstock portion of this packet. Laminate if you wish. Store cards in a half box. Place half box in the tub of things to weigh.

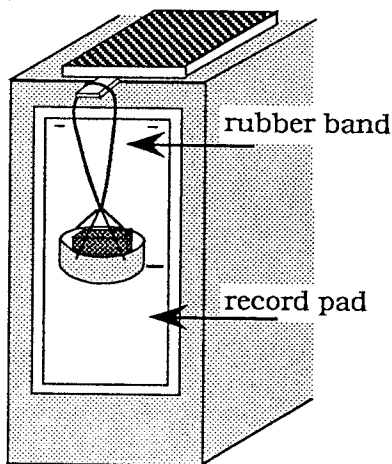
## WHICH IS HEAVIEST? (1-2 Children)

**Box ingredients→** milk box scale      ruler  
heavy books or blocks to secure ruler  
10-15 items of varying weights, each labeled with its name and a dot of color  
record pad  
standard box for storage

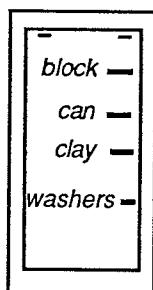
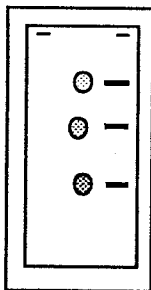


## PLAYING INSTRUCTIONS

1. Set up milk box scale by record pad (see illustration).



2. Choose something to weigh. Put it into the scale. Mark a line on the record pad where the bottom of the scale now comes. Beside the line copy the name of the object or color a little circle to match the object's color dot.
3. Repeat as many times as you like, each time marking where the scale comes and recording the name or color code of the object.



4. When you're finished, tear your record sheet off the pad and share it with someone. Can you tell which object was heaviest? Lightest? Can you line up the objects you weighed from lightest to heaviest for someone else to see?

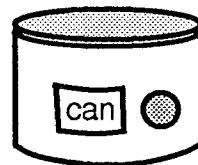
## MAKING INSTRUCTIONS

### Milk Box Scale

See Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for making instructions. Store the scale and ruler in a standard box so you'll be sure to remember that you have this activity. (Theoretically, the contact-covered Box, sitting alongside the other Measuring Boxes on your shelf, will trigger your memory!)

### Things to Weigh (10-15 objects)

See ideas under Weighing Cards. Label each item with its name and a dot of color so that children will have a way to record what they weigh on the record pad. (Some will copy the item name; some will color a little swatch to match the color dot.) Store in a tub or other sturdy container.



### Record Pad

Staple 10-15 sheets of newsprint, 8 X 18 or 8 X 24, to a sheet of poster board, 10 X 20 or 10 X 26. When you set up the Introduction to Measuring activities in your room, attach the record pad to the side of a bookshelf.



## WEIGHTS IN A BAG ( 2 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, INTRODUCTION TO MEASURING, Weights in a Bag, for a group introduction to this Box.

**Box ingredients→** twelve objects of varying weights

cloth bag

balance scale

half or standard box for storage,  
depending on the size of your  
weighing objects



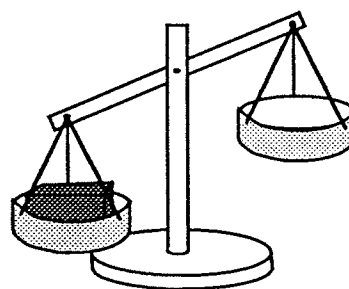
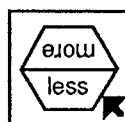
### PLAYING INSTRUCTIONS (Easy Game)

1. Put all the objects into the cloth bag.
2. Reach in and pull out one item. Let your partner do the same. Hold both items, one in either hand, and predict which is heavier. Let your partner hold the items and predict too.
3. You and your partner each place your item on one side of the scale. Compare. Lay your items side by side on the table and start all over again. This time, let your partner reach into the bag and choose an item first. Continue until all the objects have been pulled out of the bag and compared. Share your results with someone else.

### PLAYING INSTRUCTIONS (Tricky Game)

1. Don't put the objects in the bag this time; lay them out in the box lid so you and your partner can both see them.
2. Spin the more/less spinner. Choose an object to represent what the spinner says and put it in one side of the scale. Your partner has to choose an object from the box that is the opposite. This can get tricky.

*"I put in the clay for less.  
Now you have to put something  
on your side that's heavier."*



*"The clay! Oh, no! That's the  
heaviest thing in the box! Now  
what am I going to do?"*

## MAKING INSTRUCTIONS

### Things to Weigh

See Weighing Cards for more ideas, but be sure the objects you choose are small enough to fit into a standard or half box.

### Spinner

Locate more/less spinner top in the blacklines. See Sticks in a Bag for assembly directions.

### Cloth Bag

See Sticks in a Bag for making instructions. Store the folded bag in box along with things to weigh and the spinner.

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## Capacity

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### FILL AND MARK (2 Children)

**Box ingredients→** 5 pounds of rice stored in a large cookie tin or other container with a tight-fitting lid

jars in divided box

measuring cups or scoops of varying sizes

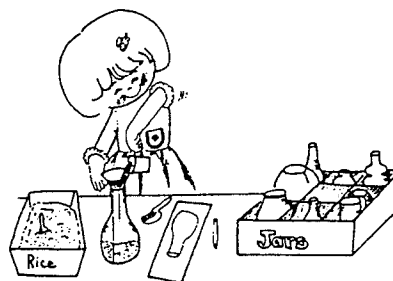
funnels

masking tape

6 X 18 paper

scissors and pencils

half box for storage



### PLAYING INSTRUCTIONS

1. Choose a jar.
2. Lay your jar on a piece of 6 X 18 paper and draw around it.
3. Put masking tape up the side of the bottle from bottom to top.
4. Fill your measuring cup exactly to the top with rice. Pour it into the jar. Don't forget to use the funnel! Mark the masking tape with a pencil to show how high the rice is. Keep putting cupfuls of rice into the jar until it's full. After putting in each scoop, be sure to mark the height of the rice.

5. When you're finished, pour the rice out of the jar. Take the masking tape off and put it up the side of the jar you traced on paper. Now you have a record of what you did!

### MAKING INSTRUCTIONS

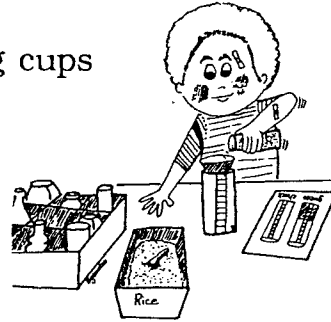
#### Paper

Cut 10-15 sheets of 6 X 18 newsprint. Fold in half and store in a half box, along with a roll of masking tape. Keep the rice, jars, funnels, and scoops on your general math materials shelf and the scissors and pencils on your classroom tools shelf.

## THE MEASURING JAR (2 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, INTRODUCTION TO MEASURING, The Measuring Jar, for a group introduction to this Box.

**Box ingredients→** jar with straight sides, such as a  
10 oz. pickle jar  
scoops or variety of measuring cups  
jars in a divided box  
rice  
record sheets  
funnels  
junk box for storage



### PLAYING INSTRUCTIONS

1. Choose a jar and fill it with rice. Record the jar's letter on the "pouring" jar on the record sheet.
2. Guess how far it will fill the measuring jar.
3. Color the "guess" jar on the recording sheet to show how high you think the rice will come.
4. Put a funnel on the measuring jar, then pour your jar of rice into the measuring jar.

5. Color the "check" jar on the recording sheet to show what really happened.

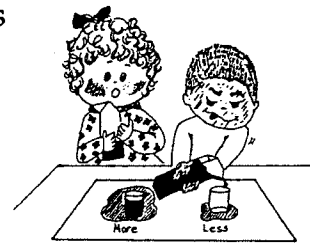
### MAKING INSTRUCTIONS

#### Record Sheets

Locate The Measuring Jar record sheet in the blacklines. Run copies and cut apart. Store in a junk box which is labeled and covered with contact paper. Keep the rice set-up on the general math materials shelf.

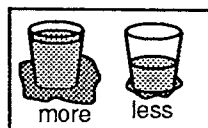
## CUPS TO FILL (2 Children)

**Box ingredients→** two containers of colored water  
(quart or half-gallon milk cartons,  
plastic milk or juice containers, etc.)  
sixteen plastic 8 oz. tumblers  
eight more/less vinyl mats  
towels  
half box for storage



## PLAYING INSTRUCTIONS

1. Set up glasses on the more/less mats.



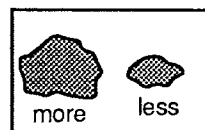
2. Take turns pouring water into the glasses. You can fill either glass on the marker card. Let your partner fill the other.
3. When you've gotten all the glasses filled, have your work checked.

## MAKING INSTRUCTIONS

### More/Less Vinyl Mats:

You'll need eight pieces of solid colored (not black) oilcloth or vinyl, 8-1/2 X 5-1/2, and a permanent black felt tip marker

Mark a "more blob" and a "less blob" on each vinyl piece.



Store the vinyl mats in a half box. It would be wise to cover both the top and bottom of this box with contact paper. Keep the water containers, plastic tumblers, and towels near your sink area, and have children bring the box to the sink area at Independent Practice Time.

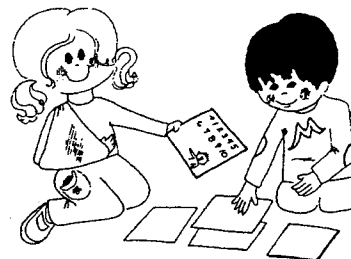
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## Duration

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### HOW MUCH TIME? (2 Children)

**Box ingredients→** How Much Time? task cards  
How Much Time? record cards  
half box for storage



## PLAYING INSTRUCTIONS

1. Spread out task cards face down.
2. Pick up a task card. Have your partner pick up a task card. Get the things you'll need to do what the cards say.
3. Do what the cards say—both of you at once! Put each task card where it belongs on a "more time", "less time", or "the same time" card.
4. Do this over and over until you use up all the task cards. Have fun!

**NOTE:** This is a challenging task for kindergartners to handle independently. It works wonderfully as a whole group activity: two children are chosen to perform each task; the group predicts which will take more time and

which will take less each time around. You might also have a parent or aide supervise groups of two or four children.

## MAKING INSTRUCTIONS

### Task Cards

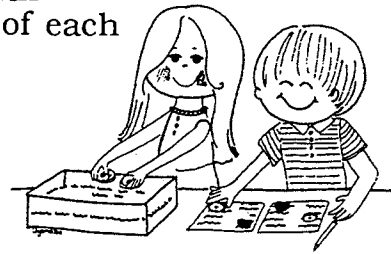
Locate How Much Time? task cards in the cardstock portion of this packet. Color with waterbase felt markers if you wish. Laminate and cut apart.

### Time Cards

Locate How Much Time? time cards in the cardstock portion of this packet. Laminate. Cut apart. Store time cards and task cards in a half box.

## SINKERS (2 Children)

**Box ingredients**→ variety of metal lids (15-20) with  
holes drilled in the center of each  
clear container of water  
two towels for spills  
time cards  
half box for storage



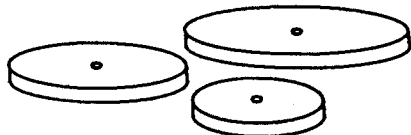
### PLAYING INSTRUCTIONS

1. Choose two lids from the collection. Predict which one will sink faster, which one slower.
2. Set the two lids on top of the water and watch to see which one sinks faster. (If your lids don't sink, get them completely wet and start again.)
3. Put the two lids on a time record. Show which one sank faster and which sank slower.
4. Try it again with two different lids.
5. Can you discover anything that's the same about the lids that sink quickly? Share your ideas with someone.

NOTE: You can do this activity without a partner.

### MAKING INSTRUCTIONS

#### Metal Lids



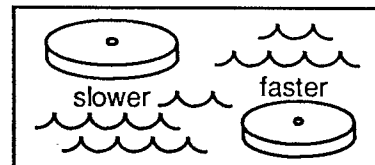
Use a hammer and a very large nail or a drill to make a hole approximately 1/8" in diameter in each lid.

#### Water

To make lids sink with ease, add detergent to your water to break the surface tension.

#### Time Records

Use a piece of oilcloth or an old shower curtain to create ten 4 X 9 time records. Draw the diagram below on each record with a black permanent marking pen.



Store time records and lids in a half box. Leave the towels and water container near your sink.

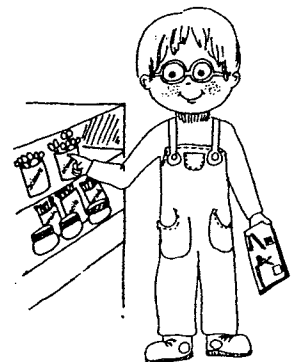
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## Quantity

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## HOW MANY? (1-4 Children)

**Box ingredients**→ task cards  
Vis-a-vis or overhead projector pens  
half box for storage  
unifix cubes, available if needed



## PLAYING INSTRUCTIONS

1. Count the things on a task card. Use the unifix cubes to help you count, if you wish. (Stack one cube for each thing.) Write the correct number in each box as you get things counted or simply set your stack of unifix cubes in the square. Circle the number that means more on each page or task card.
2. Have your task cards checked when you're finished.

## MAKING INSTRUCTIONS

### Task Cards

Locate How Many? task cards in cardstock portion of this packet. Color with waterbase felt markers if you wish. Laminate. Cut apart. Store in a half box with several Vis-a-vis or overhead marking pens. Keep a tub of unifix cubes available for children who want to use them.

## EGG CARTON GRAPHS (2 Children)

**Box ingredients→** eight small clear plastic film containers filled with different numbers of small objects  
more/less spinner  
cloth bag  
eight egg cartons with lids cut off  
half box for storage

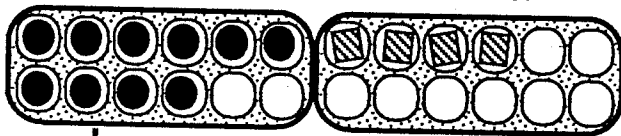


### PLAYING INSTRUCTIONS (Easy Game)

1. Put all the film containers filled with objects into the cloth bag.
2. Reach in and pull out a container. Open it and put the objects into your side of the egg carton graph, one object per cup. Let your partner do the same. Compare quantities.

*"I got 10 plastic chips in my container. I got more than you."*

*"I only got 4 blocks in my container. That's less than 10."*



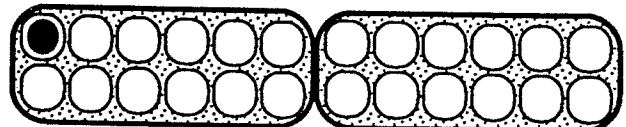
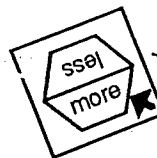
2 egg cartons laid end-to-end

3. Repeat, letting your partner pull a container out of the bag first this time. Continue pulling containers out of the bag and comparing quantities using the egg cartons as graphs until you've used all the containers.

### PLAYING INSTRUCTIONS (Tricky Game)

1. This time set out the containers in the box lid so you and your partner can both see them.
2. Spin the more/less spinner. Choose a container to represent what the spinner says, take the objects out, and put them into the cups on your side of the egg carton graph. Your partner has to choose a container from the box that's the opposite. This can get tricky.

*"I spun 'more' but I picked the container that had only one thing in it. Now you have to find a container with less."*



*"That's impossible! I know, I'll put nothing on my side, 'cause zero's less than one!"*

## MAKING INSTRUCTIONS

### Containers

Find eight small clear plastic film containers or other small plastic boxes. (Parents are often a good source.) Place anywhere from zero to twelve objects in each container. Use things like buttons, pattern blocks, legos, bread tags, game markers, old Monopoly houses, etc.

### More/Less Spinner

Locate spinner top in blacklines. See Sticks in a Bag for assembly directions.

### Cloth Bag

See Sticks in a Bag for directions. Store folded bag, containers filled with objects, and spinner in half box. Cut-off egg cartons will have to be stored separately.

## ZIPLOCKS AND GRAPHS (2 Children)

See Box It or Bag It Mathematics Kindergarten Teachers Resource Guide, INTRODUCTION TO MEASURING, Ziplocks and Graphs, for a group introduction to this Box.

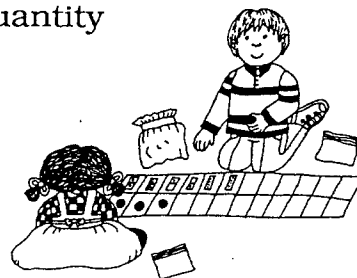
**Box ingredients→** six quart-sized ziplock bags filled with objects varying in quantity from zero to twelve

cloth bag

three graphs

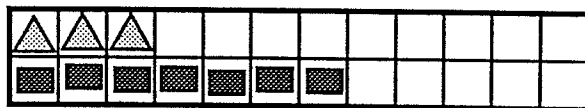
more/less spinner

standard box for storage



## PLAYING INSTRUCTIONS (Easy Game)

*"I got three triangles  
in my bag."*



*"I got seven blocks—  
four more than you!"*

1. Put all the ziplocks, filled with objects and closed, into the cloth bag.
2. Reach in and pull out a ziplock. Open it and put the objects on your side of the graph, one object per space. Let your partner do the same. Compare quantities.
3. Repeat, this time letting your partner pull a ziplock out of the cloth bag first. Continue pulling ziplocks out of the bag and comparing quantities on the graphs until you've used all the ziplocks.

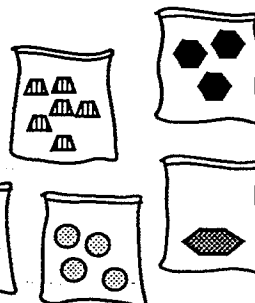
## PLAYING INSTRUCTIONS (Tricky Game)



*"I spun 'less', but I picked the bag with 12 in it. Now what're you going to do?"*



*"I'm going to have to use more than one bag!"*



1. Don't put the ziplocks in the bag this time; lay them out in the box lid so you and your partner can both see them.
2. Spin the more/less spinner. Choose a ziplock to represent what the spinner says, take the objects out, and put them on your side of the graph. Your partner has to choose a ziplock from the box that is the opposite. This can get tricky.

### Cloth Bag

See Sticks in a Bag for directions.

### Graphs (3)

You'll need one piece of white construction paper or tag, 6 X 24, for each graph. Mark the paper off into 12 boxes in two rows, as illustrated.

### More/Less Spinner

Locate more/less spinner top in the backlines. See Sticks in a Bag for assembly directions. Store spinner, folded bag, folded graphs, and ziplocks filled with objects in a standard size box.

## MAKING INSTRUCTIONS

### Ziplocks (6)

Fill six quart-sized ziplocks with objects varying in quantity from zero to twelve. Small toys are fun—blocks, dominoes, matchbox cars, puzzle pieces, etc.



Cut here



Laminate graph and tape pieces together with strapping tape so your graphs will fit into the storage box.

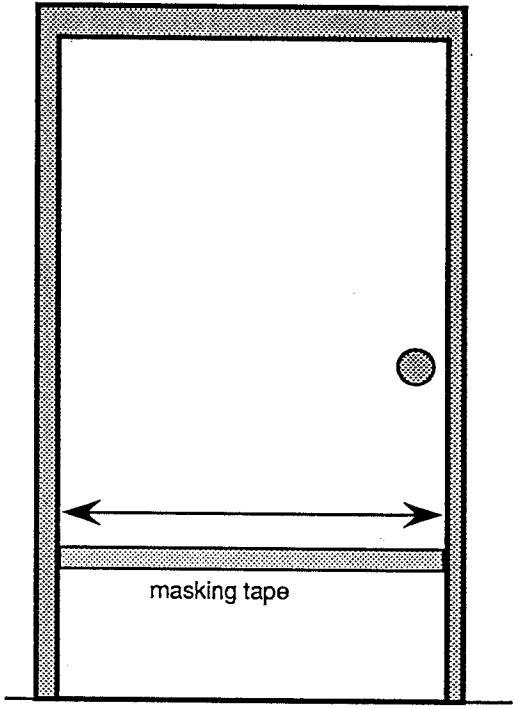


# Blacklines

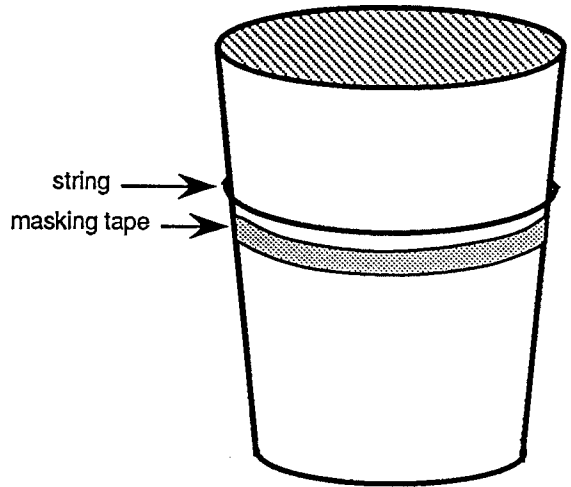
Patterns, cards, spinners, and other materials you'll make for the  
Practice & Enrichment Boxes described in this packet.

name \_\_\_\_\_

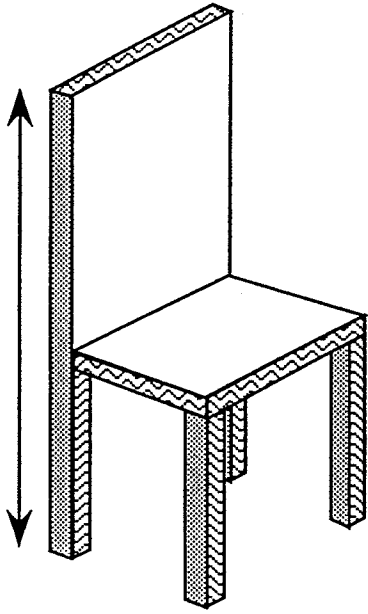
# Which String?



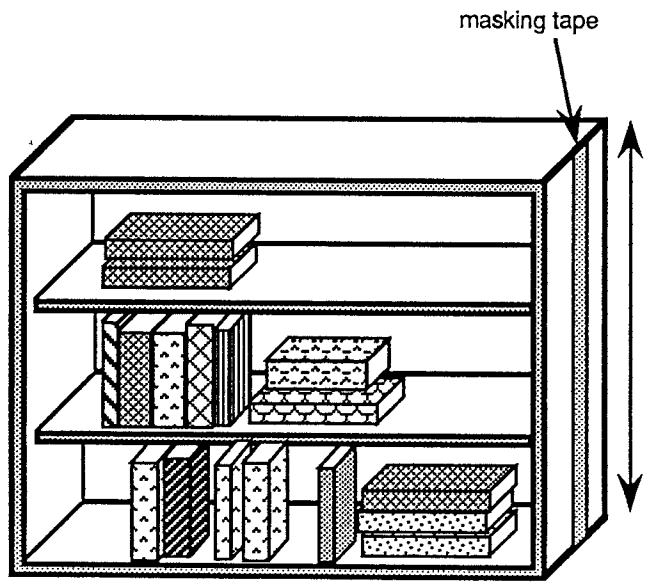
Door



Wastepaper basket

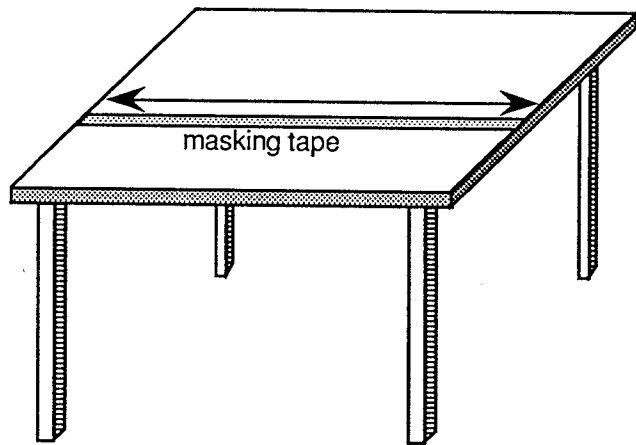


Chair



Bookshelves

name \_\_\_\_\_



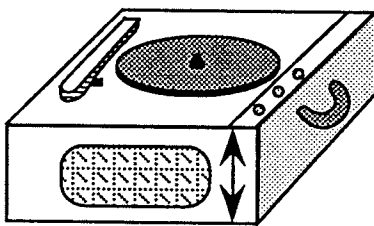
A table

## Which String?

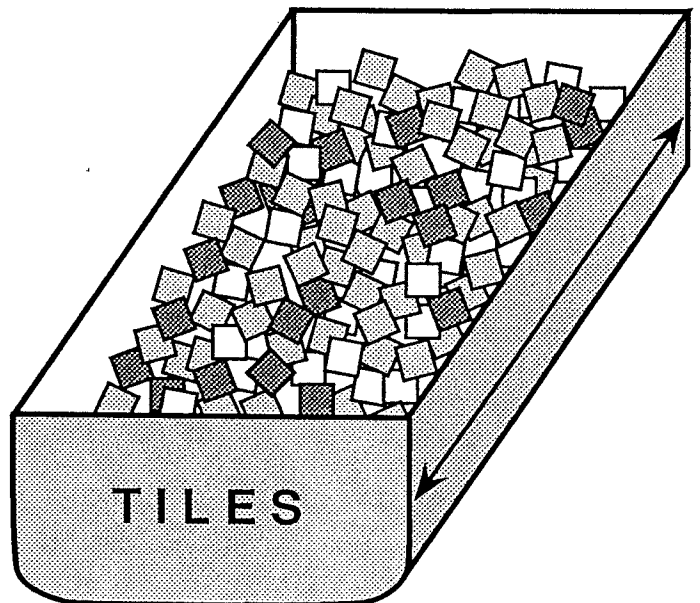
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
	1 🍏	2 🍐	3 🍏	4 🍏	5 🍐	6 🍏
7 🍏	8 🍐	9 🍏	10 🍏	11 🍐	12 🍏	13 🍏
14 🍐	15 🍏	16 🍏				



A calendar



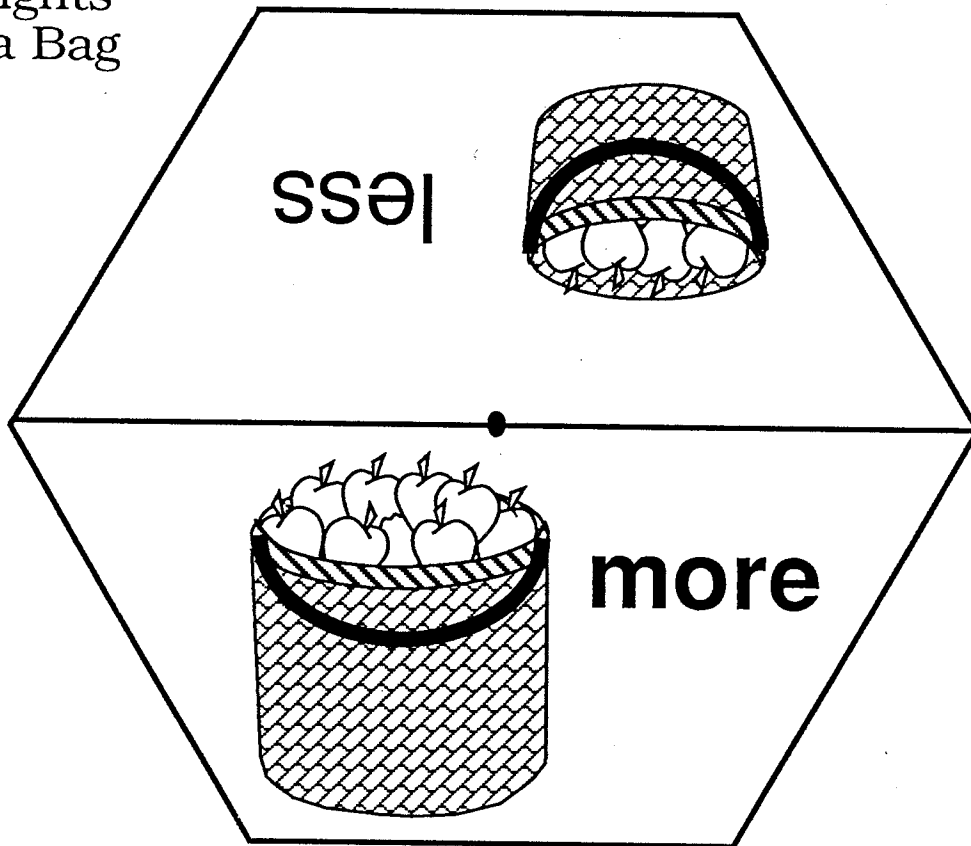
Record player



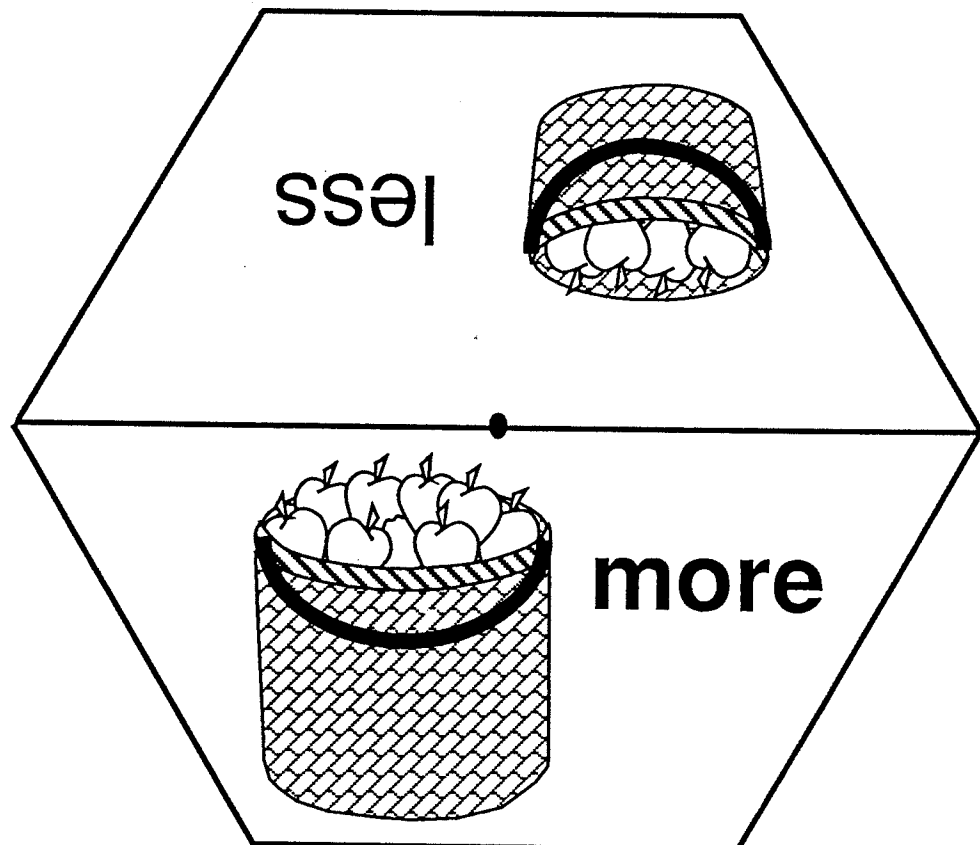
Tile tub

## More/Less Spinners

Weights  
in a Bag

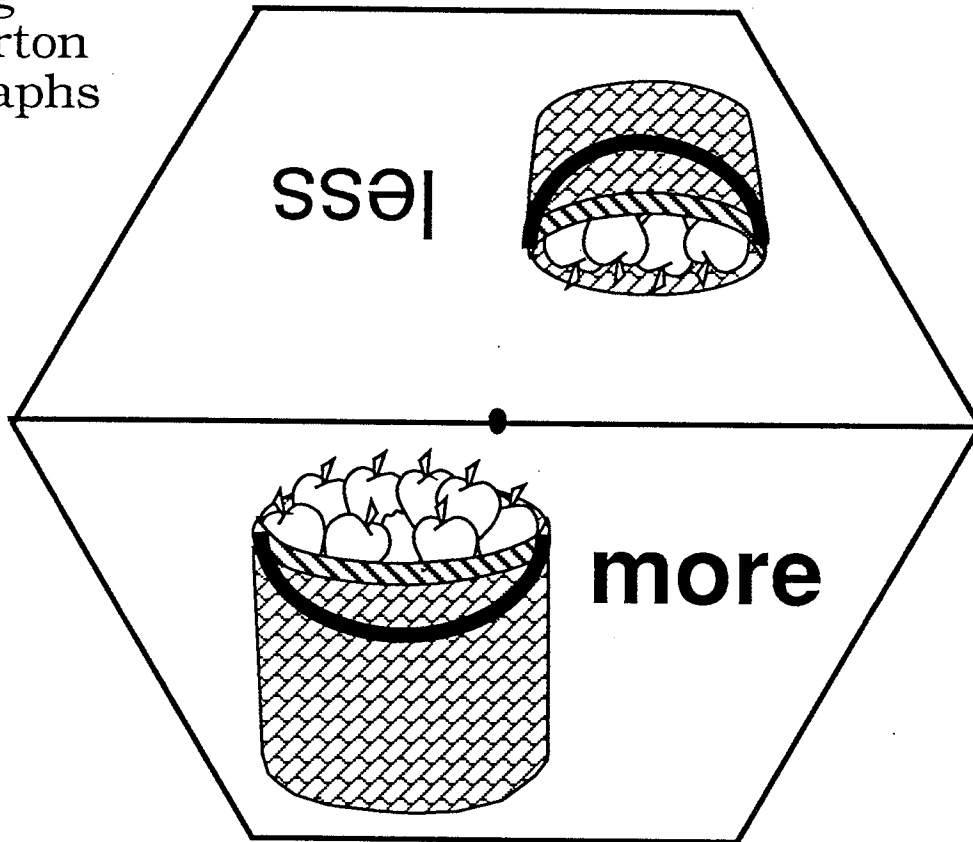


Sticks  
in a Bag

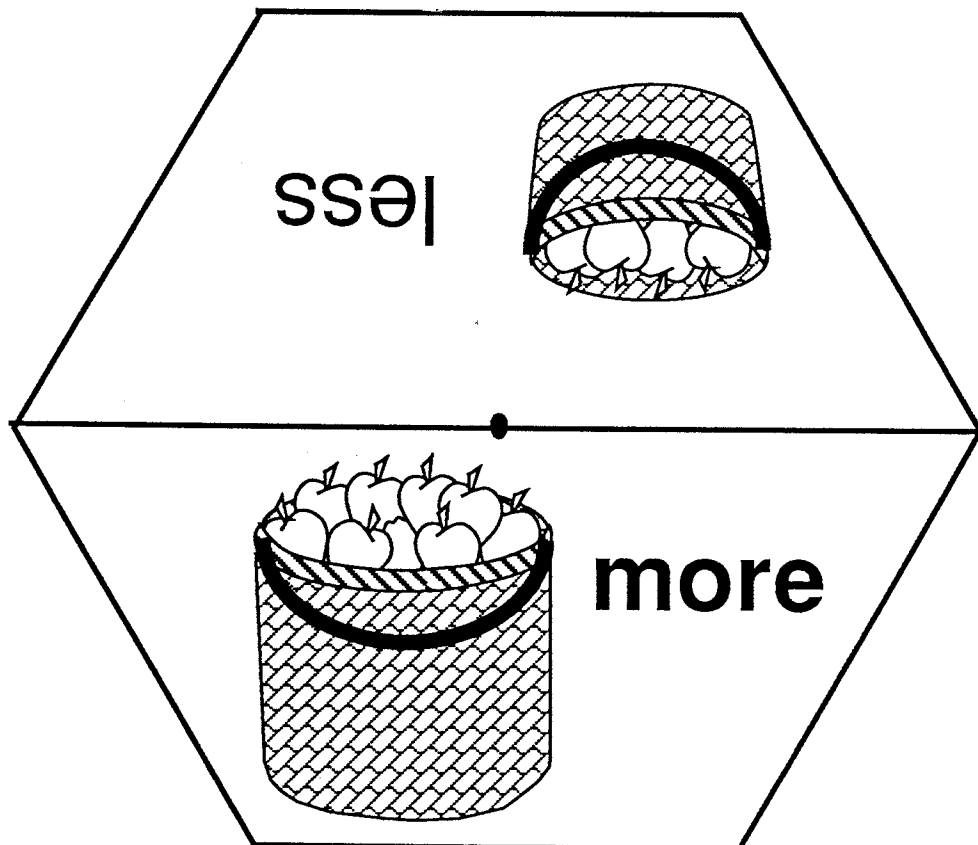


## More/Less Spinners

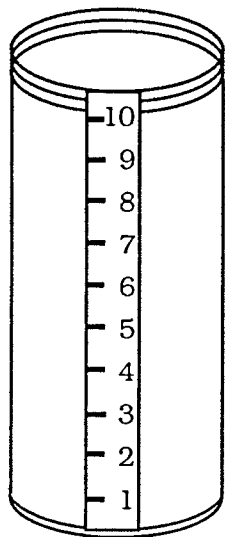
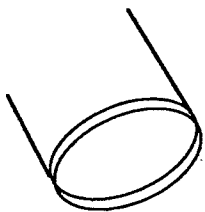
Egg  
Carton  
Graphs



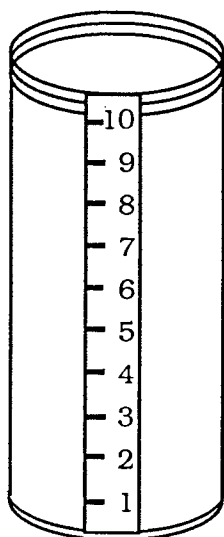
Ziplocks  
and  
Graphs



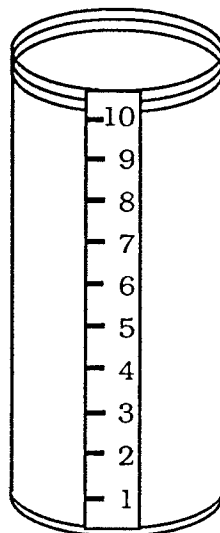
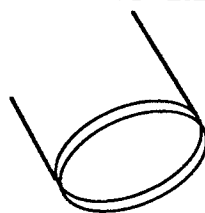
## The Measuring Jar



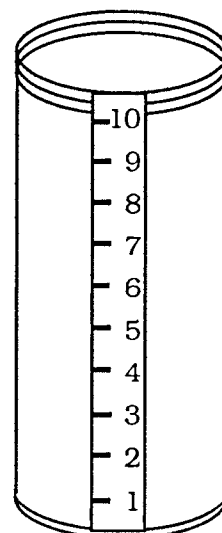
GUESS



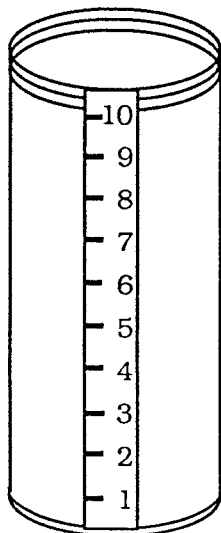
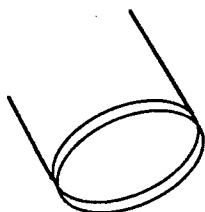
CHECK



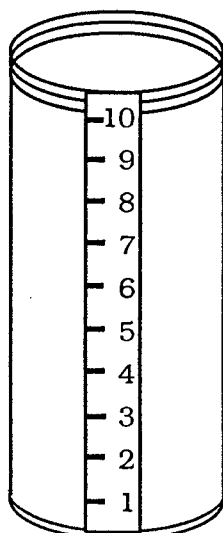
GUESS



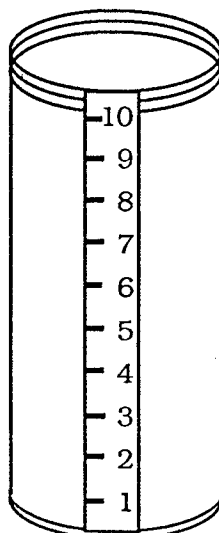
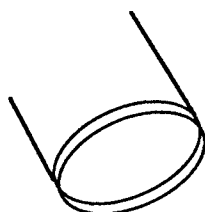
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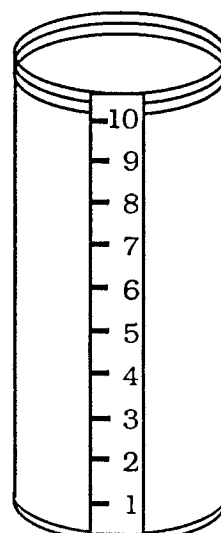
GUESS



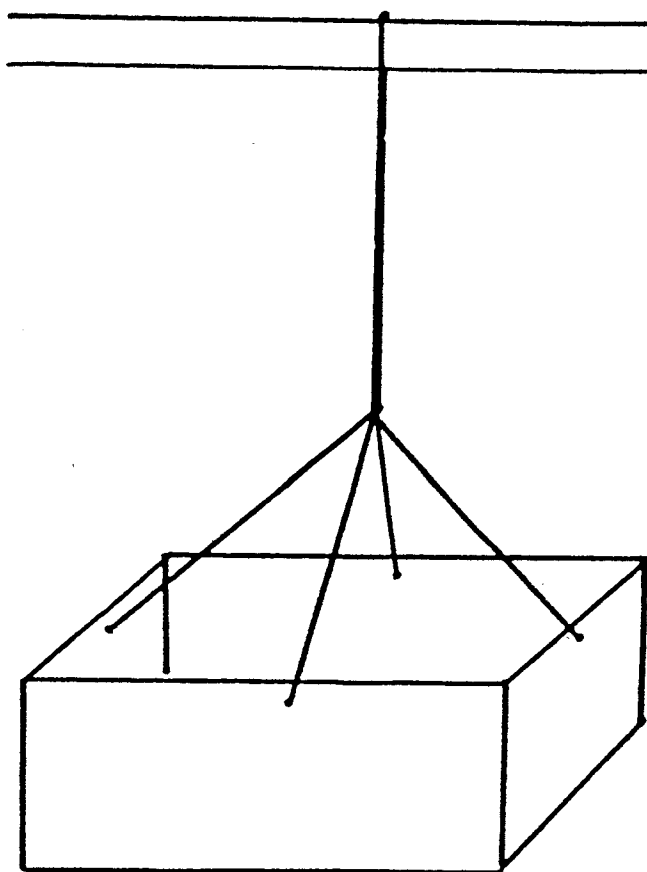
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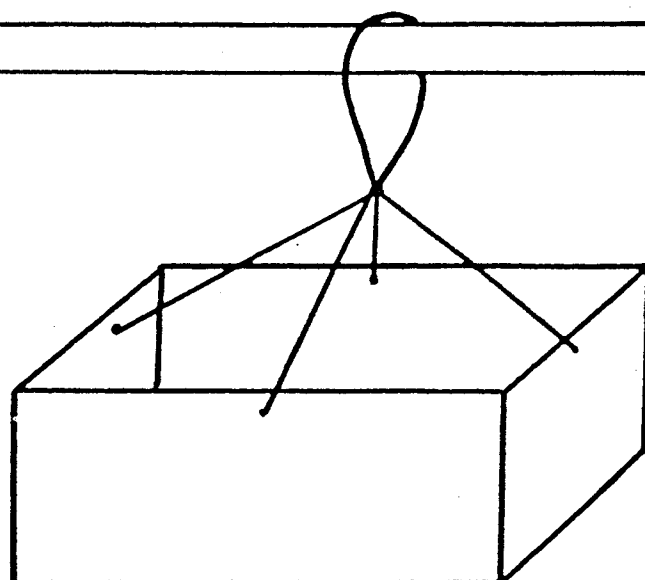
GUESS



CHECK

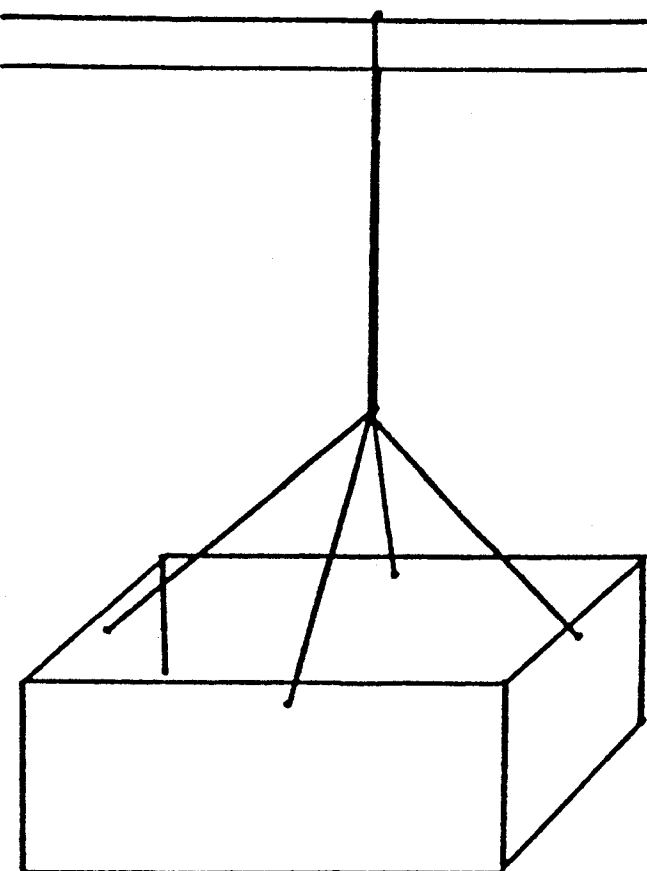


heavier

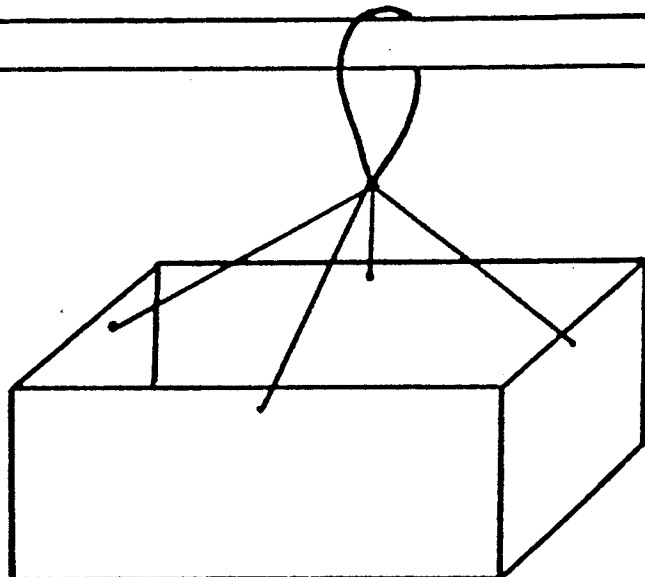


lighter

Weighing Record Cards

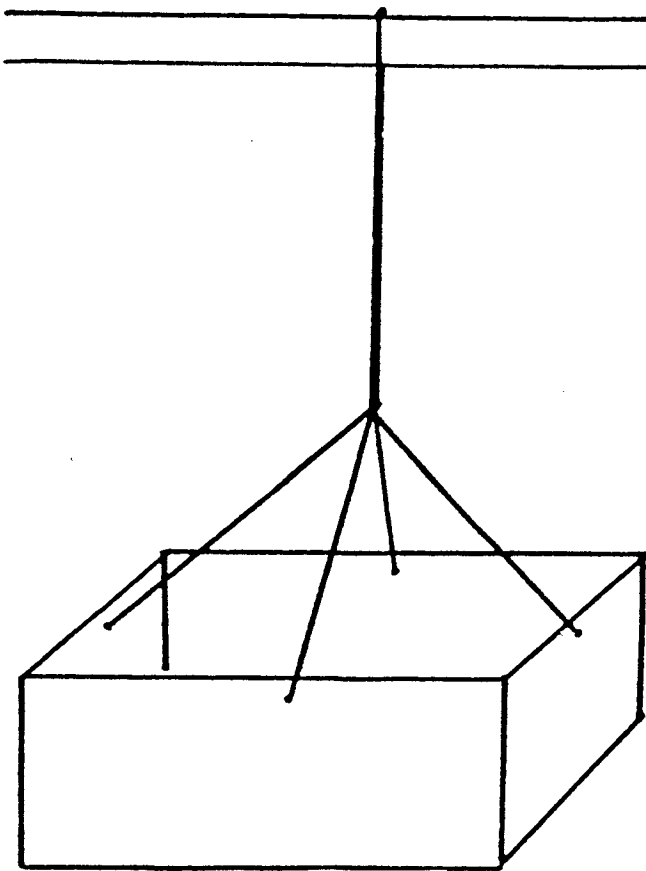


heavier

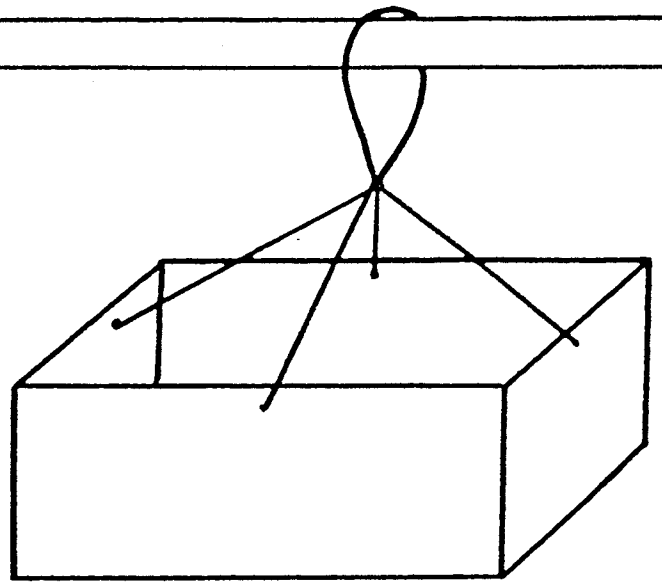


lighter

Weighing Record Cards

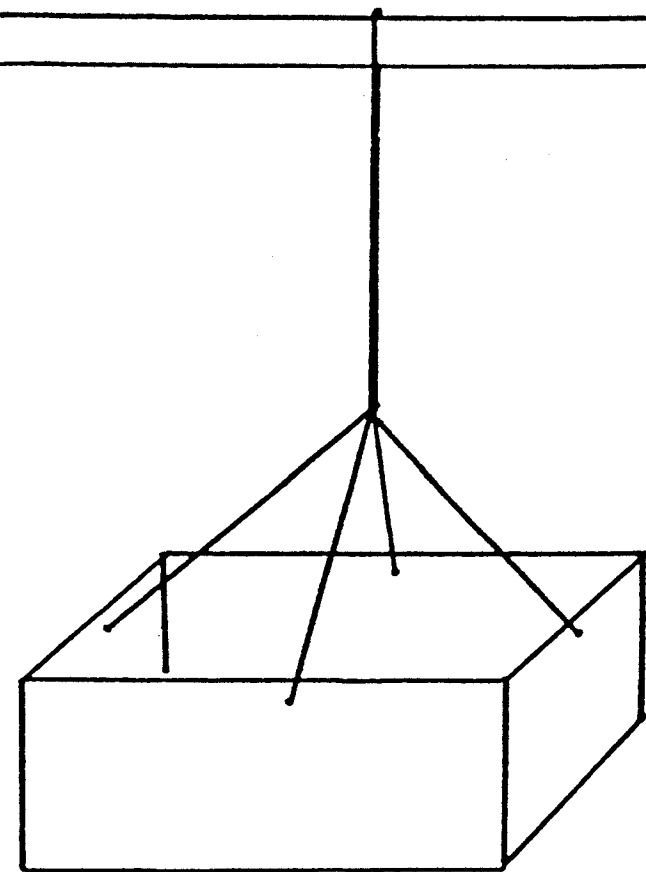


heavier

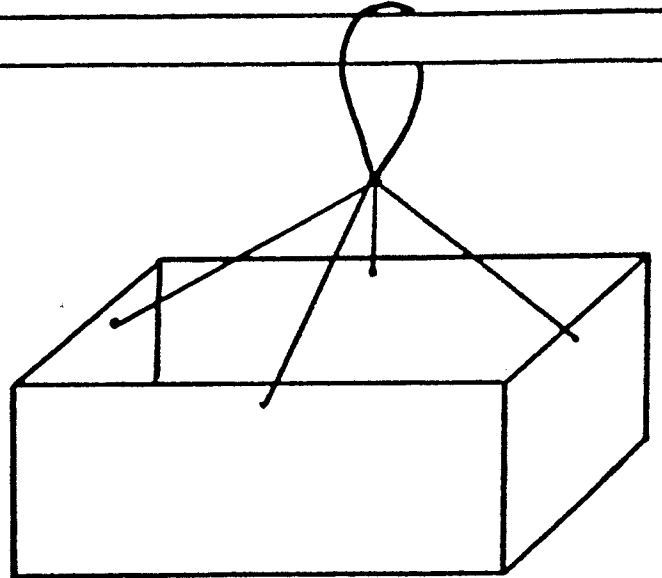


lighter

Weighing Record Cards



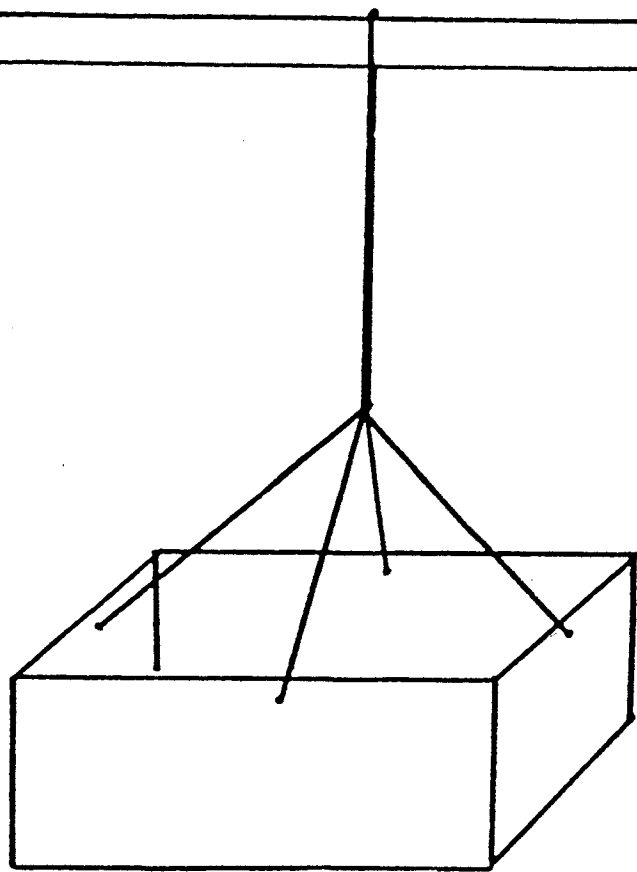
heavier



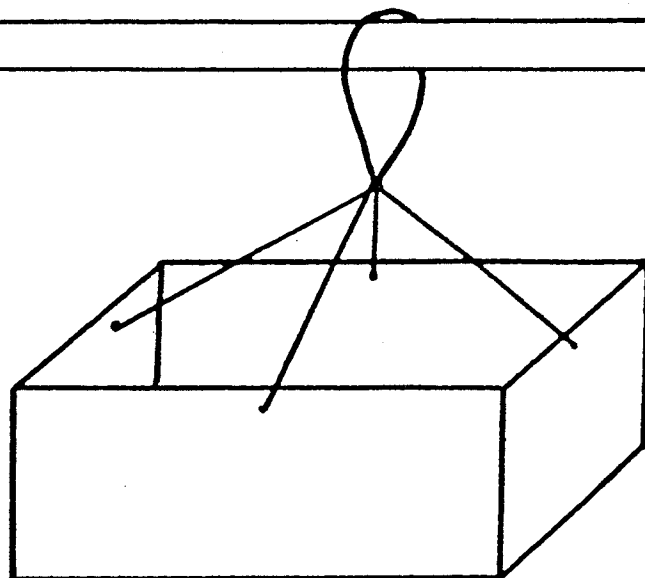
lighter

Weighing Record Cards



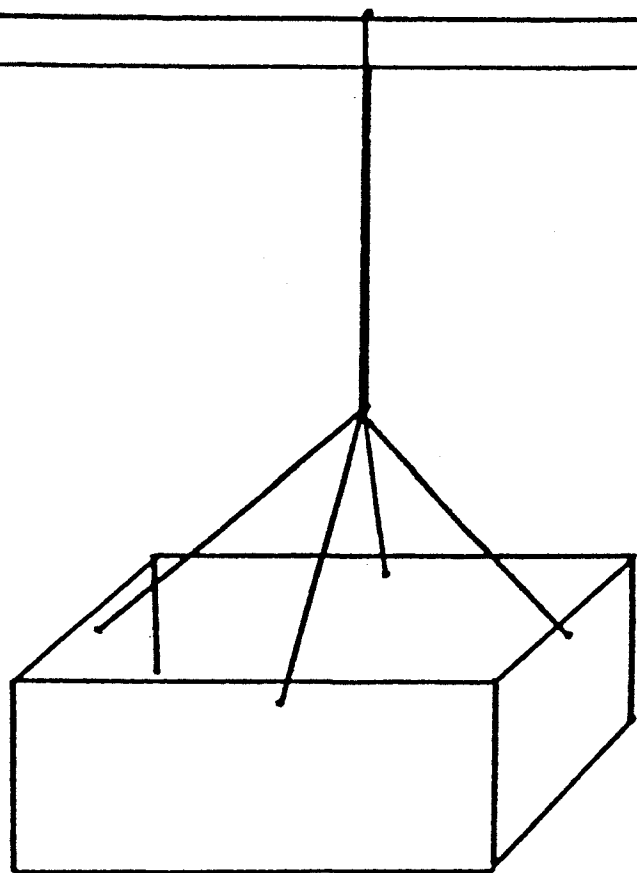


heavier

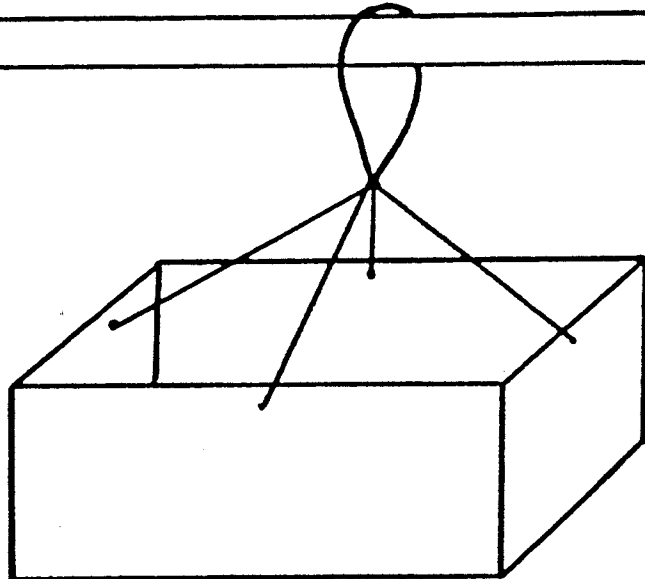


lighter

Weighing Record Cards

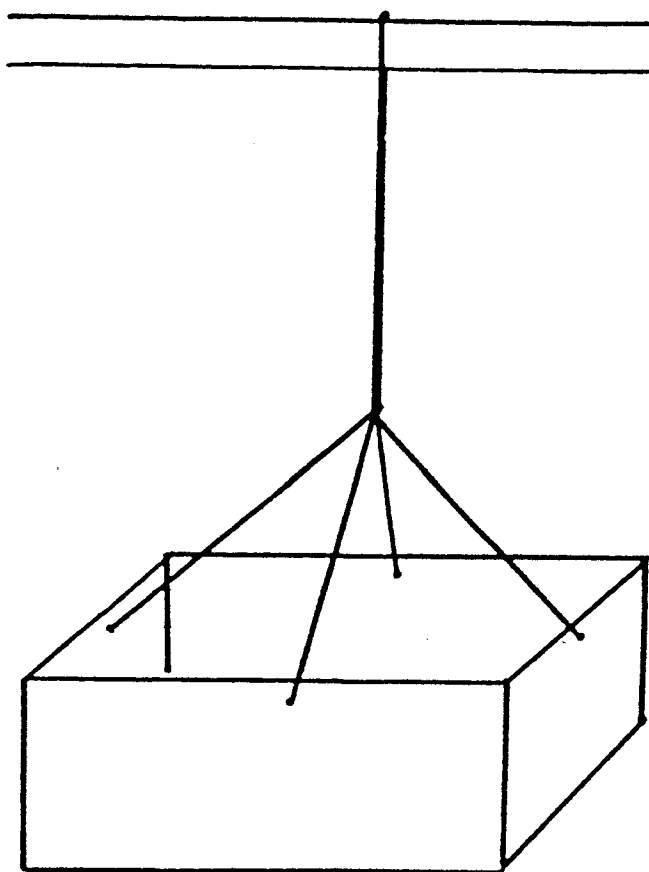


heavier

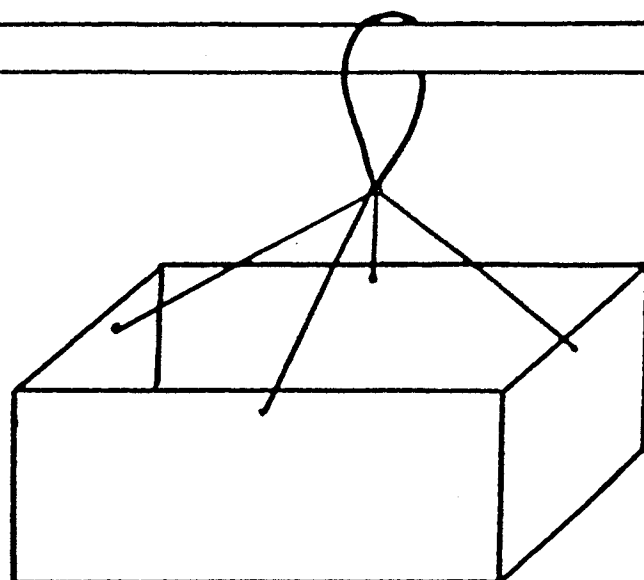


lighter

Weighing Record Cards

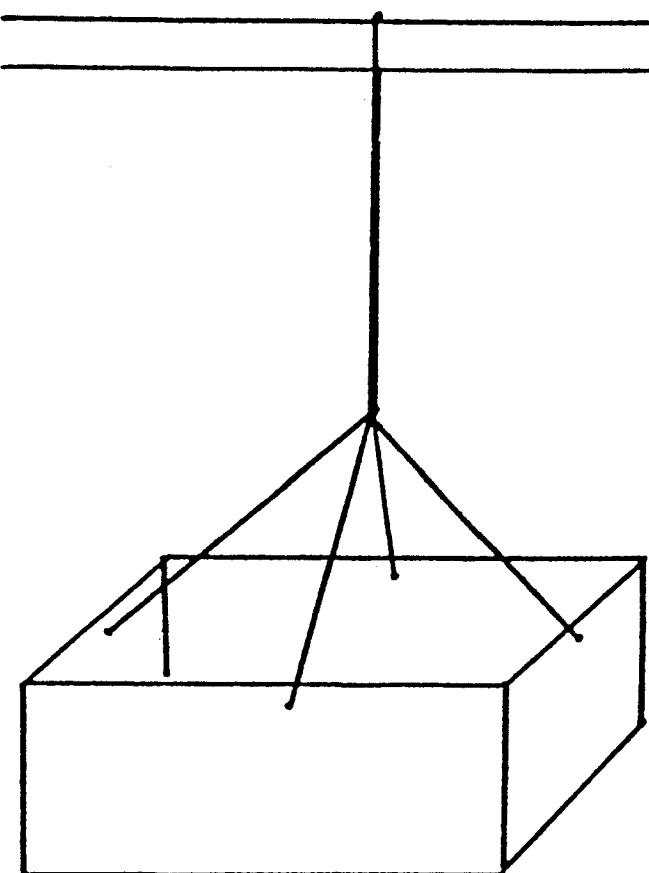


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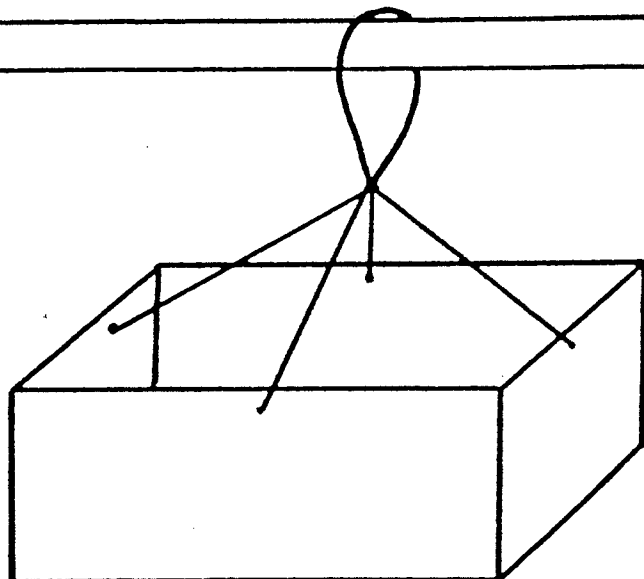


lighter

Weighing Record Cards

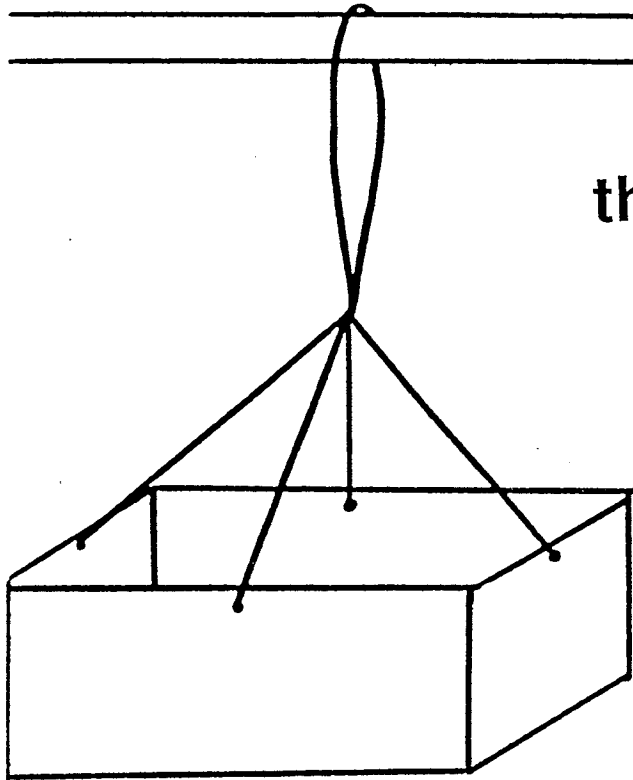


heavier

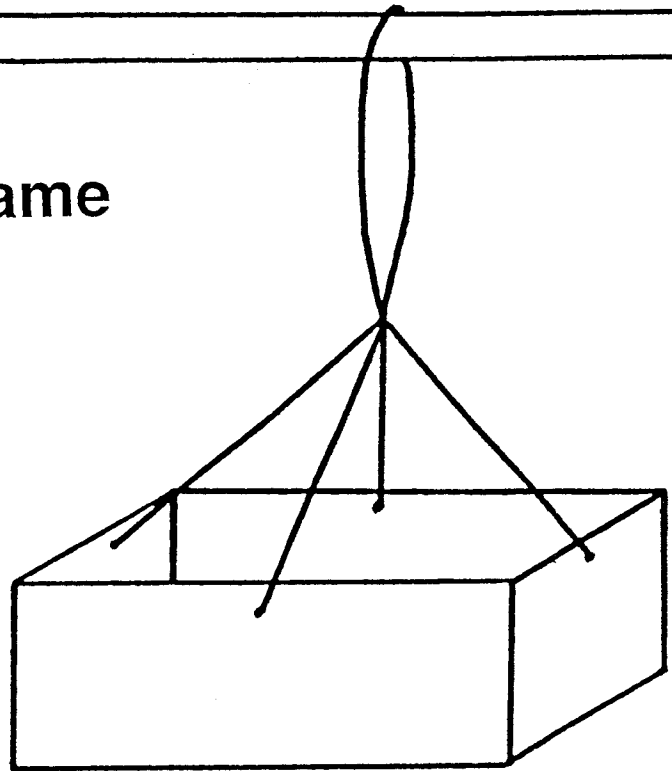


lighter

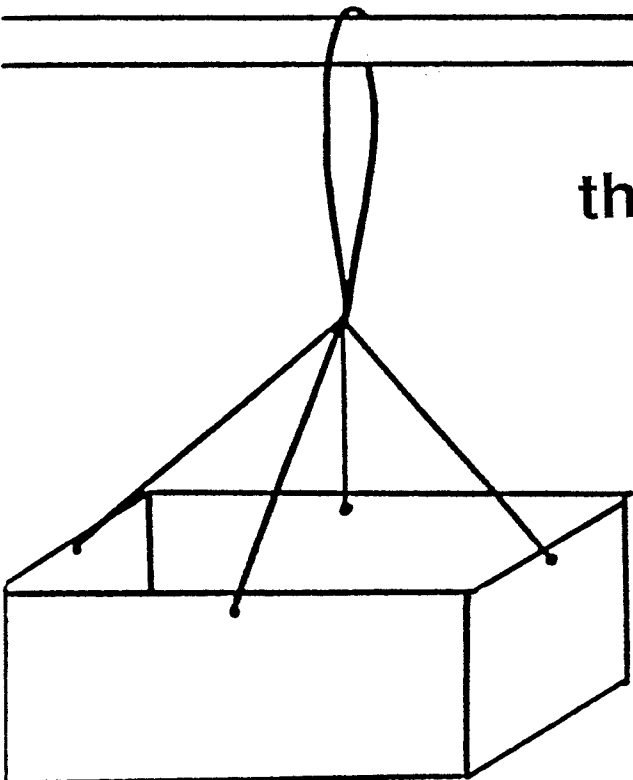
Weighing Record Cards



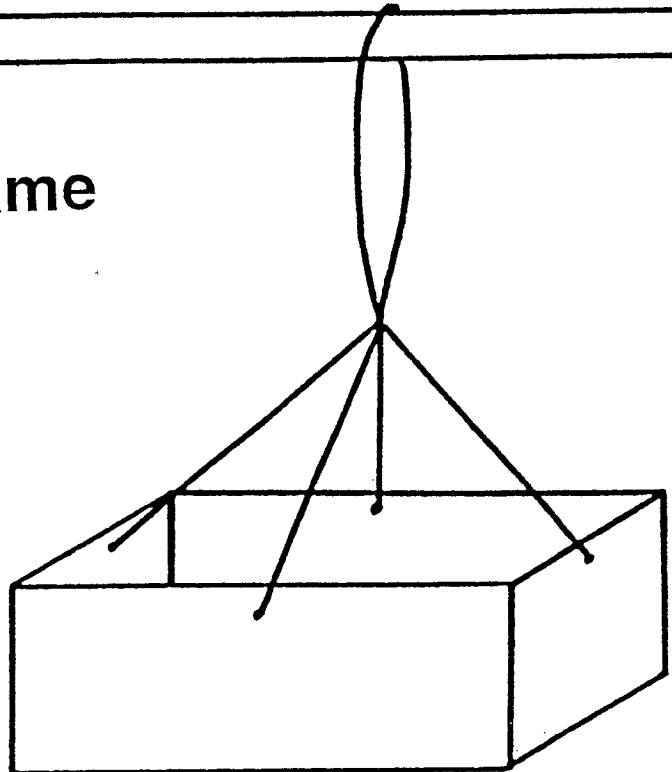
the same



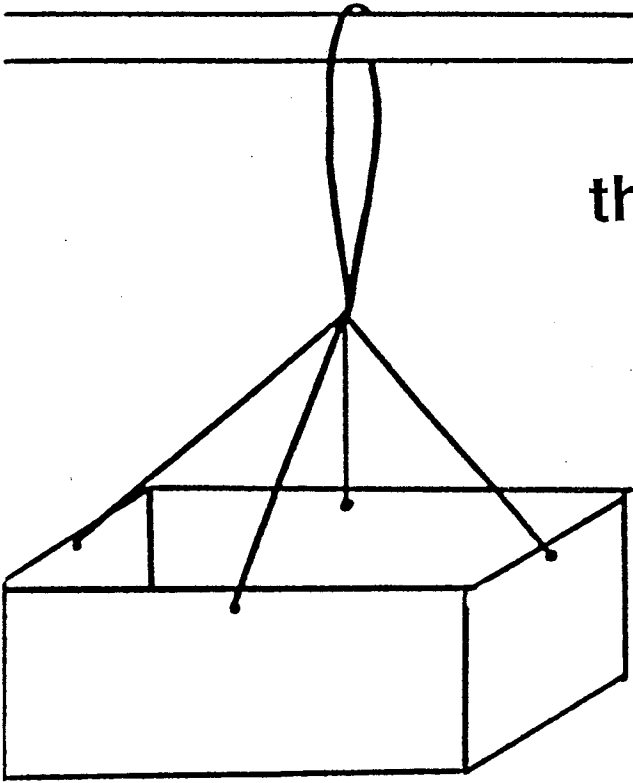
Weighing Record Cards



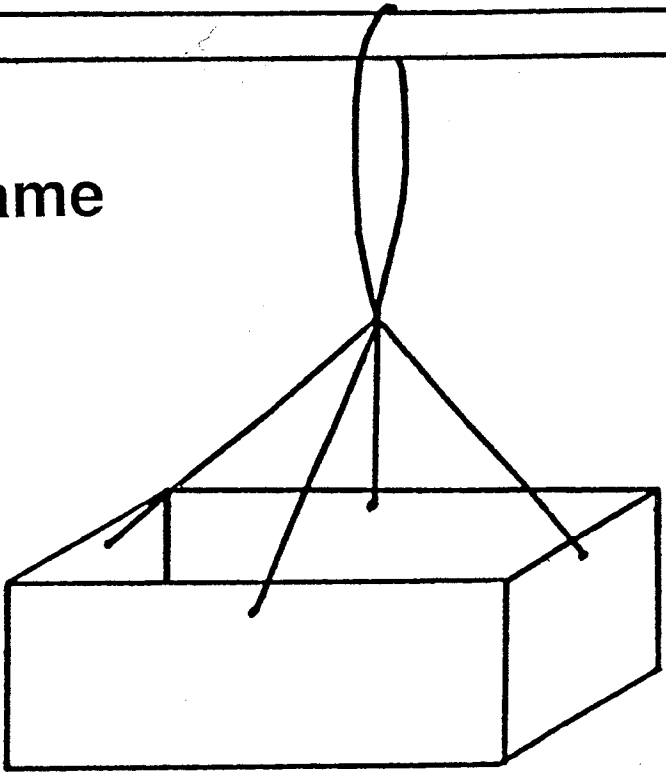
the same



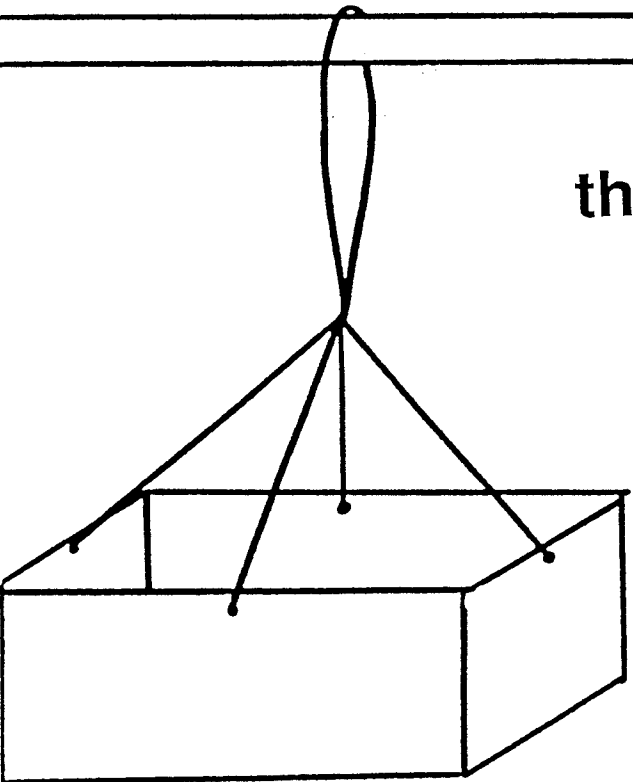
Weighing Record Cards



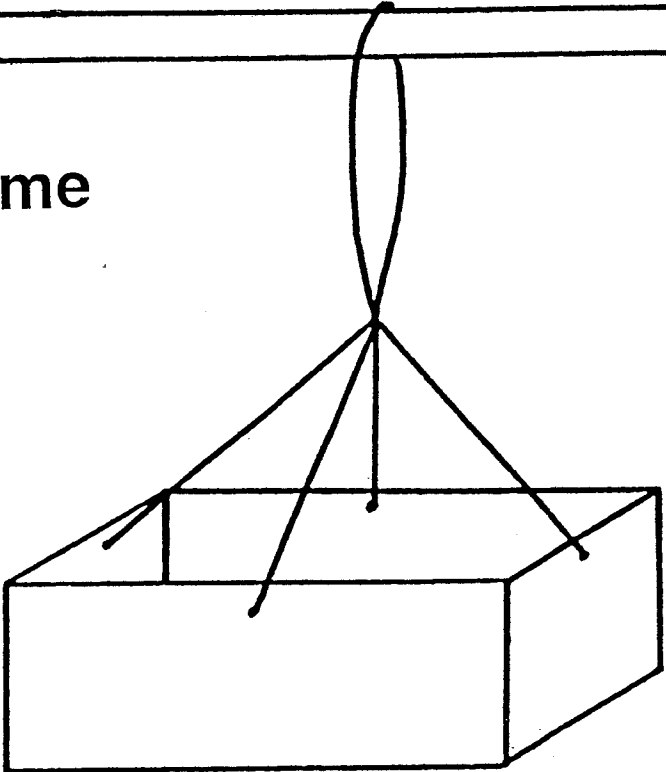
the same



Weighing Record Cards



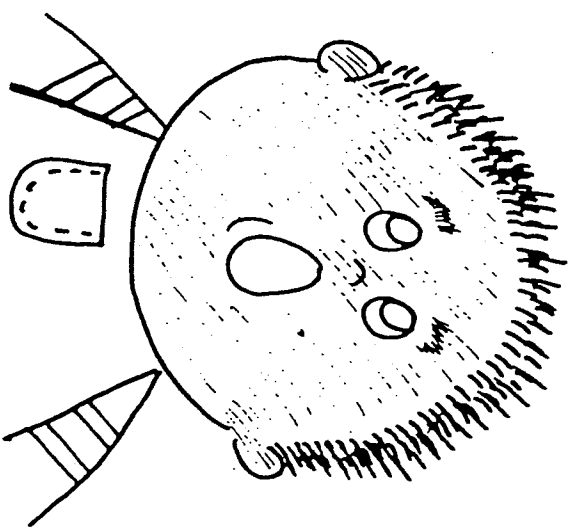
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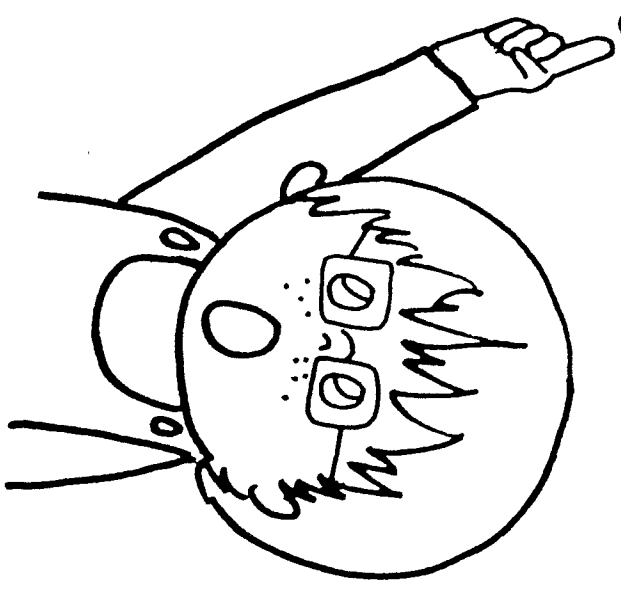
Weighing Record Cards

# How Much Time? Task Cards

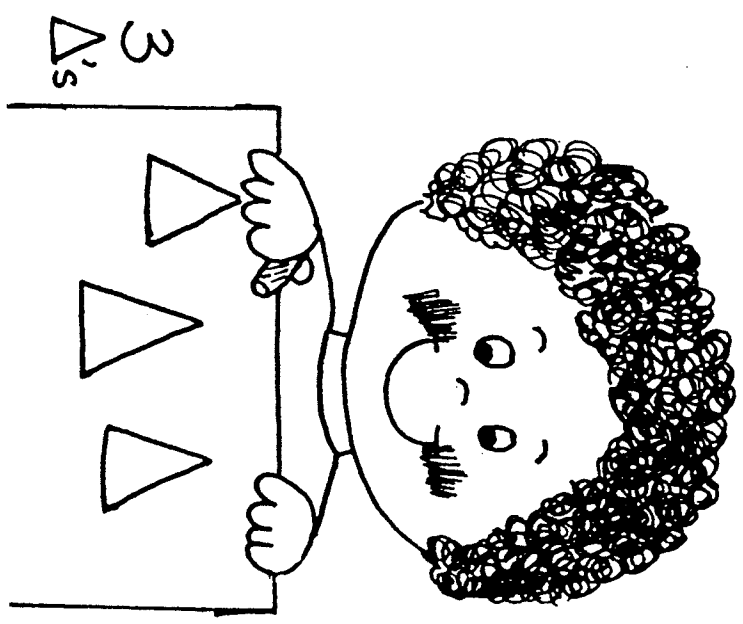
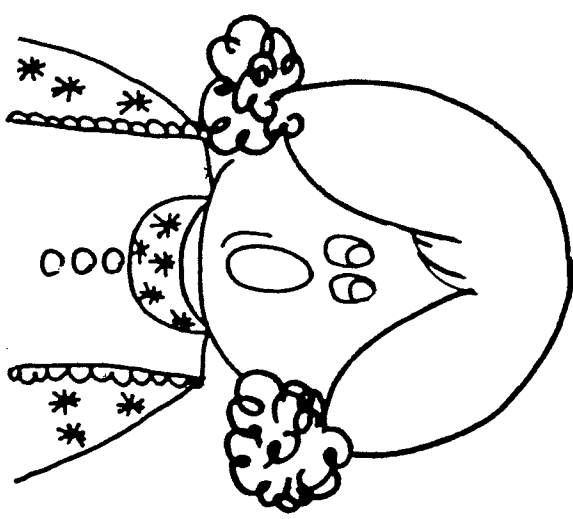
A B C D E F G H I J  
 K L M N O P Q R S T  
 U V W X  
 Y Z



10 9 8 7 6  
 5 4 3 2 1

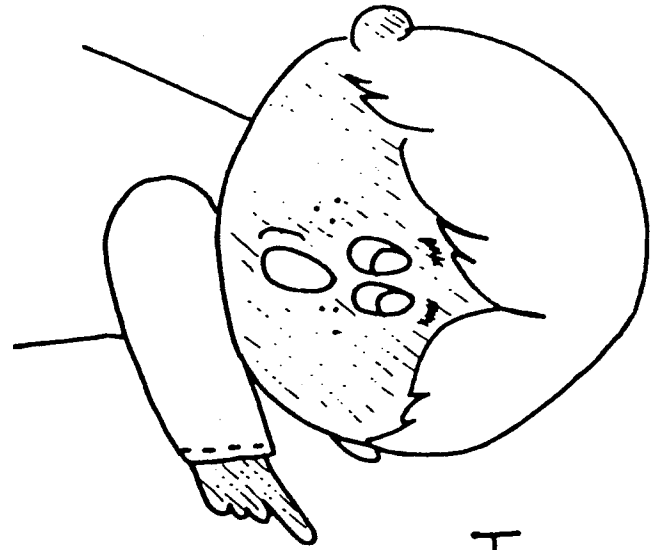
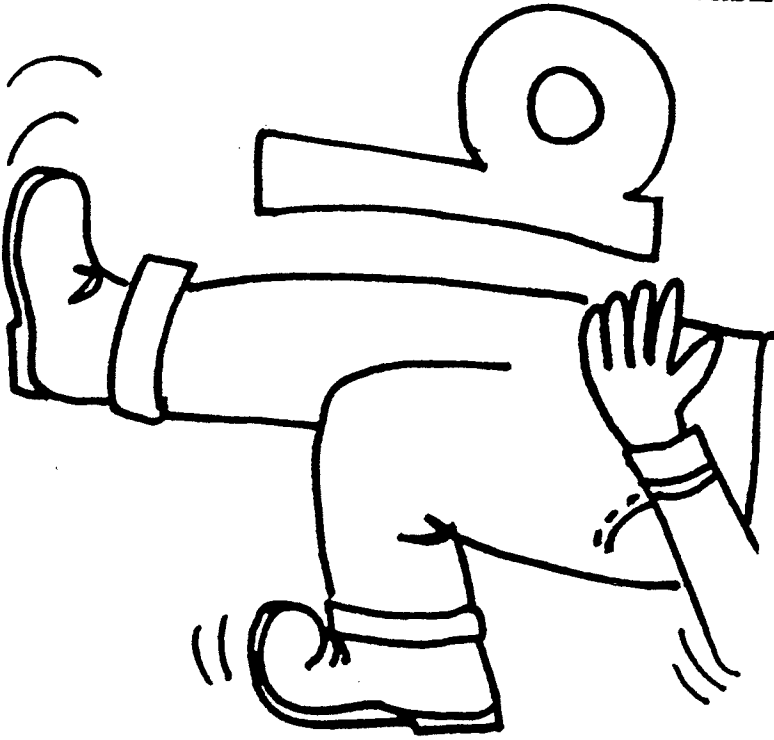


1 2 3 4 5 6 7 8 9 10  
 11 12 13 14 15 16 17 18 19 20



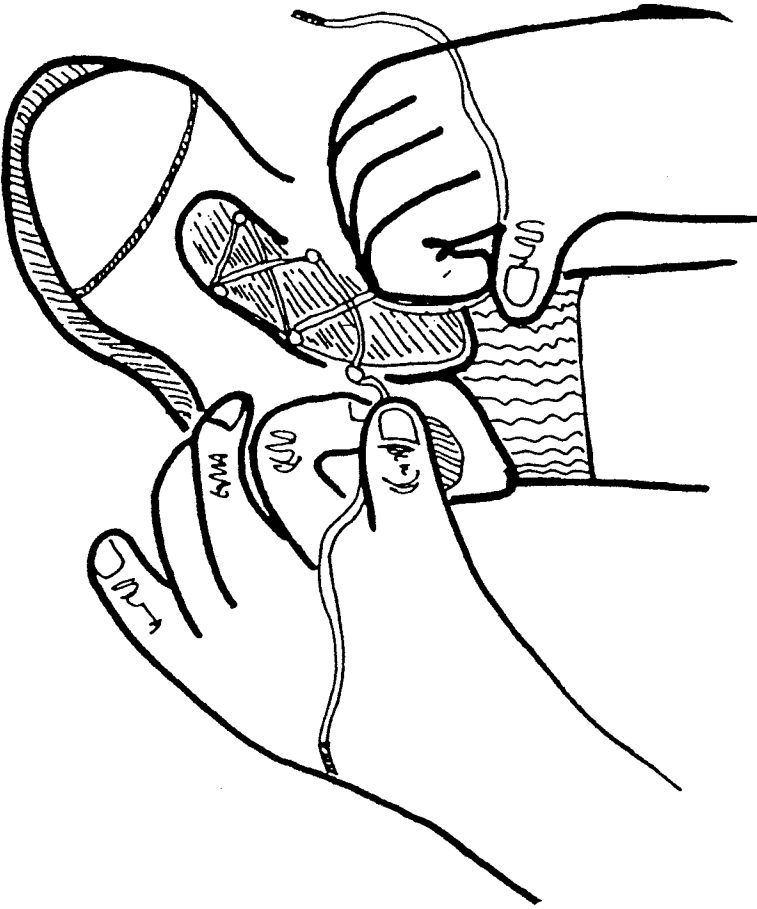
# How Much Time?

## Task Cards



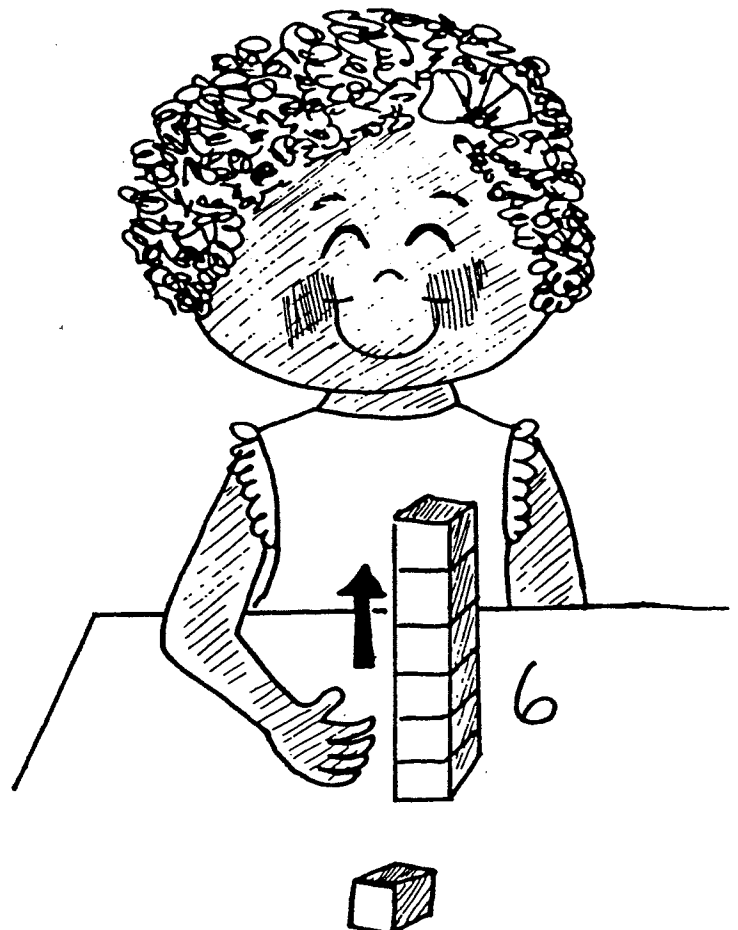
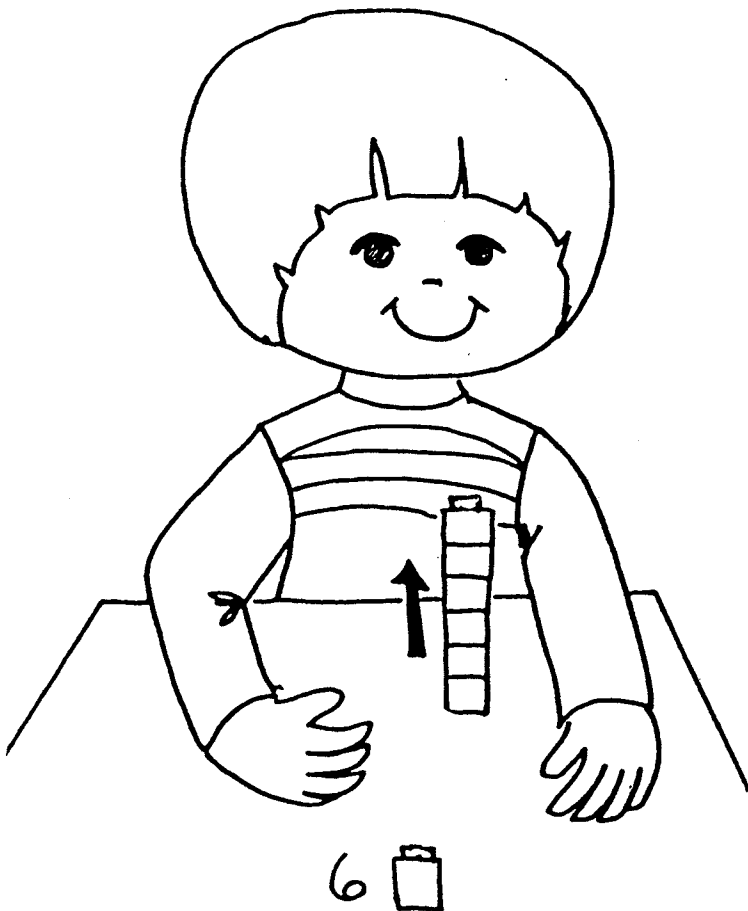
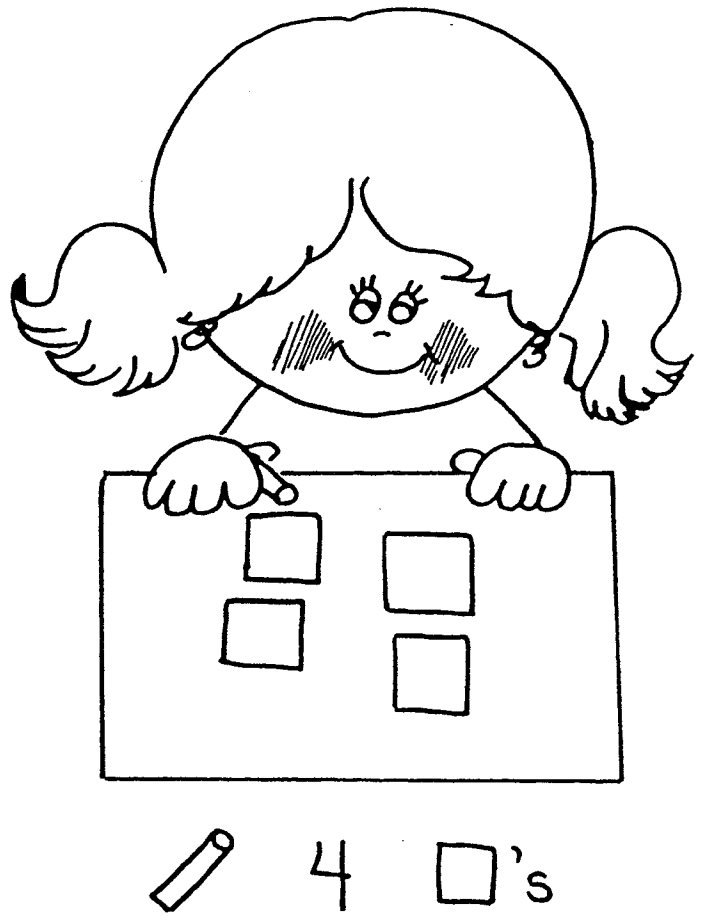
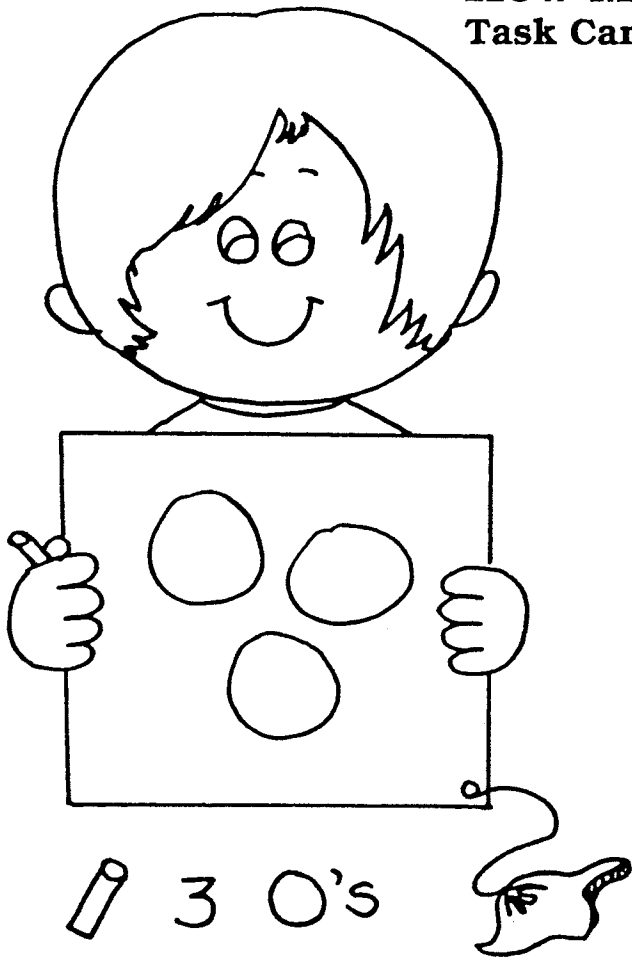
Happy  
Birthday  
to you....

- ➡
- |   |   |   |   |    |
|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5  |
| 6 | 7 | 8 | 9 | 10 |

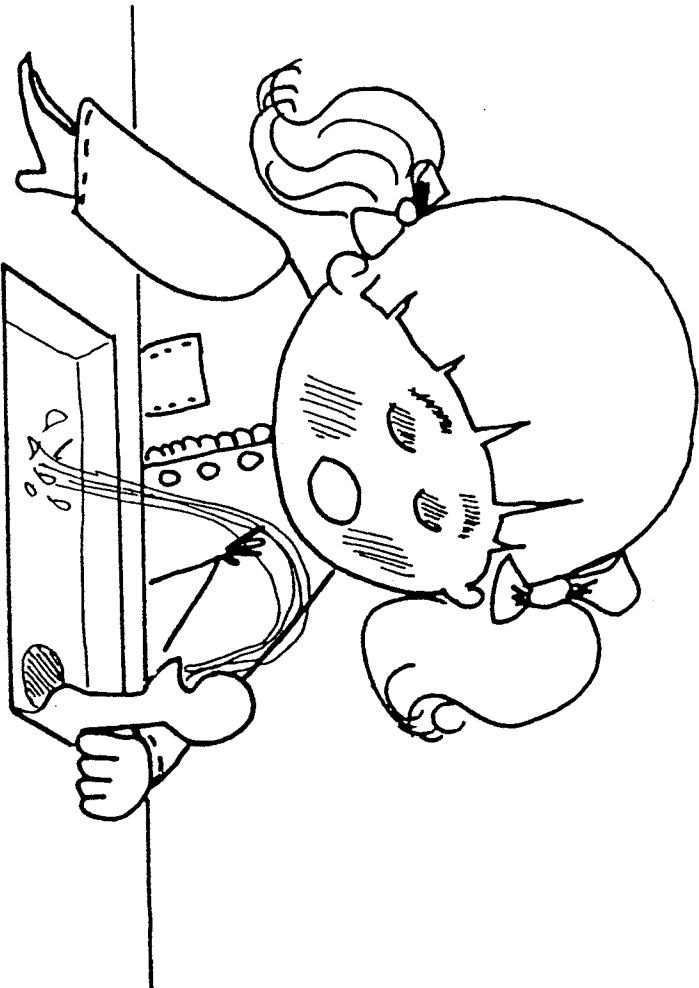
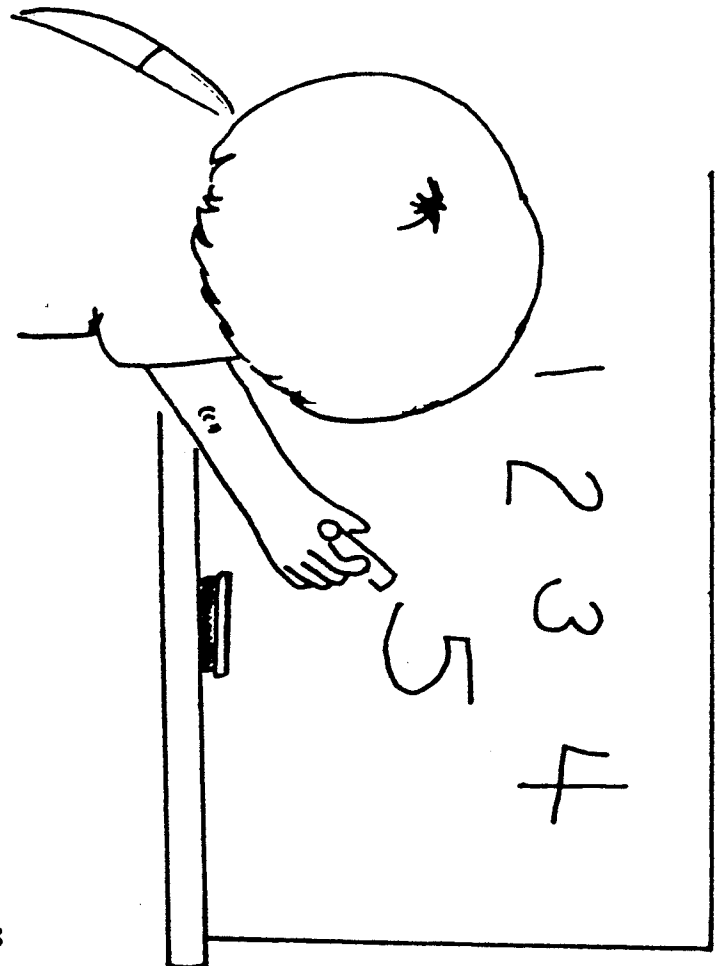
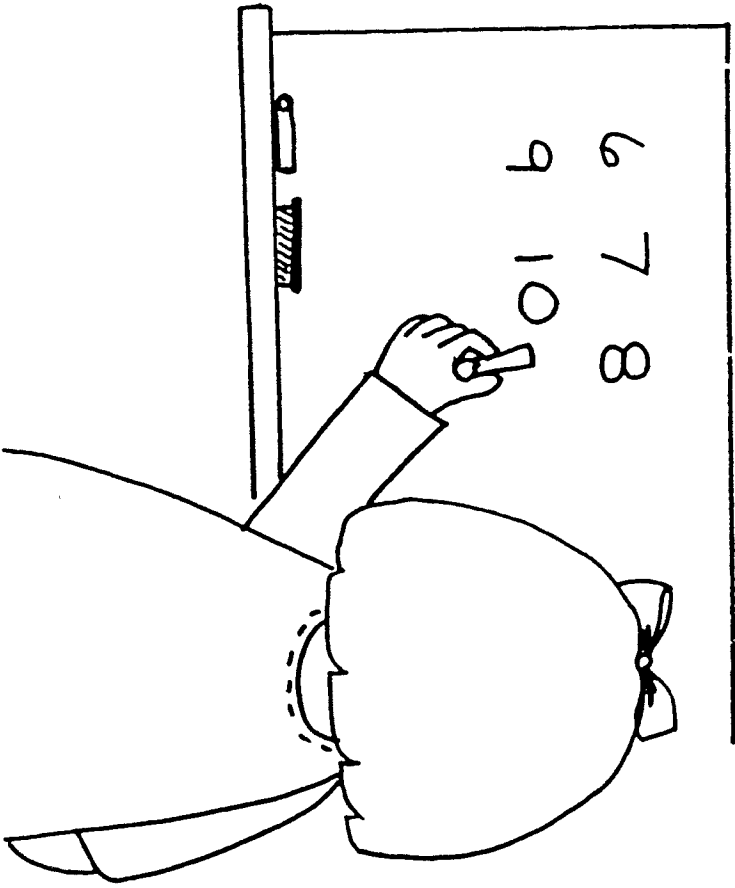
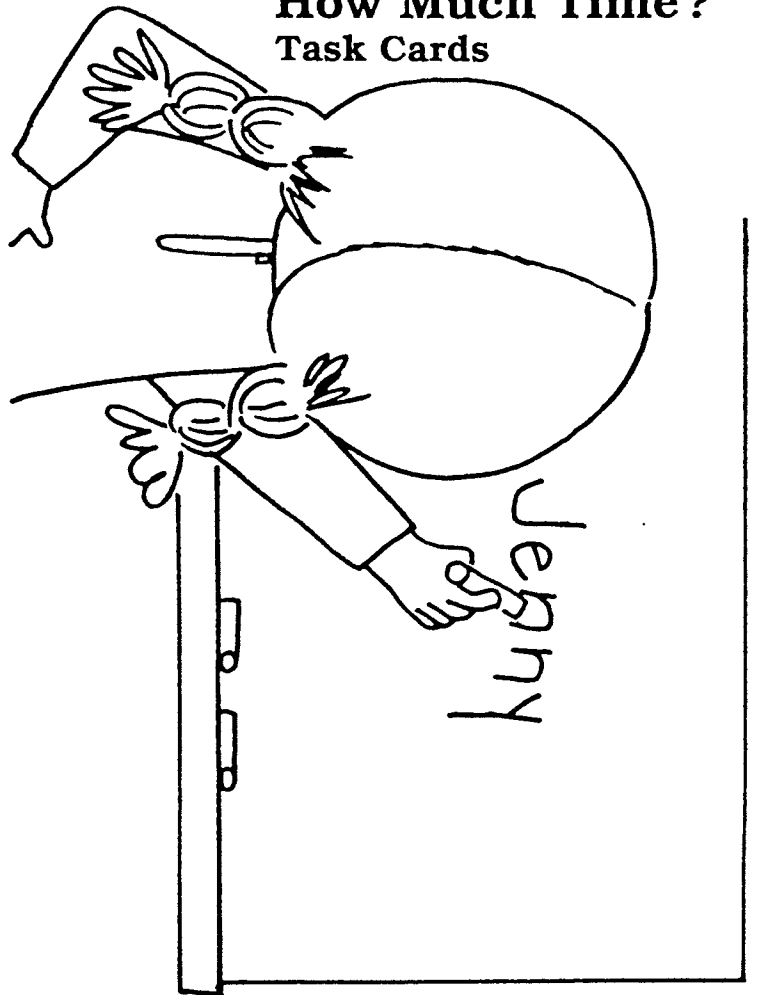


# How Much Time?

## Task Cards



# How Much Time? Task Cards



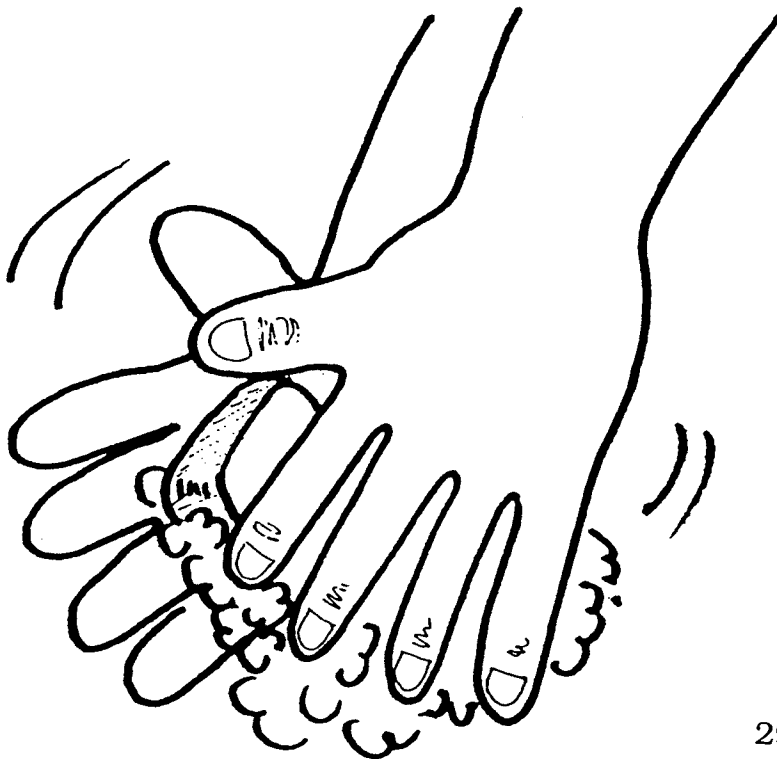


# How Much Time?

## Task Cards

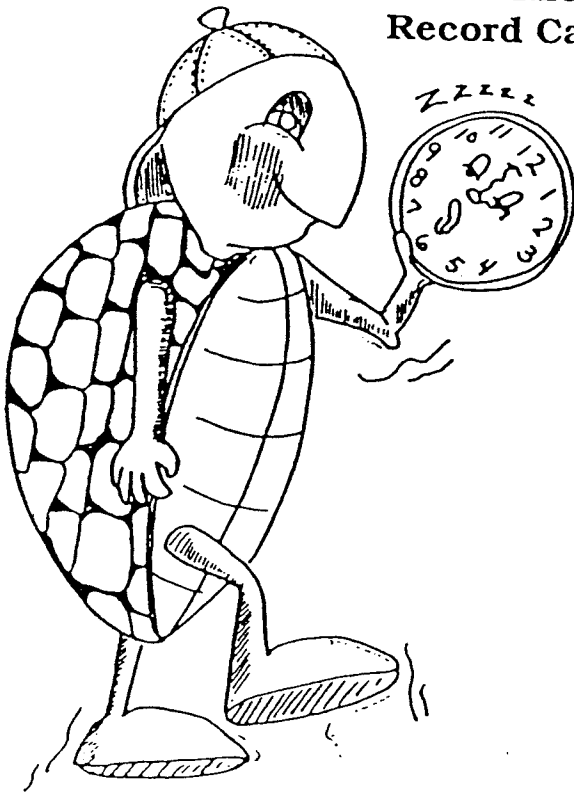


10

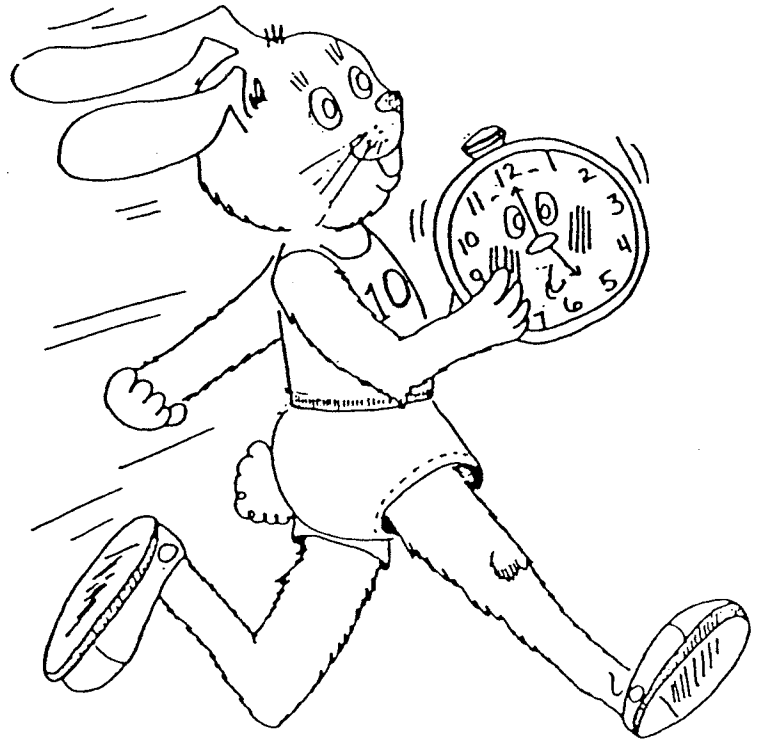


# How Much Time?

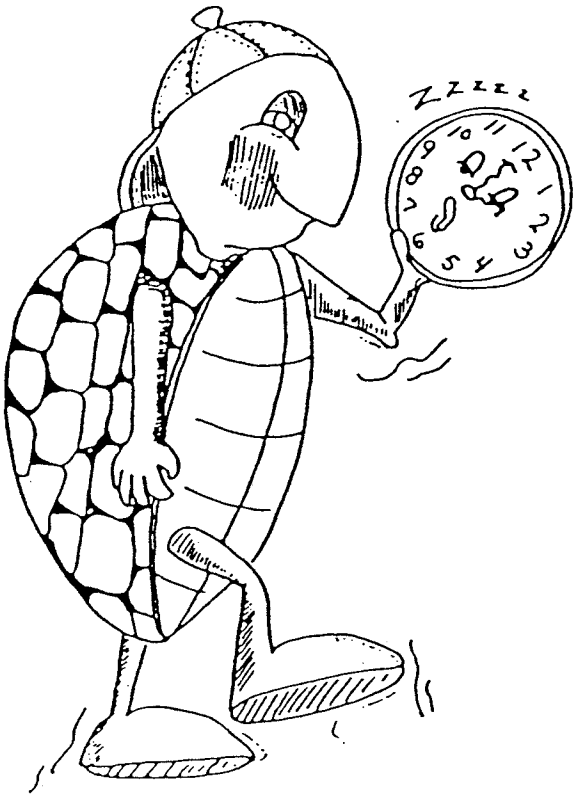
## Record Cards



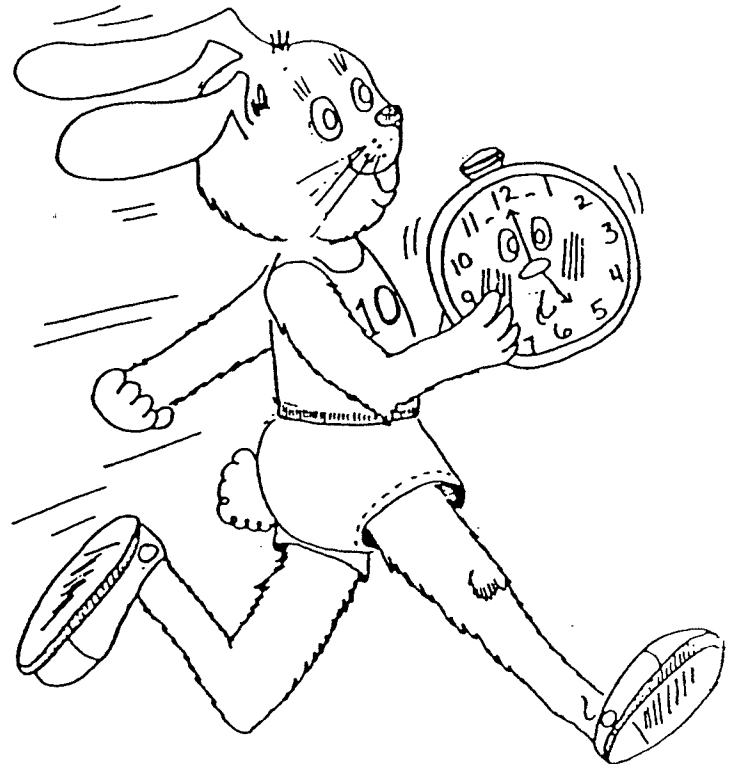
more time



less time



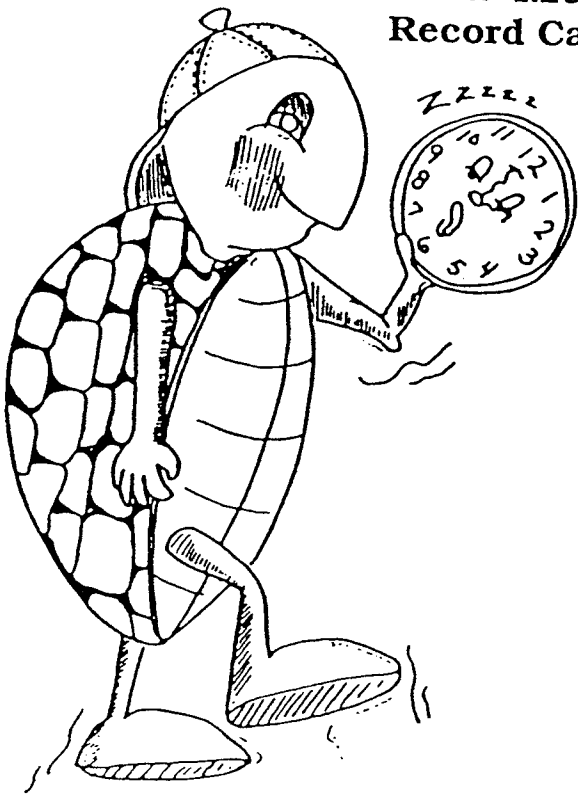
more time



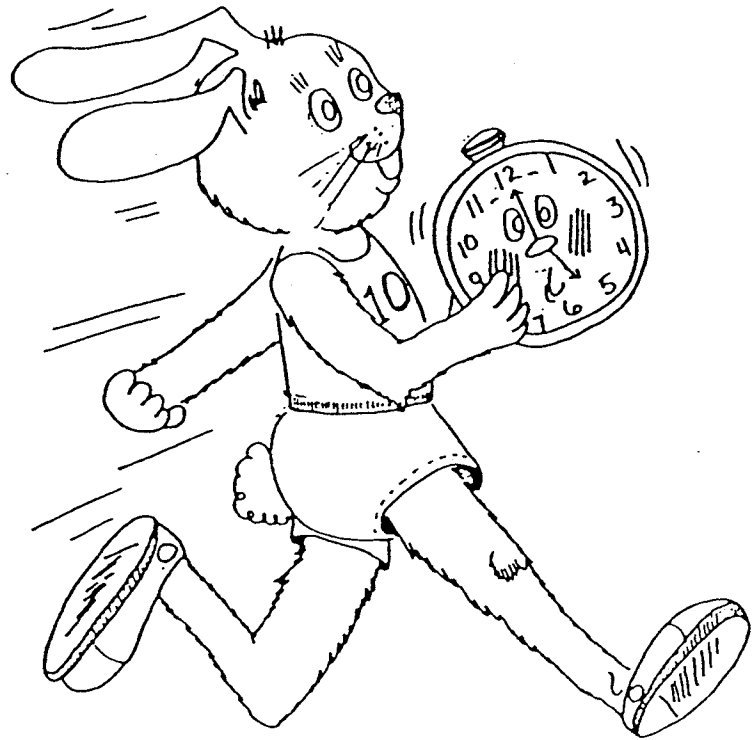
less time

# How Much Time?

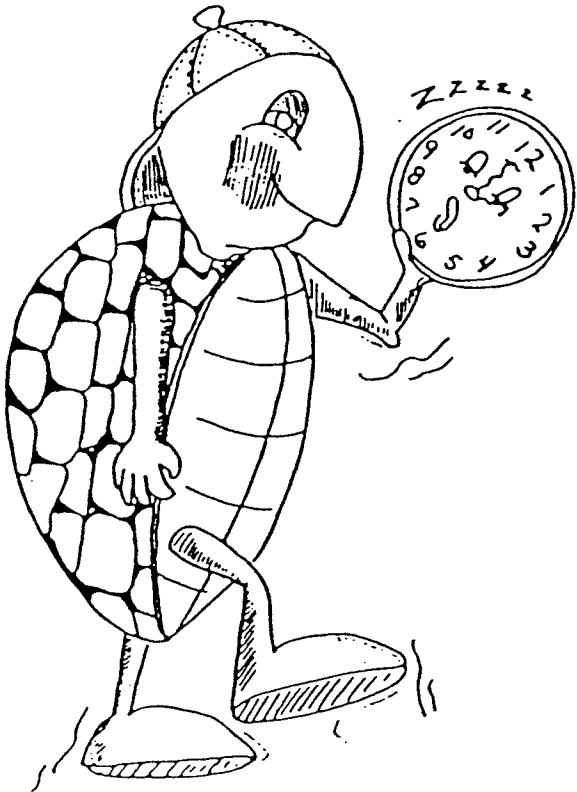
## Record Cards



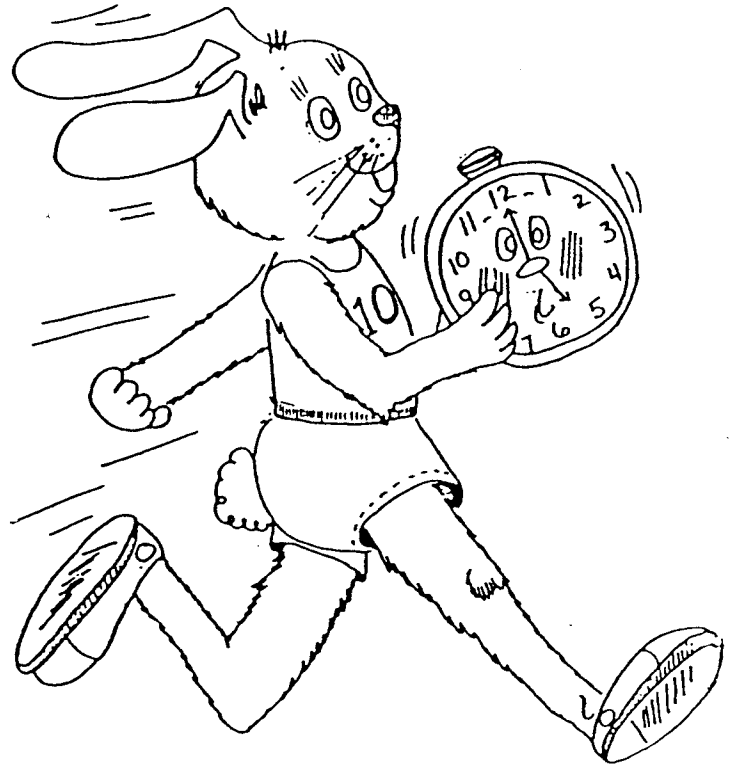
more time



less time



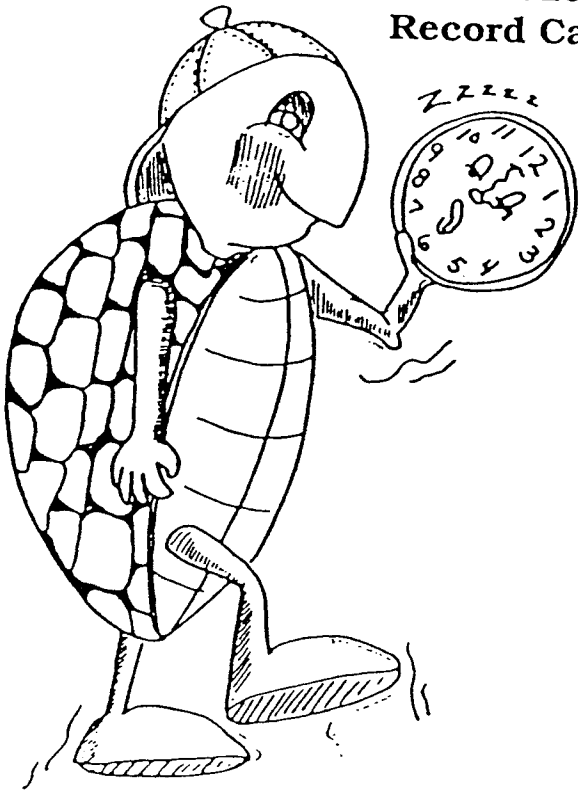
more time



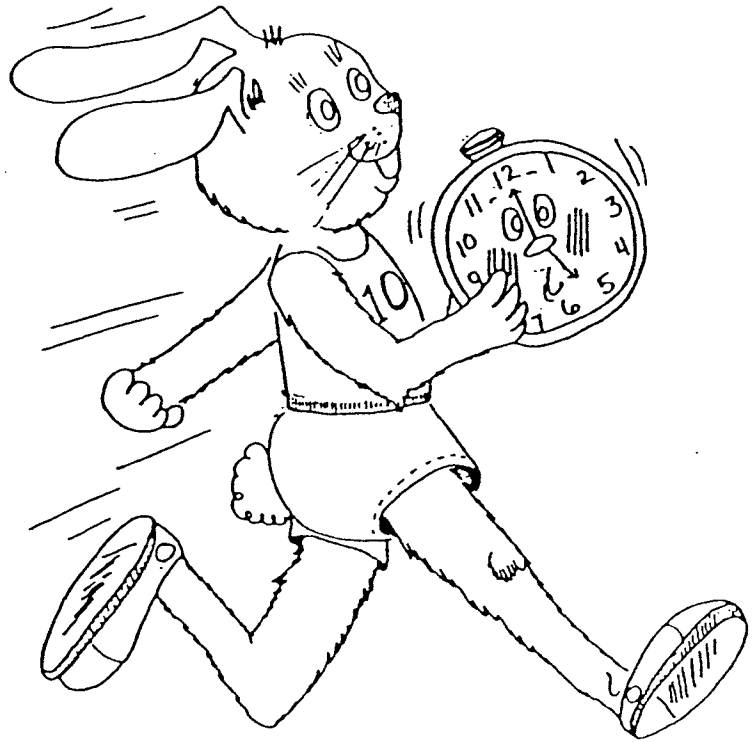
less time

# How Much Time?

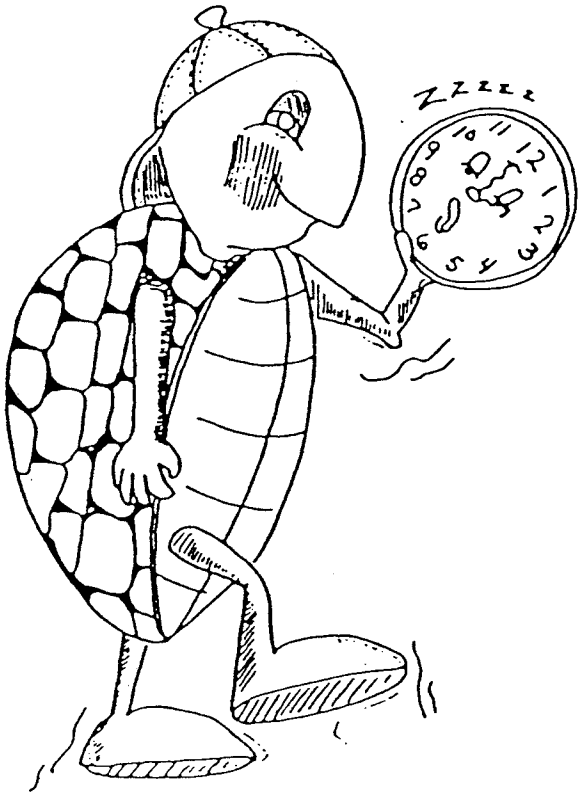
## Record Cards



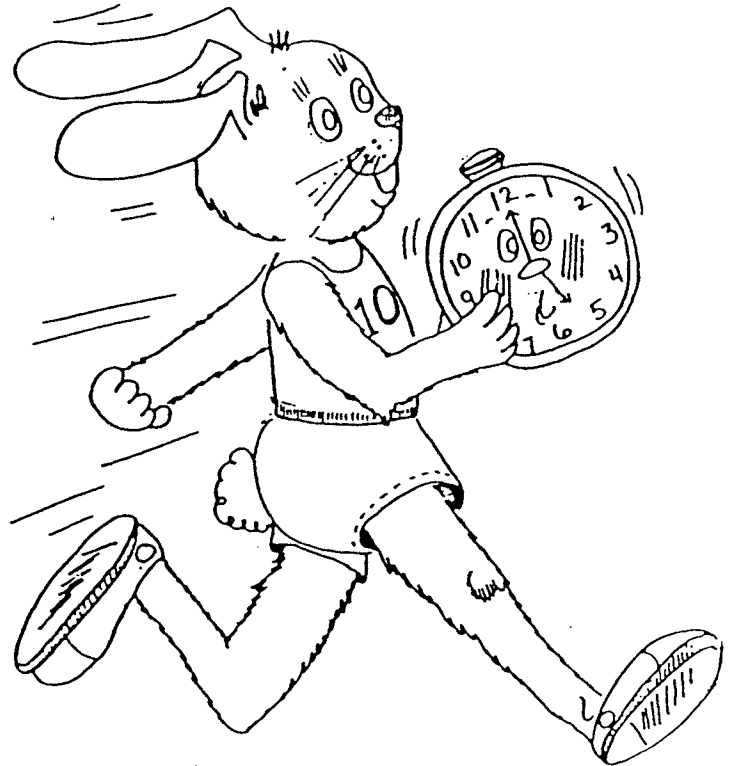
more time



less time



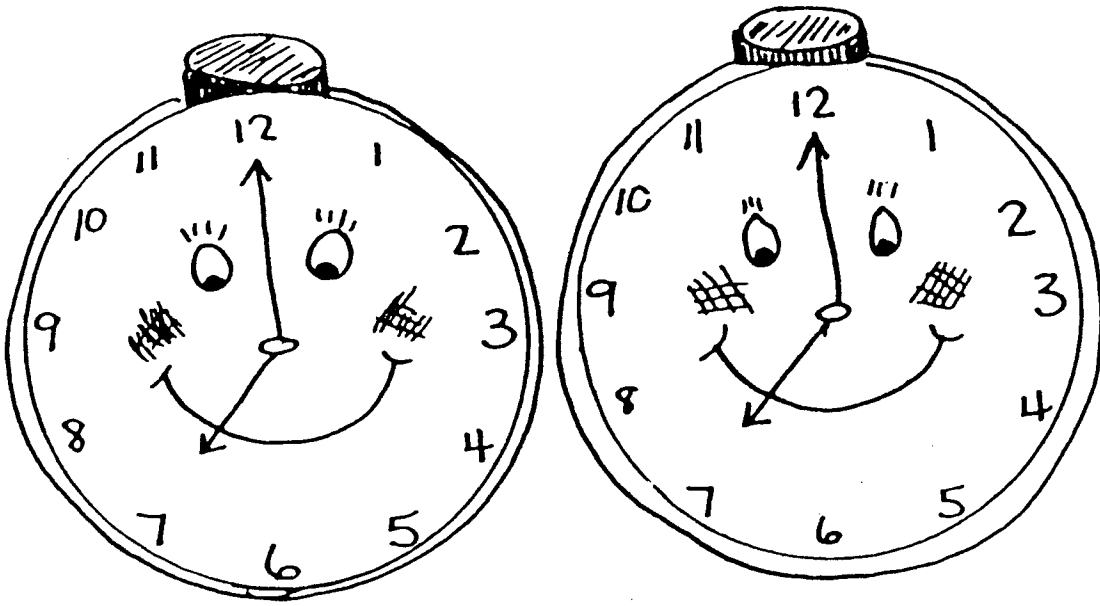
more time



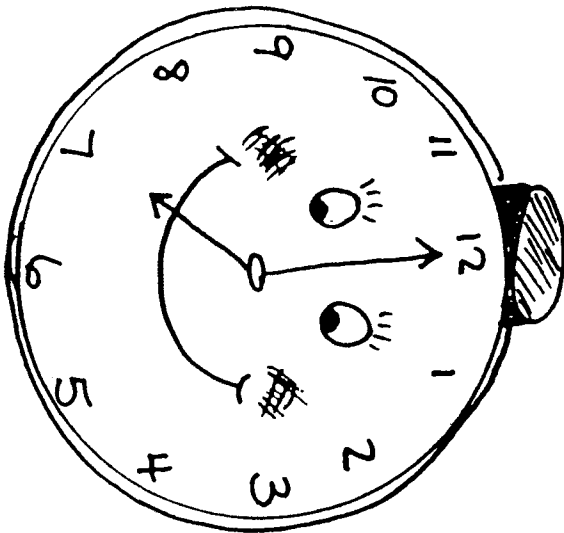
less time

# How Much Time?

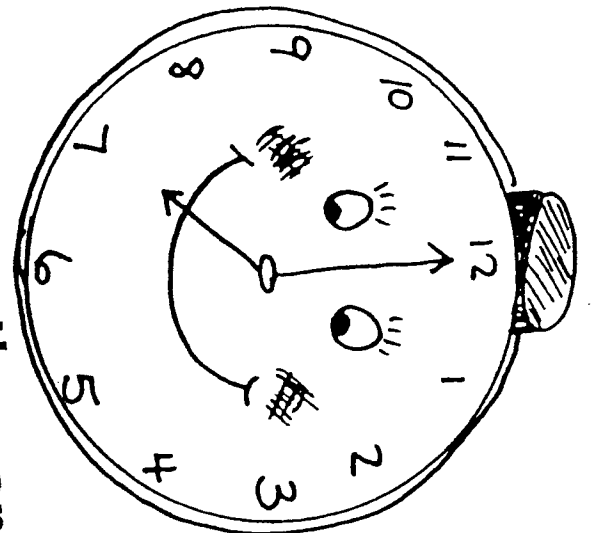
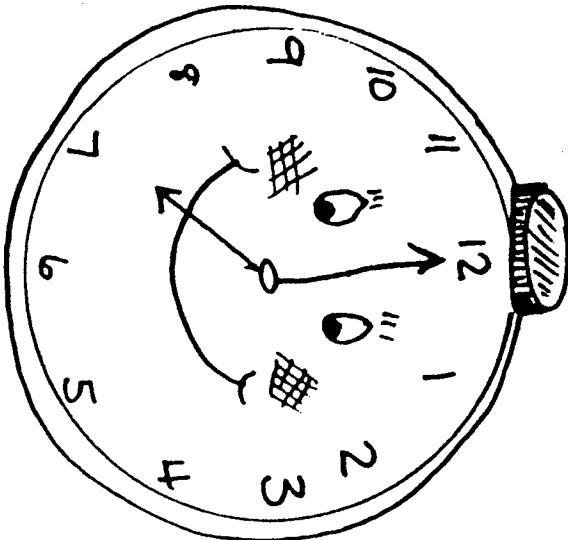
## Record Cards



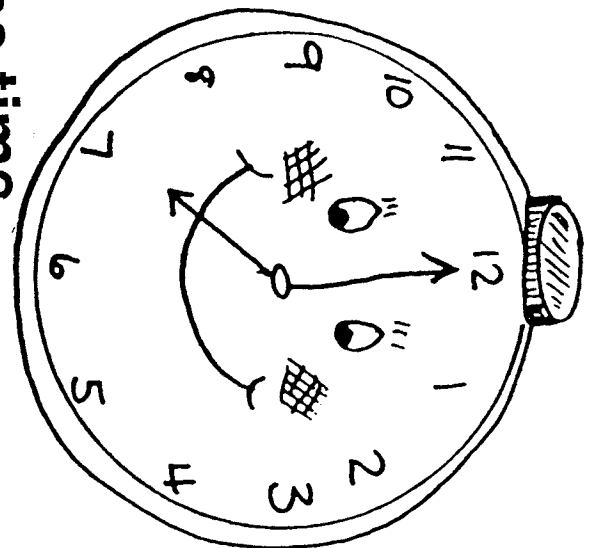
the same time



the same time

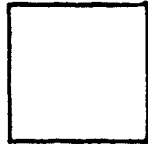
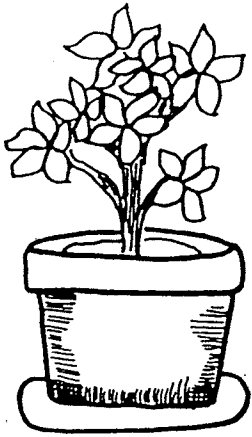


the same time

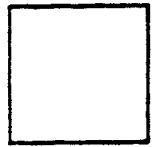
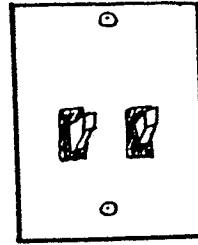


# How Many?

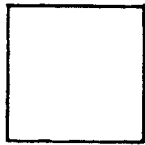
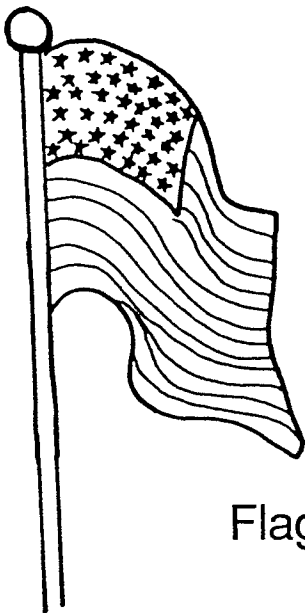
## Task Cards



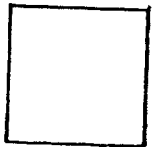
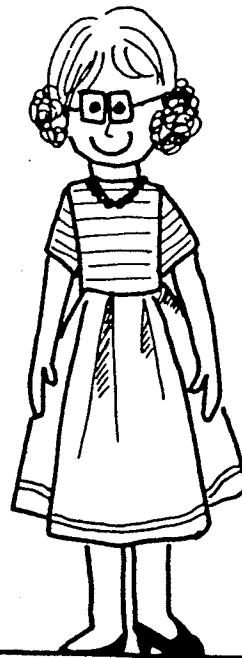
Plants



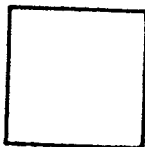
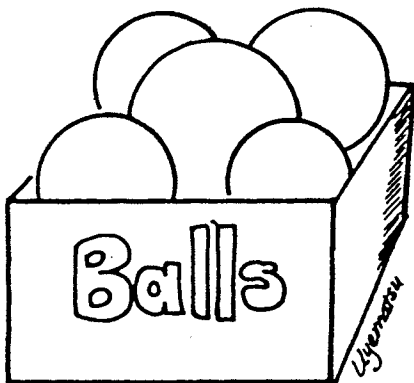
Light switches



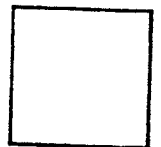
Flags



Adults

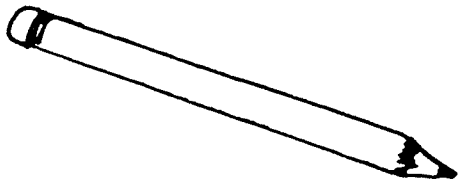
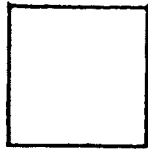


Balls

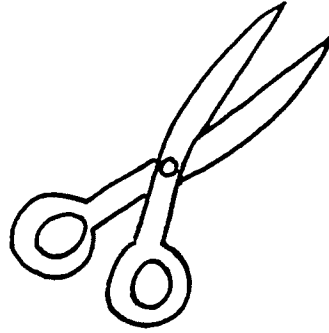
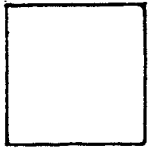


Jump ropes

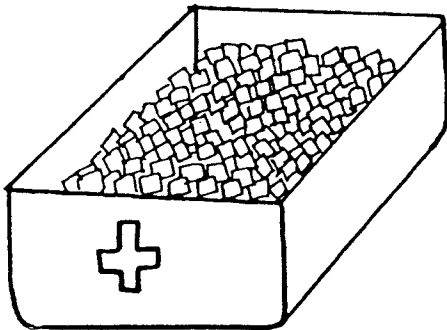
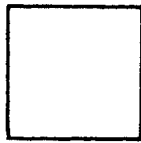
# How Many? Task Cards



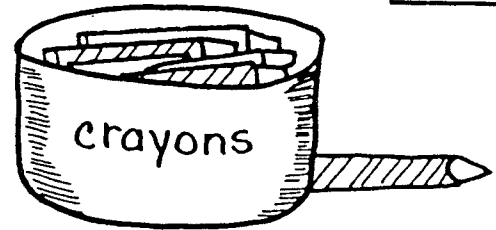
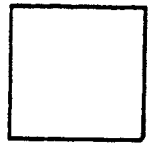
Pencils



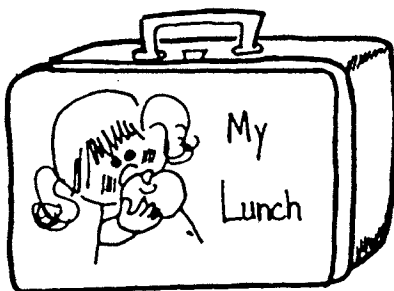
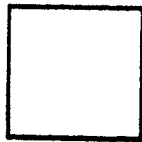
Scissors



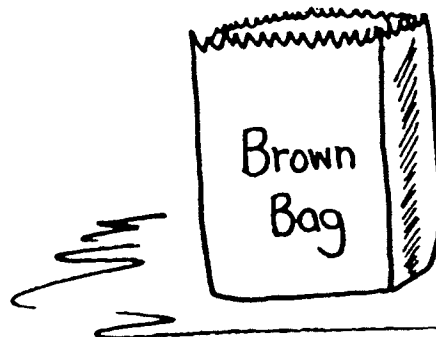
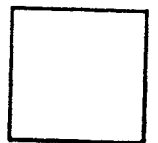
Math tubs



Crayon containers

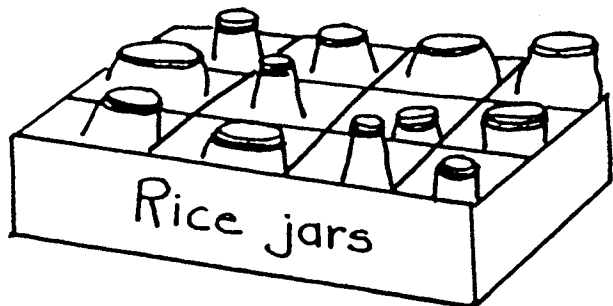


Lunch boxes

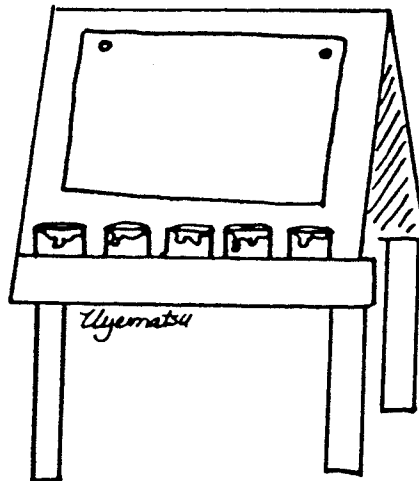


Bags

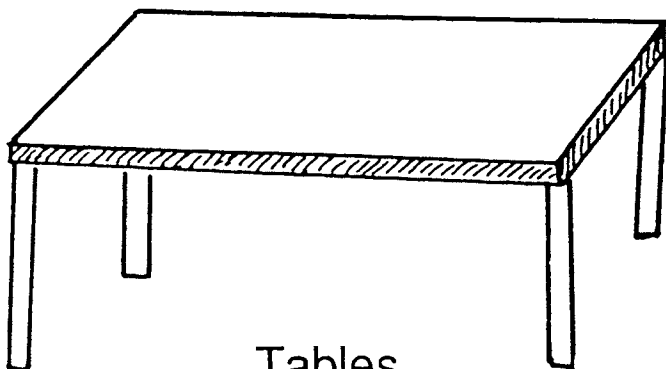
# How Many? Task Cards



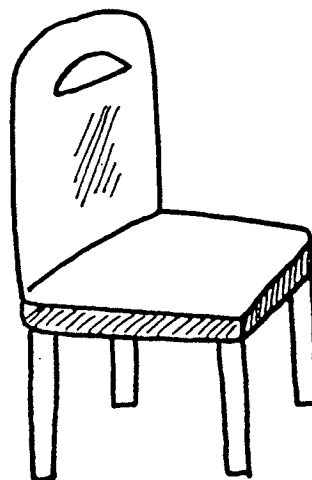
Rice jars (in divided box)



Paint containers



Tables



Chairs



Waste baskets

Have you been on a plane? 🐼	
Yes	No
😊	☹️
John	Ryan
Zoe	Dana
Yvett	Billy
Mary	Laureen
Dary	Allan
James	Jenny

Graphs



Apply the appropriate labels on both ends of each box lid. Either run the labels on full-sheet Avery Labels No. 5165, cut apart and attach; or simply cut apart these pages and glue or tape on.



**Which String?**

**A PRACTICE & ENRICHMENT BOX**



**Sticks in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Cubes in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Secret Eggs**

**A PRACTICE & ENRICHMENT BOX**



**Weighing Cards**

**A PRACTICE & ENRICHMENT BOX**



**Which is Heaviest**

**A PRACTICE & ENRICHMENT BOX**



**Weights in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Fill and Mark**

**A PRACTICE & ENRICHMENT BOX**



**The Measuring Jar**

**A PRACTICE & ENRICHMENT BOX**



**Cups to Fill**

**A PRACTICE & ENRICHMENT BOX**



**How Much Time?**

**A PRACTICE & ENRICHMENT BOX**



**Sinkers**

**A PRACTICE & ENRICHMENT BOX**



**How Many?**

**A PRACTICE & ENRICHMENT BOX**



**Which String?**

**A PRACTICE & ENRICHMENT BOX**



**Sticks in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Cubes in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Secret Eggs**

**A PRACTICE & ENRICHMENT BOX**



**Weighing Cards**

**A PRACTICE & ENRICHMENT BOX**



**Which is Heaviest**

**A PRACTICE & ENRICHMENT BOX**



**Weights in a Bag**

**A PRACTICE & ENRICHMENT BOX**



**Fill and Mark**

**A PRACTICE & ENRICHMENT BOX**



**The Measuring Jar**

**A PRACTICE & ENRICHMENT BOX**



**Cups to Fill**

**A PRACTICE & ENRICHMENT BOX**



**How Much Time?**

**A PRACTICE & ENRICHMENT BOX**



**Sinkers**

**A PRACTICE & ENRICHMENT BOX**



**How Many?**

**A PRACTICE & ENRICHMENT BOX**



## Egg Carton Graphs

**A PRACTICE & ENRICHMENT BOX**



## Ziplocks & Graphs

**A PRACTICE & ENRICHMENT BOX**



## Egg Carton Graphs

**A PRACTICE & ENRICHMENT BOX**



## Ziplocks & Graphs

**A PRACTICE & ENRICHMENT BOX**

# Money



## BOX IT OR BAG IT MATHEMATICS

Practice & Enrichment Boxes

**Donna Burk • Allyn Snider  
Paula Symonds**

Published by The Math Learning Center

**Box It or Bag It Mathematics, Practice & Enrichment Box:  
Money**

Box It or Bag It Mathematics consists of:

Teachers Resource Guide and Blackline Masters, Kindergarten

Teachers Resource Guide and Blackline Masters, 1st and 2nd Grade

Practice & Enrichment Boxes:

Shapes

Introduction to Measuring

Understanding Measuring

Reading, Writing & Understanding Numerals 0–10

Pattern

Arithmetic

Money

Place Value Counting

Place Value Addition & Subtraction

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## Practice and Enrichment Boxes

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# Getting Started

*Once you've introduced Money through a variety of group lessons (be sure to see Box It or Bag It Mathematics Teachers Resource Guide, Money,) you will want children to practice and extend their understanding using the activities that follow in this packet. Here are a few things we've found helpful to remember for a successful Independent Practice Time.*

*Provide no more than 8-12 boxed activities at one time for a class of 30. Too many activities create more than tolerable chaos.*

*Model each activity thoroughly until children can tell you what to do, step by step. You'll find "box ingredients" and "playing instructions" for each activity in this packet. We use clear contact paper to put them in our box lids so WE can remember what goes in each box and how each game is played. Reading the directions would be too difficult for most primary children.*

*Resist the temptation to put out all your challenging Boxes at once—provide an equal balance of easy and hard. (If you set out too many difficult Boxes, all the children will need you at once and the noise level will be almost unbearable as your children try to cope with the stress of too many difficult tasks.)*

*As you construct these Practice and Enrichment Boxes, cover your box tops with the same design contact paper. That way, you'll be able to pull your Money Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from The Math Learning Center in three sizes: standard (9" X 12" X 2"), half size (9" X 6" X 1-7/8") and junk (4" X 7" X 1-1/8").) See the Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.*

*Remember the Boxes themselves can be used for group instruction. They are ideal for use by an aide or parent with small groups. Some of them can be easily adapted for use with your whole group.*

*During Independent Practice Time, it's critical that you be available and in circulation to make sure things go smoothly. Once routines even out, you'll have opportunities to observe individuals which are not afforded when you conduct group instruction. You can really spot children with problems or understandings beyond your predictions. See the next page for some observation guidelines.*





## Some General Making Instructions

*Many of the Boxes have similar game parts. Rather than repeat the making instructions for these every time, we've included them in this section. Many of the gameboards, spinner tops, and cards have been printed for you and are among the blacklines and cardstock included in this packet. We'll always indicate if game materials are in the packet.*

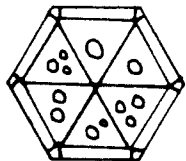
### SPINNERS

For each spinner you'll need:

- spinner top from blacklines
- two 6 X 6 squares poster or matte board, white or any light color
- two 1 X 1 squares poster or matte board (scraps work just as well as 1" squares and save a great deal of board)
- one regular-sized paper clip
- filament (strapping) tape
- an assortment of pennies, nickels, dimes, and quarters
- clear contact paper

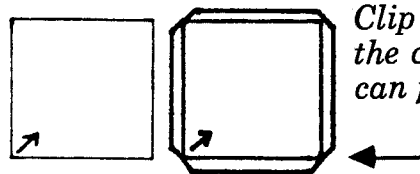
#### To Do:

1. Glue printed spinner top to one of the 6 X 6 pieces of posterboard. Cut it out. Place real coins over printed coins—no need to glue. (Many teachers have found that matte board is sturdier and lasts longer. Also, rather than cutting out a 6" square for the spinner top, a great deal of board can be saved by gluing all the spinner tops to a large piece of board and then cutting them out.



← *Snip the edges of the contact paper so you can fold it under.*

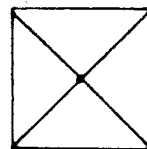
2. Cut a piece of clear contact paper somewhat larger than the spinner top. Place the contact paper over the top and smooth it down around the coins; it will hold them in place. Snip the edges of the contact paper and turn them under the spinner top.



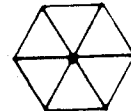
*Clip contact paper at the corners so you can fold it under.*

3. Draw a small arrow at the corner of the other 6 X 6 piece of railroad board. Cover the square with clear contact paper, turning the edges under.

*Draw lines diagonally across the back*

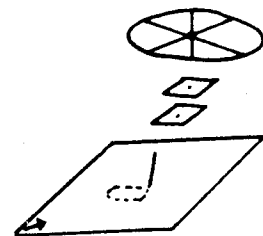


*of the 6 X 6 square to locate midpoint*



4. To assemble spinner, poke holes through the center of the 6 X 6 square, the two 1 X 1 "washer" pieces, and the center of the spinner top.

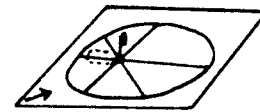
Unfold a paper clip by pulling out the middle section and bending it upwards.



Poke it upward through the squares, the two washers, and the spinner top.



*spinner back*



*spinner front*

Tape the paper clip with an "X" of filament tape to the back of the 6 X 6 square to hold the spinner together. Bend down the top point of the paper



clip in front and wrap it with a small piece of filament to prevent injury. Be sure to label each spinner with the name of the game. Otherwise, cleanup can be challenging.

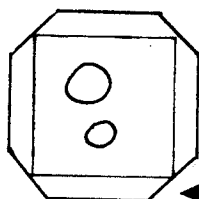
## COIN CARDS

You will need:

- 4 X 4 railroad board squares
- an assortment of pennies, nickels, dimes and quarters
- 5-1/2 X 5-1/2 squares of clear contact paper (i.e., enough contact paper to overlap the edges of the cards)

**To Do:**

1. Although the coins you'll put on cards will vary from game to game, the instructions are the same. Place required coin(s) on 4 X 4 square—no need to glue them down.
2. Put clear contact paper over 4 X 4 square, smoothing down around coin(s). Turn edges under.



*Clip contact paper at the corners so you can fold it under*

## COLORING

Be sure to color (silver or copper) all printed coins on gameboards, spinner tops, and cards unless you're using real coins. Colored coins

are a thousand times easier than uncolored coins to identify.

## REAL MONEY

Use real money to make games, wherever called for. We've found it makes games far more magical and understandable to kindergartners, first and second graders alike.

## COIN TUBES

Coin tubes for pennies, nickels, and dimes are called for in several games. You can get them at dime stores and coin stores. For little fingers, it works well to put your dimes in penny tubes, pennies in nickel tubes, and nickels in quarter tubes. That way they don't get stuck! To help insure that all the coins are put back each time, mark tubes to the level of the coins with a Sanford Sharpie fine tip permanent marker.

## COIN STAMPS GAME STORAGE

Coin stamps are widely available. They can also be ordered from The Math Learning Center. As you construct these Independent Practice Boxes, cover your box tops with the same design contact paper. That way you'll be able to pull your Money Boxes off the shelf easily, even if they've gotten mixed in with other boxes. (Boxes can be ordered from The Math Learning Center in three sizes: standard (9 X 12 X 2), half size (9 X 6 X 1-7/8), and junk (4 X 7 X 1-1/8). See the Box It or Bag It Mathematics Teachers Resource Guide, MATERIALS INDEX, for additional ordering and making information.

---

## Coin Graphs— Grades K and 1 (1-4 children)

---

See Box It or Bag It Mathematics Teachers Resource Guide, MONEY, Coin Graphs, for group introduction to this activity.

**Box ingredients→** coin stamps (8) and stamp pads (1 or 2)  
spinners (2) record sheets  
grey and brown crayons

### PLAYING INSTRUCTIONS—Easy

1. Spin the spinner. Read the amount spun.
2. Color in the appropriate box on your graph. Work from bottom to top.
3. Continue spinning, reading, and recording until at least one column is filled.

### PLAYING INSTRUCTIONS—Mid-Level

1. Spin the spinner. Read the amount spun.
2. Use a coin stamp to show the coin you spun on your graph. Color in the coin you stamped if you like. Work from bottom to top.
3. Continue spinning, reading, and stamping coins until at least one column is filled.

### PLAYING INSTRUCTIONS—Challenging

1. Spin the spinner. Read the amount spun.
2. Record the numerical amount on your graph. Don't forget the cents sign. Work from bottom to top.

3. Continue spinning, reading, and recording until at least one column is filled.

### MAKING INSTRUCTIONS

#### Coin Stamps (8) and Stamp Pads

You'll need two penny stamps, two nickel stamps, two dime stamps, and two quarter stamps. These are available through The Math Learning Center. We have glued real coins on each of our coin stamps so the children can easily recognize each stamp. Get stamp pads from your school office or any other source of business supplies.

#### Spinners (2)

Locate Coin Graph spinner tops in blacklines. Assemble as directed in the Getting Started section of this packet.

#### Record Sheets

Locate Coin Graph record sheet in blacklines. Run copies. Store record sheets, spinners, coin stamps, and crayons in standard box.

---

## Money March— Grades K and 1 (2-4 children)

---

See Box It or Bag It Mathematics Teachers Resource Guide, MONEY, Money March, for group introduction to this activity.

**Box ingredients→**    gameboard                      game markers (4)  
                                 Spinner (easy, challenging, or both)  
                                 standard box for storage

### **PLAYING INSTRUCTIONS—Easy and Challenging**

1. Take turns. Spin the spinner. Move your marker the correct number of spaces.
2. The first player to reach the Pot of Gold is the winner.

### **MAKING INSTRUCTIONS**

#### **Gameboard**

Locate Money March gameboard in the cardstock portion of this packet. Color with waterbase markers if you wish. Laminate.

#### **Spinners**

Locate Money March spinner tops in the blacklines. Make one or both, depending on the needs of your children. See Getting Started for assembly directions.

#### **Game Markers (4)**

Use unifix cubes in four different colors, or any other small colored counters. Store game markers, spinner(s), and gameboard in a standard box.

---

## Spin a Half Dollar— Grades K and 1 (2-4 children)

---

See Box It or Bag It Mathematics Teachers Resource Guide, MONEY, Spin a Half Dollar, for group introduction to this activity.

**Box ingredients→**    record sheets                      spinners (3)  
                                 pencils (4)                              standard box for storage

### **PLAYING INSTRUCTIONS**

1. Choose a spinner to use for your entire game.
2. Take turns. Spin the spinner. Cross out

- appropriate number of pennies to equal the amount shown on the spinner.
3. The first player to cross out all the coins on his/her sheet wins.

## MAKING INSTRUCTIONS

### Record Sheet

Locate Spin a Half Dollar record sheet in blacklines. Run copies.

### Spinners (3)

Locate three Spin a Half Dollar spinner tops in blacklines. Make two, or all three, depending on the needs of your children. See Getting Started for assembly directions. Store spinners, pencils, and record sheets in a standard box.

---

## Spin Two Dollars— Grades 1 and 2 (2-4 children)

---

**Box ingredients→**    record sheets                      spinner  
                                 pencils (4)                      standard box for storage

### PLAYING INSTRUCTIONS

1. Take turns. Spin the spinner. Cross out appropriate coins to equal the amount shown on the spinner.
2. The first player to cross out all the coins wins.

### MAKING INSTRUCTIONS

#### Record Sheets

Locate Spin Two Dollars record sheet in the blacklines. Run copies.

#### Spinner

Locate Spin Two Dollars spinner top in blacklines. Assemble as directed in Getting Started. Store spinner, pencils, and record sheets in standard box.

---

## Roll Twenty-Five Cents— Grades K and 1 (2-4 children)

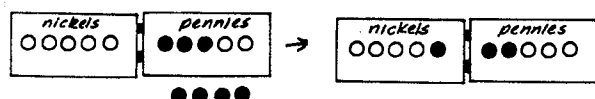
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See Box It or Bag It Mathematics Teachers Resource Guide, MONEY, Roll Twenty-Five Cents, for group introduction to this activity.

**Box ingredients→**    trading boards (4)  
                                 pennies in a coin tube (20)  
                                 nickels in a coin tube (20)  
                                 die                      junk box for storage

### PLAYING INSTRUCTIONS

1. Roll die to determine who starts. Highest roll begins.
2. Take turns. Roll die. Set out the number of pennies indicated by the die below the pennies side of your trading board. Once you have them counted out, move them up and make any needed trades.



"I rolled 3 on my first turn. This time I rolled 4. So I set out 4 below my pennies side. Now I'll have to move them up, trade in 5 for a nickel...."

3. Continue playing until one player reaches 25 cents.

### MAKING INSTRUCTIONS

#### Trading Boards (4)

Locate Roll Twenty-five Cents trading boards in the cardstock portion of this packet. Color in coins. Laminate. Cut apart. Hinge one pennies and one nickels section at the back with two strips of filament tape to make each board.

leave 1/8" space between boards



#### Pennies and Nickels in Coin Tubes

Put twenty pennies in a nickel tube and twenty nickels in a quarter tube. Mark each tube with a permanent marking pen to the appropriate level when filled. This makes it easy to see if all the coins have been returned at cleanup time.

#### Die

Use a plain wooden cube or foam cube, available from The Math Learning Center. Mark the numbers 1-6 on your die with a permanent black marker. Store the die, coins in coin tubes, and trading boards in a junk box.

---

## Money Trading Game— Grades 1 and 2 (2-4 children)

---

**Box ingredients→**      dice (2)                      trading boards (4)

                                 pennies in a marked coin tube (40)

                                 dimes in a marked coin tube (40)

                                 half box for storage

### PLAYING INSTRUCTIONS—Easy

1. Take turns. Roll the dice. Take the number of pennies rolled. Place them on the pennies side of the scorecard.
2. Each time you get ten pennies, trade for a dime and place the dime on the dime side of your scorecard.
3. The first player to get ten dimes wins.

trading a dime for ten pennies and then taking the amount rolled away.

3. The first player to get back to .00 wins the game.

### MAKING INSTRUCTIONS

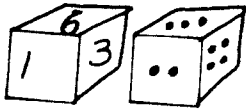
#### Dice

You can provide different sets of dice, depending on the needs of your children. The first set we've used is one dotted dice, 0-6, and one numbered dice, 0-6. A dotted and a numbered dice encourages children to count on; the children say the number and count the dots on.

### PLAYING INSTRUCTIONS—Challenging

1. Take turns. Start with ten dimes on the dime side of the scorecard. Roll the dice.
2. Remove that amount from your scorecard by

"Six, seven, eight, nine!"



Other possibilities for dice are:

one numbered 6-11; one dotted 6-11  
both numbered 4-9

one dice numbered 10, 20, 30, 10, 20, 30; one  
numbered 0-6  
one dice numbered 9, 9, 9, 10, 10, 10; one  
numbered 4-9

#### Trading Boards (4)

Locate the Money Trading Game trading boards in the cardstock portion of this packet. Assemble as directed in Roll Twenty-five Cents. Store trading boards, coins in marked coin tubes, and dice in half box.

---

## Money Sock Boxes— Grades K, 1 and 2 (2-4 children)

---

**Box ingredients→** money sock boxes with coins inside (4)

spinner(s) (1-4)

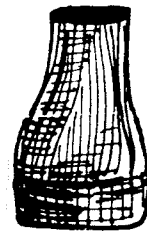
standard box for storage

#### PLAYING INSTRUCTIONS—Easy, mid-level, and challenging

1. Choose a spinner. Game can be easy or more challenging depending on which you choose.
2. One player spins the spinner.
3. Everyone reaches into his or her sock box and tries to pull out the correct coin(s).
4. Once everyone has coin(s) out and counted, put them all back. Pass the spinner to someone else and play again.

4 children's stretchy socks  
4 pennies, 4 nickels, 4 dimes, and 4 quarters

1. If noise bothers you, glue a circle of felt in the bottom of each can.
2. Pull one stretchy sock over each can.
3. Put one penny, one nickel, one dime, and one quarter in each can.



#### MAKING INSTRUCTIONS

##### Money Sock Boxes (4)

You'll need:

4 tuna or cat food cans with sharp edge taped at top

##### Spinners (1-4)

Locate Money Sock Boxes spinner tops in blacklines. Choose the spinner(s) most appropriate to your children's needs. Assemble as directed in Getting Started. Store spinner(s) and sock boxes in standard box.

---

## Money Puzzles— Grades K, 1 and 2 (1-4 children)

---

**Box ingredients→** money puzzles (25)

half box for storage

#### PLAYING INSTRUCTIONS

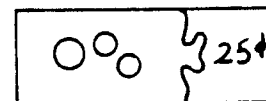
1. Put the money puzzles together.
2. Count the money on each puzzle to a friend or teacher.

#### MAKING INSTRUCTIONS

##### Money Puzzles

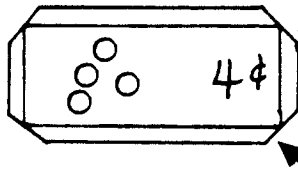
You'll need:

25 3 X 8 pieces of  
railroad board



assortment of pennies, nickels, dimes, and quarters  
clear contact paper

1. Place coin(s) on the left-hand side of the card—no need to glue them down.
2. Write money amount on right-hand side.
3. Cover the card with clear contact paper. Smooth paper down around the coins. Turn edges under.



*Snip the edges of the contact paper so you can fold it under.*

4. Cut puzzle apart in the middle, using some form of puzzle cut.



Kindergarten teachers will probably want to limit coins and coin sums to ten cents and below. First and second grade teachers may go to fifty cents or higher, whatever you can afford.

Store money puzzles in a half box.

---

## Count, Tell, Spin, and Win— Grades K, 1 and 2 (2 children)

---

**Box ingredients→**    one “more” card                      one “less” card  
                                 more or less spinner                      coin cards (14-20)  
                                 half box for storage

### PLAYING INSTRUCTIONS

1. Put all the coin cards face down in a pile.
2. Each player takes a card.
3. Each player counts money on card.
4. Label cards with “more” and “less” card.
5. Spin the spinner to see who wins.
6. Player who wins takes both cards.
7. When all the coin cards have been used, each player counts cards.
8. Label winnings piles with “more” or “less” cards
9. Spin to see who wins the game.

### MAKING INSTRUCTIONS

#### More and Less Cards

Find the more and less cards in blacklines. Cut, color, mount on tag, and cover with clear contact paper or laminate.

#### Spinner

Find spinner top in blacklines. Color. Assemble as directed in Getting Started.

#### Coin Cards (14-20)

Make a set of 14-20 different coin cards (see Getting Started for directions) with sums appropriate to the needs of your children.

Easy—varying sums of pennies, all less than ten cents and/or pennies and nickels to ten cents.

Mid-level—pennies, nickels, and dimes, varying sums to twenty-five cents.

Challenging—pennies, nickels, dimes, and quarters, varying sums to \$1.00.

Store coin cards, more and less cards, and spinner in half box.



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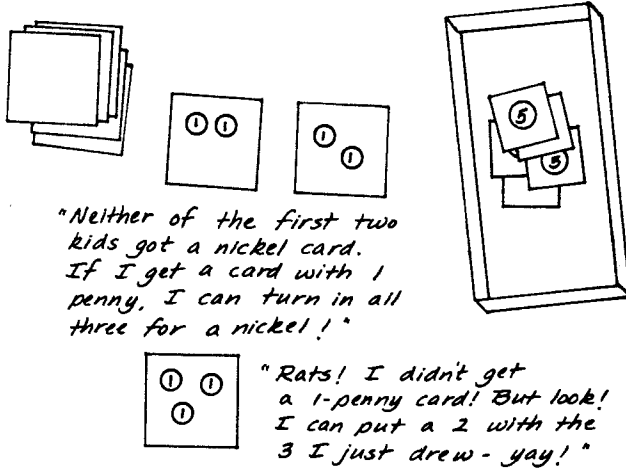
## Earn A Nickel— Grades K and 1 (2-4 children)

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**Box ingredients→** pennies cards (22)      nickel cards (10)  
half box for storage

### PLAYING INSTRUCTIONS

1. Place the pennies cards face down in a pile.
2. Put nickel cards in the box lids—this is the “bank”.
3. Turn one pennies card face up. If it has five pennies on it, you can turn it in to the bank for a nickel. If it's less than five, leave it face up in the middle. It's now community property.
4. Let your partner or the person to your left turn another pennies card up. Can he or she add the two cards to make exactly five cents? If so, he/she can turn the two cards in to the bank for a nickel card. If not, play passes to the next person.



5. Continue around the circle, or with your partner, drawing cards, placing them in the middle and making trades to the bank for nickels when you can. The game is over when all the cards have been turned up and no more trades can be made. There may be a few pennies cards left—that's O.K. The player with the most nickel cards at the end wins.

### MAKING INSTRUCTIONS

#### Coin Cards

You'll need:

- 10 nickels
- 58 pennies
- 10 pieces 2 X 2 poster board for nickel cards
- 22 pieces 4 X 4 poster board, in a different color
- clear contact paper

#### Make:

- 10 nickel cards
- 8 cards with 1 cents
- 4 cards with 3 cents
- 4 cards with 3 cents
- 4 cards with 4 cents
- 2 cards with 5 cents

See Getting Started for assembly directions.  
Store coin cards in half box.

## Earn A Dime— Grades 1 and 2 (2-4 children)

**Box ingredients→** pennies cards (20)

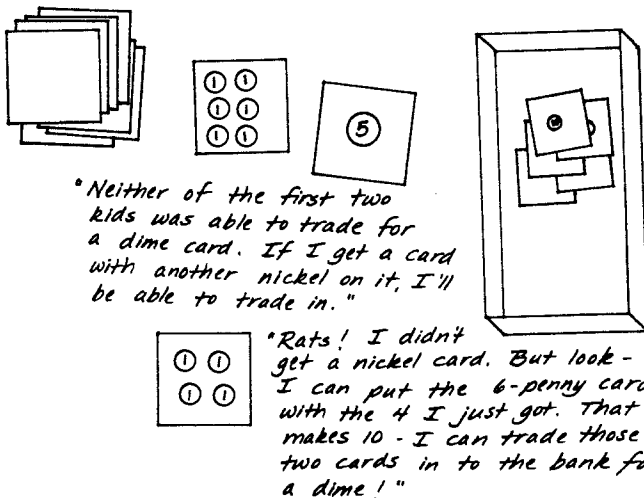
nickel cards (3)

dime cards (10)

half box for storage

## PLAYING INSTRUCTIONS

1. Place the pennies and nickel cards face down in a pile.
2. Put dime cards in the box lid. This is "the bank".
3. Turn one pennies or nickel card face up. Leave it in the middle. It's now community property.
4. Let your partner or the person to your left turn another card up. Can he or she add the two cards to make exactly ten cents? If so, he/she can trade the two cards in to the bank for a dime card. If not, play passes to the next person.



5. Continue around the circle or with your partner, drawing cards, placing them in the middle and making trades to the bank for dimes when you can. The game is over when all the cards have been turned up and no more trades can be made. There may be a few cards left in the middle—that's O.K. The player with the most dimes cards at the end wins.

## MAKING INSTRUCTIONS

## Coin Cards

**You'll need:**

10 dimes

**3 nickels**

66 pennies

10 pieces 2 X 2 poster board for dime cards

23 pieces 4 X 4 poster board, in a different color, for other coin cards

clear contact paper

**Make:**

10 dime cards

4 cards with one cents

4 cards with two cents

4 cards with three cents

3 cards with four cents

2 cards with five cents

3 nickel cards

2 cards with six cents

1 card with eight cents

See Getting Started for assembly directions.  
Store coin cards in half box.

---

## The Store— Grades K, 1 and 2 (1-4 children)

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**Box ingredients→** store items (16-20)

coins in marked coin tubes (amount and type will vary with grade level)

standard box for storage

### PLAYING INSTRUCTIONS—Easy

1. Take ten pennies.
2. Choose something to buy from the store.
3. Lay out the correct amount of money beside it.
4. Continue choosing until you no longer can buy anything.
5. Take your ten pennies back and start again.

### PLAYING INSTRUCTIONS—Challenging

1. Take ten dimes.
2. Choose something to buy from the store.
3. Lay out the correct amount of money beside it.
4. Continue choosing until you no longer can buy anything.

### MAKING INSTRUCTIONS

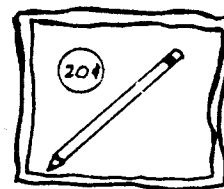
#### Coins in Marked Tubes

You'll need 40 pennies in a tube for the easy game. For the challenging version, you'll need 40 dimes, 20 nickels, and 30 pennies in marked coin tubes. (The nickels and pennies are for making change.)

### Toys

You'll need:

16-20 small toys or stationery items, each priced under \$.60, if possible. Balloons, toy scissors, an eraser, a small tablet, two barrettes, a pencil, a plastic toy car, are all possibilities. (If you're making the easy version of The Store, you'll want to disregard and probably remove the items' real prices and mark amounts of one cent-6 cents on each.)



filament (strapping) tape  
small ziplock bags

Bag each toy and edge with filament tape. Mark each bag with the item's price unless the item itself is clearly marked.

Lenore Rukasin, of Los Angeles, brought a wonderful machine to class that heat sealed plastic bags in no time at all. If you know anyone who has one for preparing freezer foods, borrow it. It would save so much time.

Store coins in marked coin tubes and store items in a standard box.

---

## Top Draw— Grades K, 1 and 2 (2-4 children)

---

**Box ingredients→** coin cards (20-30)

half box for storage

### PLAYING INSTRUCTIONS

1. Put all the coin cards face down in a pile.
2. Take turns taking a card and counting the money on your card.

3. The person with the most money captures every players' card.
4. If two players draw cards with the same value, each player draws one more card.

5. The player with the most cards at game's end wins.

## MAKING INSTRUCTIONS

## Coin Cards

**Assemble coin cards as directed in Getting Started. Kindergarten teachers should limit**

the coins and sums of coins to ten cents and below. First and second grade teachers can include sums as high as they can afford (ours go up to \$.40 on some cards). Make 20-30 cards in either case.

**Store coin cards in half box.**

## Dig for Buried Treasure— Grades K, 1 and 2 (2-4 children)

See Box It or Bag It Mathematics Teachers Resource Guide, Grades 1 and 2, Chapter 6, Capture the Money, for group introduction to this activity.

**Box ingredients→** gameboard                  money box                  game cards  
standard box for storage

### PLAYING INSTRUCTIONS—Easy, mid-level, and challenging

1. Put all the money out on the gameboard. Match each coin to a printed coin. Mix up the game cards and put them in a pile, face down.
2. Take turns. Draw a card. Find on the board the coordinate the card names. Remove the coin.
3. Play until all the money has been taken off the board. The person with the most money wins.

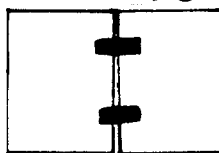
## MAKING INSTRUCTIONS

## Gameboard

**Locate Dig for Buried Treasure** gameboards (2 sheets each) in the cardstock portion of this packet. There are three different versions: easy, mid-level, and challenging. Choose the one most appropriate to your group. (You may even want to make two separately boxed versions for your class. It's a very popular game.)

**Color the coins. Laminate or cover both halves with clear contact paper. Hinge the two halves.**

*back of gameboard*



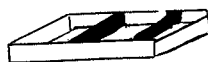
*Leave 1/8" between sections  
when you hinge them so  
gameboard will fold  
easily for storage*

## Game Cards

Locate the game cards in the cardstock portion of this packet. They'll work for any version of the game. Laminate. Cut apart.

## Money Box

Use a junk box to hold coins. Using a hot glue gun or tacky glue, glue cardboard dividers into box to separate coins if you're making the mid-level or challenging version of the game. Label each section by stamping the coin and how many in bottom of box.



17 pennies



12  
nickels



7  
dimes

For the easy version of Dig for Buried Treasure, you'll need 36 pennies. For the mid-level version, you'll need 17 pennies, 12

**Store box of coins, game cards, and gameboard in a standard box.**

**Box ingredients→** gameboard money box  
one penny to push one penny pusher  
money starter cards (4)  
standard box for storage

gamebox. Cover with clear contact paper. Using a hole punch, punch a hole in the side of the box, low and right, in front of the penny for the “penny pusher” to go through.

- ## Penny Pusher

Make the penny pusher by gluing a 1/2 X 1 piece of heavy tag to the end of an unsharpened pencil. Use super tacky glue or a hot glue gun. Or, get a parent to do doweling and wood for you.



## Money Box

Use a junk box to hold coins. It will need to be divided if you're making the challenging version of Penny Push (see Dig for Buried Treasure for directions). The easy version will take 100 pennies. The challenging version will require 20 pennies, 15 nickels, 15 dimes, and 4 quarters.

## MAKING INSTRUCTIONS

## Gameboard

Locate Penny Push gameboard in blacklines. Color. Label each push on the gameboard with a price. If you're making the easy version, price each toy less than ten cents; toys can be priced up to twenty-five cents for the challenging version. Glue the gameboard to the bottom of the

## Money Starter Cards

**Locate Penny Push money starter cards in cardstock portion of this packet. Color, laminate, and cut apart. Store money starter cards, money box, penny pusher, the one penny to push, and gameboard in a standard box.**

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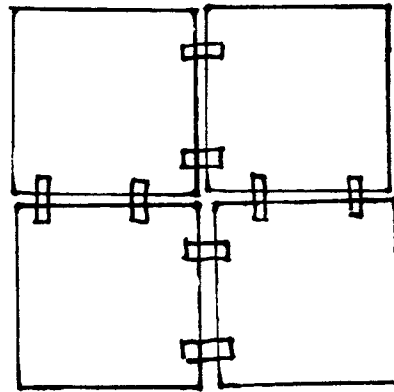
## Shopping Spree— Grades K, 1 and 2 (2-4 children)

---

**Box ingredients→** gameboard                      one die  
money box                      game markers (4)  
toys (28)                      money starter cards (4)  
standard box for storage

### PLAYING INSTRUCTIONS—Easy and challenging

1. Take a money starter card. Cover it with the appropriate coins. If this is the easy version, each player will start with 25 pennies. If this is the challenging version, you'll be taking 10 dimes to start. (The game can be made still more challenging by having each player start with four quarters.)
2. Then players take turns rolling the die and moving on the gameboard.
3. If a player lands on a space with instructions, he/she follows the instructions.
4. If a player lands on a toy, he/she decides whether or not to buy.
5. Play continues this way until all players reach the end.
6. If a player goes bankrupt before reaching the end of the game, he/she begins again at start.
7. The player with least amount of money at the end of the game wins.



#### Die

Label a plain wooden or foam cube with numerals 1-6. Use a permanent black marking pen.

#### Toys (28)

Package and price 28 tiny toys. (See The Store for packaging instructions.) If you're making the easy version, price toys ten cents and under; price up to thirty cents for challenging version.

#### Game Markers (4)

Use unifix cubes in four different colors or other small colored markers.

#### Money Box

Use a junk box to hold coins. It will need to be divided if you're making the challenging version of Shopping Spree (see Dig for Buried Treasure for directions). The easy version will take 100 pennies. The challenging version will require 40 dimes, 20 nickels, and 20 pennies. If you're planning to have players start with four quarters each, your money box should contain 16 quarters, 20 dimes, 20 nickels, and 20 pennies.

### MAKING INSTRUCTIONS

#### Game Boards

1. Color the coins on the game board in appropriate colors.
2. Contact or laminate each board separately. You may want to do front and back for extra sturdiness!
3. Lay the sheets down matching A to A, B to B, and then joining in center.
4. Tape the sheets together with filament tape on the back side, leaving 1/8" space between taped sheets to insure easy folding.

### Money Starter Cards

Locate Shopping Spree money starter cards in cardstock portion of this packet. Color,

laminate, and cut apart. Store money starter cards, money box, game markers, toys, die, and gameboard in a standard box.

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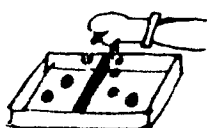
## Drop the Money— Grades 1 and 2 (1-4 children)

---

**Box ingredients→** money drop boxes (6)                      record sheets  
standard box for storage

### PLAYING INSTRUCTIONS

1. Drop the money.



2. Write down what happened.

$$\boxed{17} + \boxed{8} = \boxed{25¢}$$

### MAKING INSTRUCTIONS

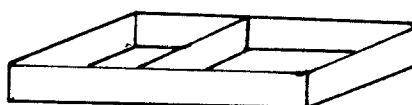
#### Drop Boxes (6)

You'll need:

- 6 junk boxes with tops
- 6 pieces of heavy cardboard, 4 X 1
- heavy craft glue or hot glue gun
- patterned contact paper and elastic for each box, if desired
- pennies, nickels, dimes, and quarters

1. Construct junk boxes.

2. Glue cardboard pieces into bottoms of junk boxes, using generous amounts of glue.



3. Cover junk box tops with patterned contact paper and band with elastic, if desired.
4. Put a different sum of money in each box.  
First grade teachers may want to put a different number of pennies in each box to start, then mixtures of pennies, nickels, and dimes later. Second grade teachers may want to include nickels, dimes, and quarters, creating larger sums in each box. In any case, label each box with the amount you put in.



#### Record Sheets

Locate Drop the Money record sheet in blacklines. Run copies. Store record sheets and money drop boxes in standard box.

---

## Stamp the Price— Grades 1 and 2 (1-4 children)

---

**Box ingredients→**    small toy items (16-20)  
                                 coin stamps (8) and stamp pads (1 or 2)  
                                 record sheets            standard box for storage

### PLAYING INSTRUCTIONS

1. Choose something to buy.
2. Write the name and price of your item.
3. Stamp the price.
4. Repeat steps 1-3 until your record sheet is filled.

### MAKING INSTRUCTIONS

#### Small Toy Items (16-20)

See The Store making instructions for toy ideas and packaging/labeling directions.

#### Coin Stamps (8)

You'll need two penny stamps, two nickel stamps, two dime stamps, and two quarter stamps. These are available through The Math Learning Center. We have glued real coins on each of our coin stamps so the children can easily recognize each stamp. Get stamp pads from your school office or any other source of business supplies.

#### Record Sheets

Locate Stamp the Price record sheet in black-lines. Run copies. Store record sheets, coin stamps, stamp pads, and small toys in standard box.

---

## Stamp the Price Twice— Grades 1 and 2 (1-4 children)

---

**Box ingredients→**    small toy items (16-20)  
                                 coin stamps (8) and stamp pads (1 or 2)  
                                 record sheets            standard box for storage

### PLAYING INSTRUCTIONS

1. Choose an item to buy.
2. Stamp the price.
3. Find other ways to stamp the price. If you run out of room on the front, turn your paper over.

### MAKING INSTRUCTIONS

See Stamp the Price for making instructions. The only difference between the two games is the record sheets. Many teachers choose to keep both record sheets in the same box rather than making the game twice.



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## Coin Stamp Booklets— Grades 1 and 2 (1-4 children)

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**Box ingredients→** record sheets  
coin stamps (8) and stamp pads (1 or 2)  
standard box for storage

### PLAYING INSTRUCTIONS

1. Pick out a book page for your coin stamp booklet.
2. Figure out different ways to stamp out the amount of money on the booklet cover using the coin stamps.
3. After you've completed the page, you may cut it apart and staple it to make a small book.

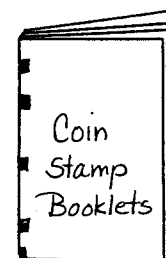
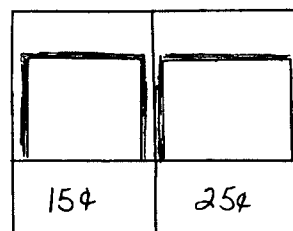
### MAKING INSTRUCTIONS

#### Coin Stamps (8)

You'll need two penny stamps, two nickel stamps, two dime stamps, and two quarter stamps. We glue real coins on each of our coin stamps so the children can easily recognize each stamp. Get stamp pads from your school office or any other source of business supplies.

#### Record Sheets

Locate Coin Stamp Booklet record sheets in blacklines. Run copies of each. You can buy student folders, the kind with the pocket at the bottom, cut them down slightly to fit in your box, and tape them together to hold the record sheets.



Store record sheets, coin stamps, and ink pads in standard box.

---

## Shop the Ads— Grades 1 and 2 (1-4 children)

---

**Box ingredients→** catalog and newspaper ads  
newsprint, 12 X 18      gluesticks or paste  
coin stamps (4)      oversized stamp pad  
dollar stamp, five-dollar stamp, ten-dollar stamp  
standard box for storage

### PLAYING INSTRUCTIONS

1. Choose an ad for something you'd like to buy.
2. Paste your ad on a piece of paper.
3. Use the money stamps to stamp out how much you'd have to pay.

### MAKING INSTRUCTIONS

#### Catalog and Newspaper Ads

Have students or parents cut ads from newspapers or catalogs of things children would be interested in buying: toys, games, bikes, scooters, computer or video equipment, etc. Make sure each ad is clearly labeled with

its real price. It helps to keep all ads in a junk box inside the game box.

#### **Newsprint**

Fold 12 X 18 newsprint in half so it will fit in your box.

#### **Coin Stamps**

You'll need one penny stamp, one nickel stamp, one dime, and one quarter stamp.

#### **Dollar Stamps**

You'll need a dollar stamp, a five-dollar stamp, and a ten-dollar stamp. These can be purchased, along with an oversized ink pad, from Lakeshore or other educational supply outlets. An alternative to stamps is to run copies of the fake bills from the blackline section of Box It or Bag It Mathematics Teachers Resource Guide, Grades 1-2. Cut the bills apart and store them in tag pockets. Children can glue these down. Store fake bills or bill stamps and ink pad, coin stamps, newsprint, and ads in a standard box.

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## **Park and Shop— Grades 1 and 2 (2-4 children)**

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See Box It or Bag It Mathematics Teachers Resource Guide, Grades 1 and 2, MONEY, Park and Shop, for group introduction to this activity.

**Box ingredients→**    die                      gameboard                      game markers (4)  
40 dimes, 20 nickels, and 30 pennies in coin tubes  
money starter cards  
standard box for storage

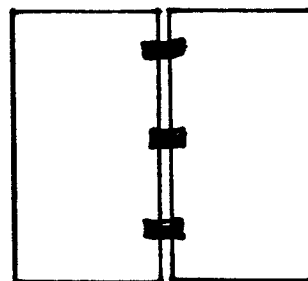
#### **PLAYING INSTRUCTIONS**

1. Take turns. Roll the die. Move your marker correct number of spaces. If you want to buy what's in the space you land on, pay the correct amount. If you don't want to buy it, that's O.K.—just stay there until your next turn. If the space you land on says, "Earn five cents", get five cents. If it says, "Pay five cents", give up five cents. If you land on a space where someone's already bought the item, you can buy it, too—just give up the correct amount.
2. Keep playing until everyone's off the board. The player who spent closest to \$1.00 without going bankrupt wins.

#### **MAKING INSTRUCTIONS**

##### **Gameboards**

Locate Park and Shop gameboard in tag portion of packet. Color and laminate or contact. Hinge on the back with filament tape. This way it will fold to go in your box.



*Leave 1/8" between sections so gameboard will fold easily for storage*

**Game Markers (4)**

Use unifix cubes in four different colors or other brightly colored markers.

**Die**

Use a wooden or foam cube to make one die, dotted or numbered 0-5.

**Money in Coin Tubes**

Put 40 dimes in a penny tube, 20 nickels in a quarter tube, and 30 pennies in a nickel tube. Mark each tube with a permanent marking pen

to the appropriate level when filled. This makes it easy to see if all the coins have been returned at cleanup time.

**Money Starter Cards (4)**

Locate Park and Shop money starter cards in cardstock portion of this packet. Color, laminate and cut apart. Store starter cards, coins in tubes, die, game markers, and gameboard in standard box.

---

## Make Change— Grades 1 and 2 (1-4 children)

---

See Box It or Bag It Mathematics Teachers Resource Guide, Grades 1 and 2, MONEY, Making Change, for group introduction to this activity.

**Box Ingredients→**

money box

record sheets

spinner

assorted toys (16-20)

standard box for storage

**PLAYING INSTRUCTIONS**

1. Choose a toy to buy.
2. List the item and cost on the record sheet.
3. Spin the game spinner to determine the money you will use to play.
4. Pay and use the money box to figure out how much change you get back.
5. Write the amount of change on record sheet.

**MAKING INSTRUCTIONS****Spinner**

Locate Make Change spinner top in blacklines. Assemble as directed in the Getting Started section of this packet.

**Money Box**

Use a junk box to hold coins. See Dig for Buried Treasure for directions. This box will need to be divided into five compartments; the game requires 20 pennies, 10 nickels, 10 dimes, 4 quarters, and 2 half dollars.

**Assorted Toys (16-20)**

Package and price 16-20 toys under twenty-five cents. See The Store for instructions.

**Record Sheet**

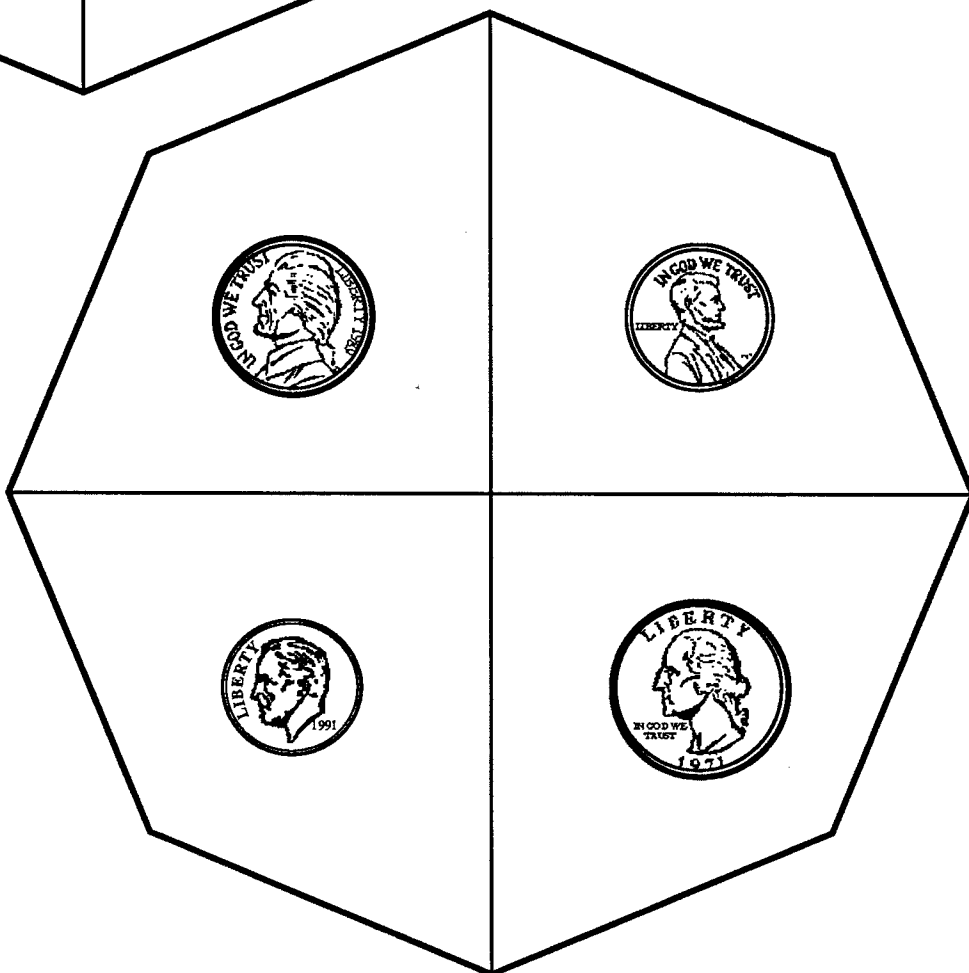
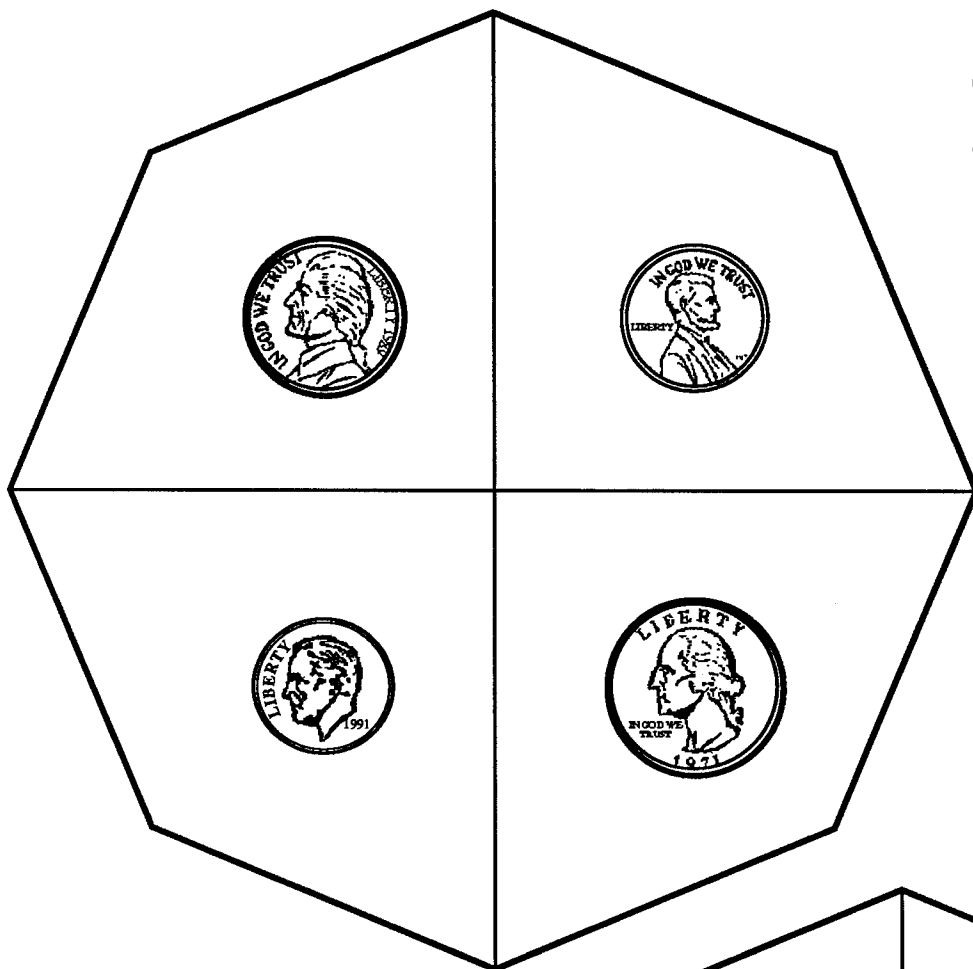
Locate Make Change record sheet in blacklines. Run copies. Store record sheets, toys, money box, and spinner in standard box.

# Blacklines

Patterns, cards, spinners, and other materials you'll make for the  
Practice & Enrichment Boxes described in this packet.





## Coin Graph spinner tops

(Make with real coins)



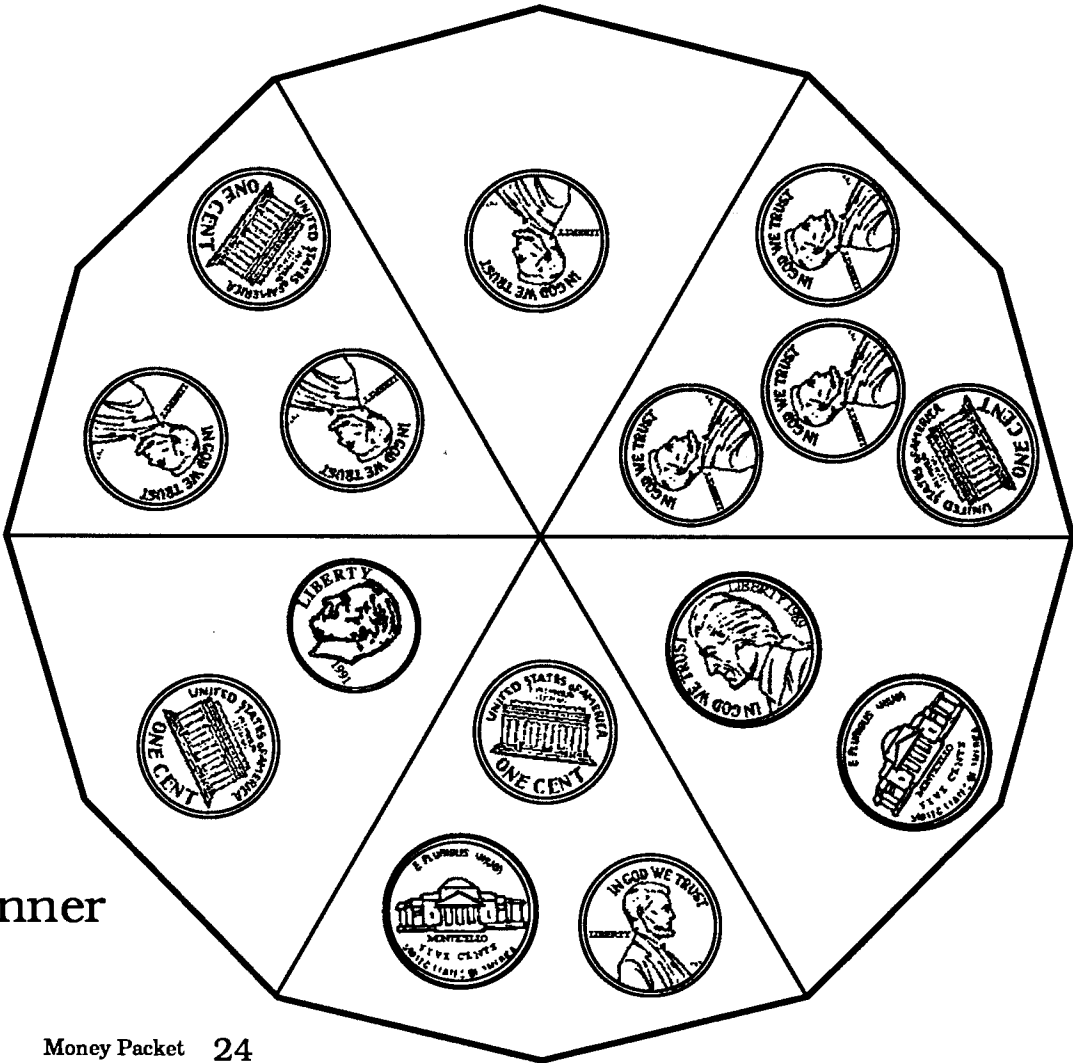
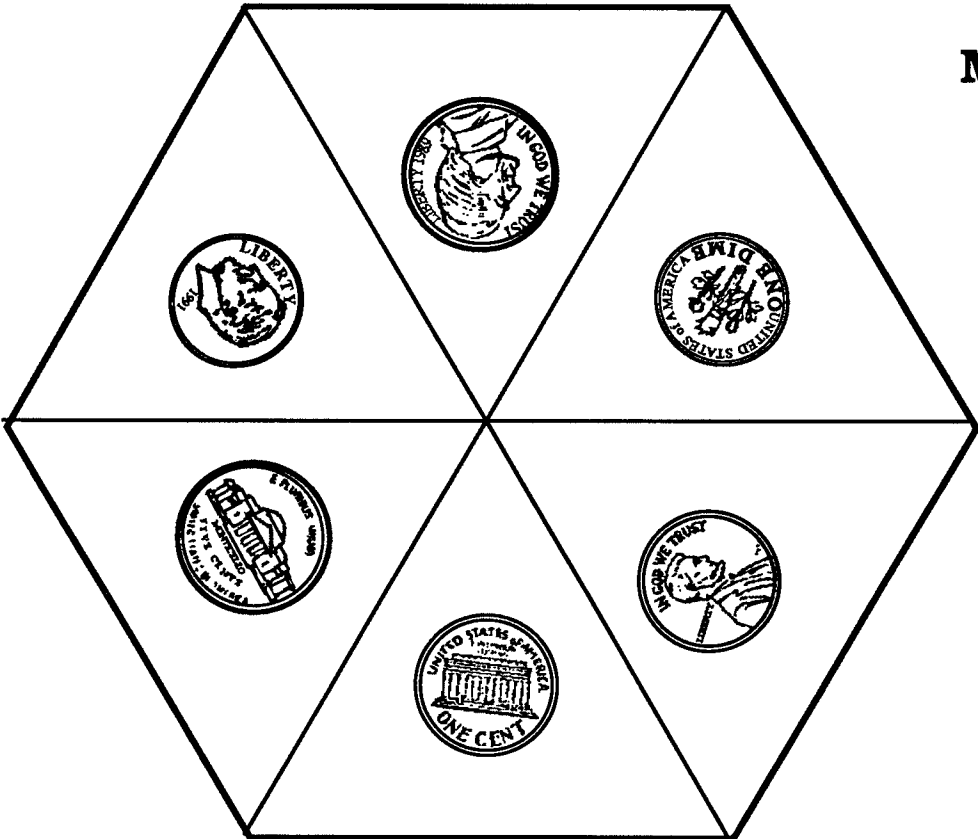
# Coin Graph

name \_\_\_\_\_

 <b>1¢</b>	 <b>5¢</b>	 <b>10¢</b>	 <b>25¢</b>

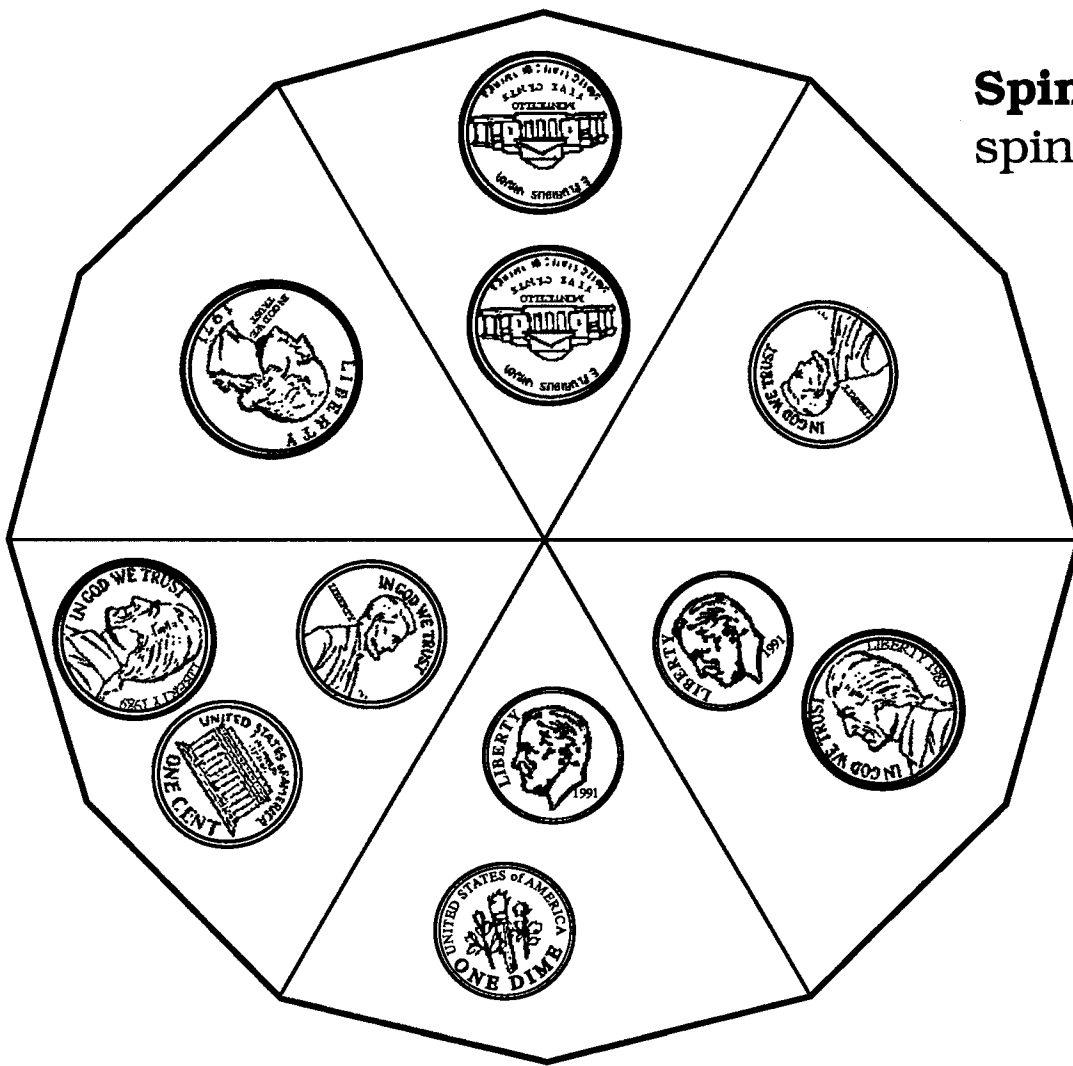
# Money March

easy spinner

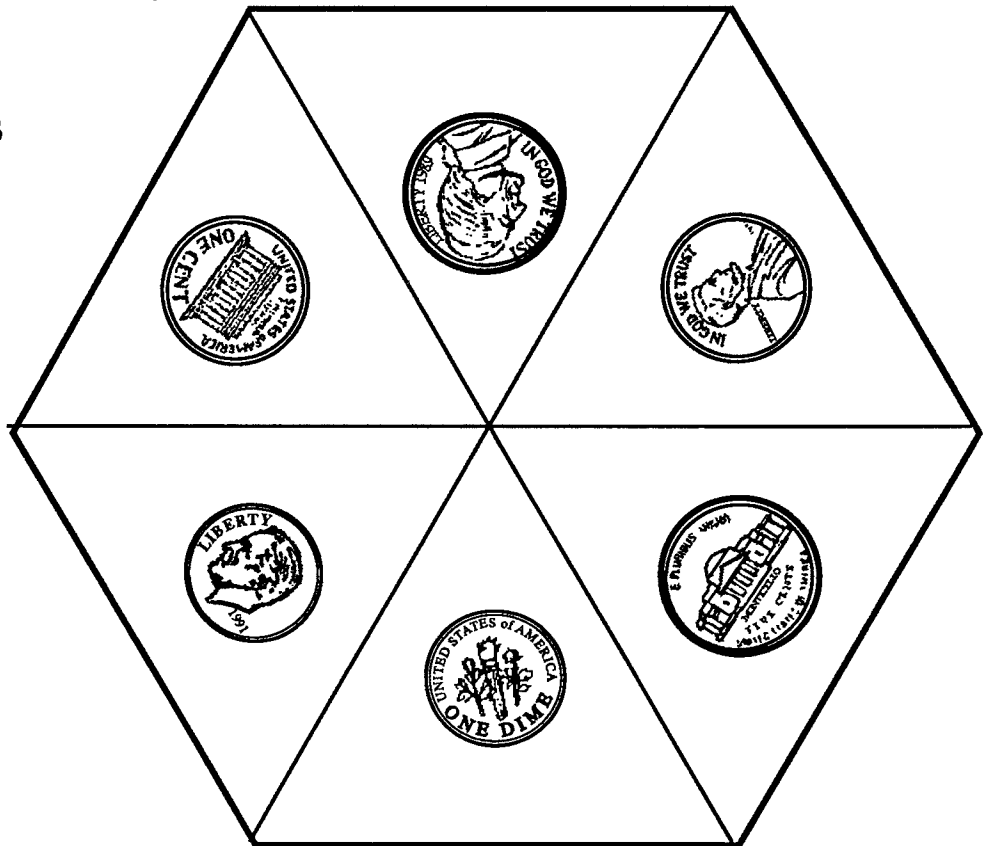


challenging spinner

## Spin Two Dollars spinner top

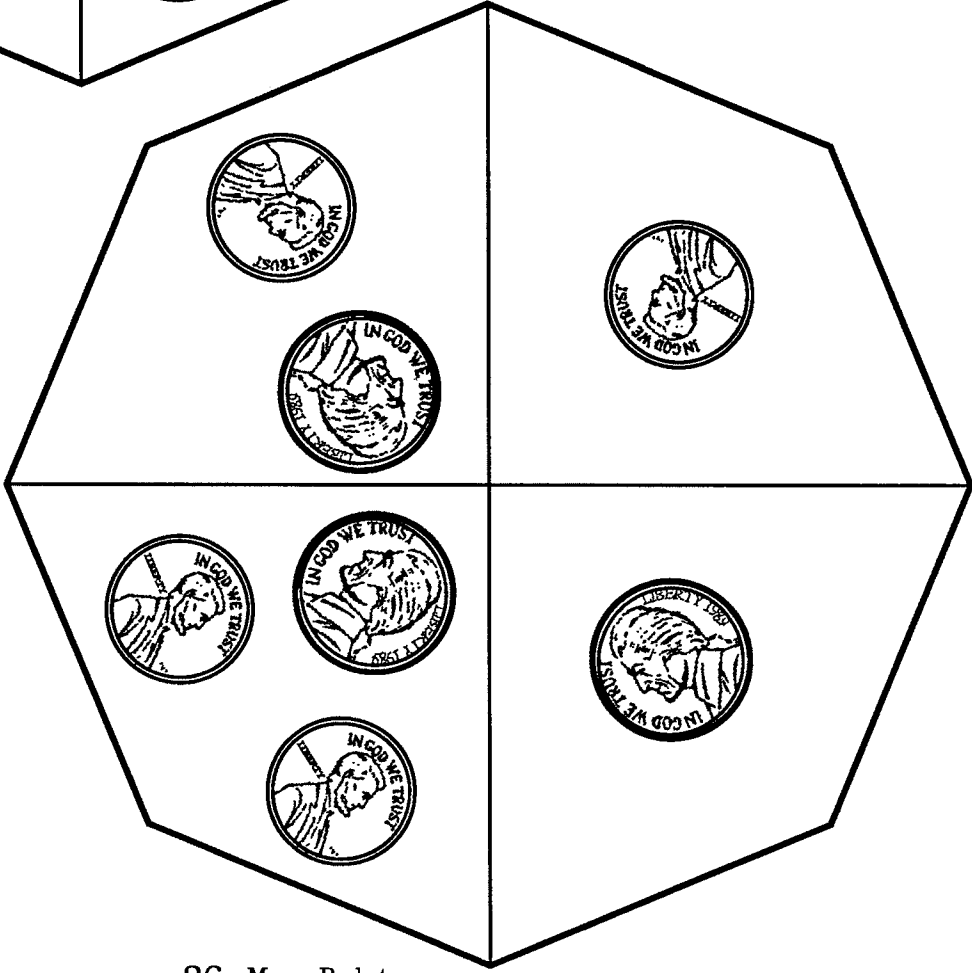
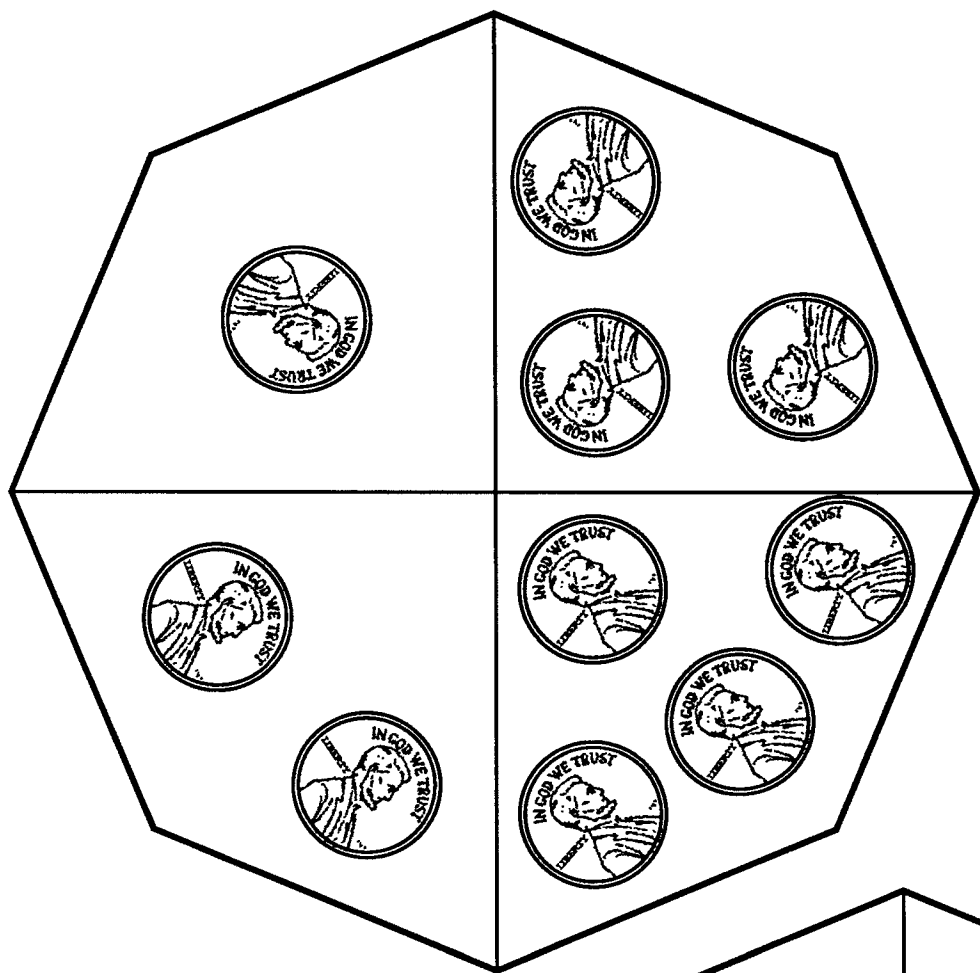


## Spin Fifty Cents spinner top





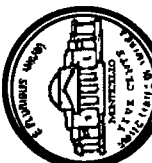
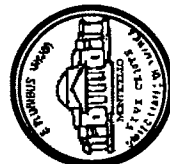
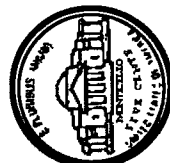
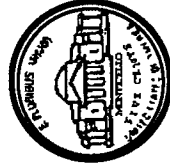
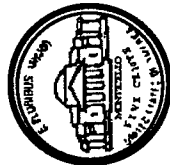
**Spin Fifty Cents**  
optional spinner tops



## Spin Fifty Cents

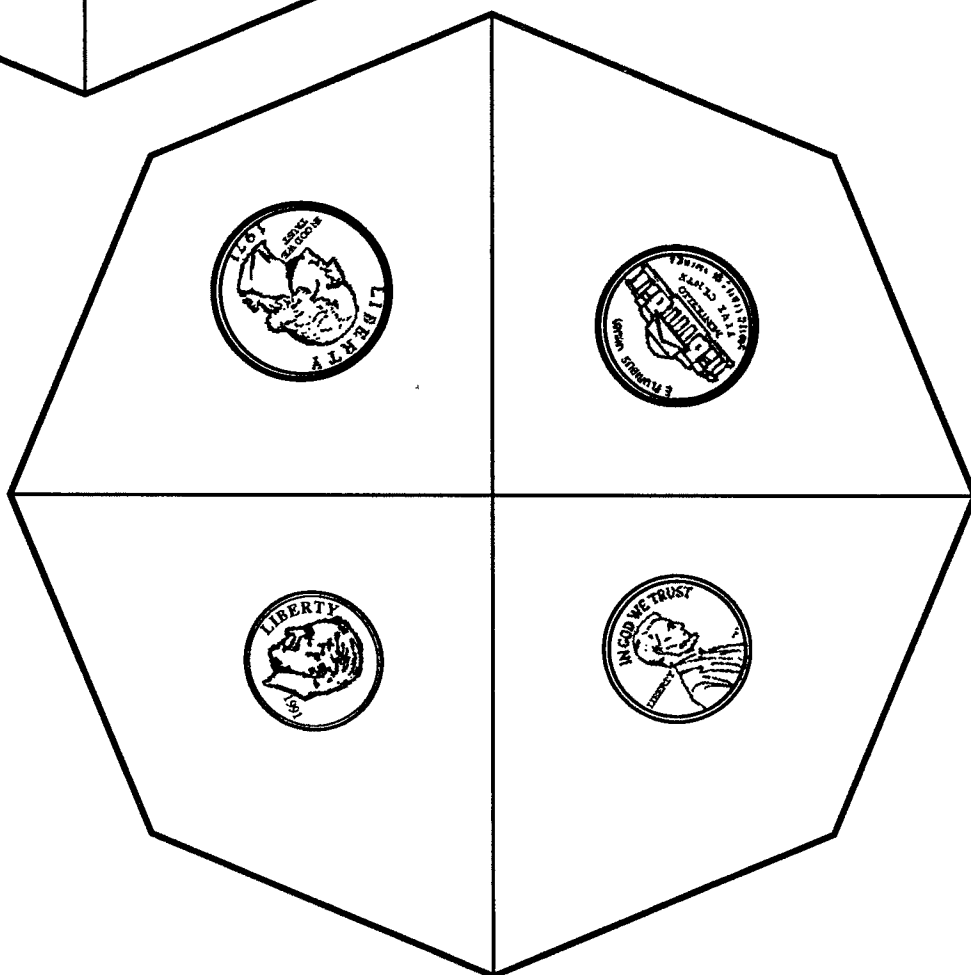
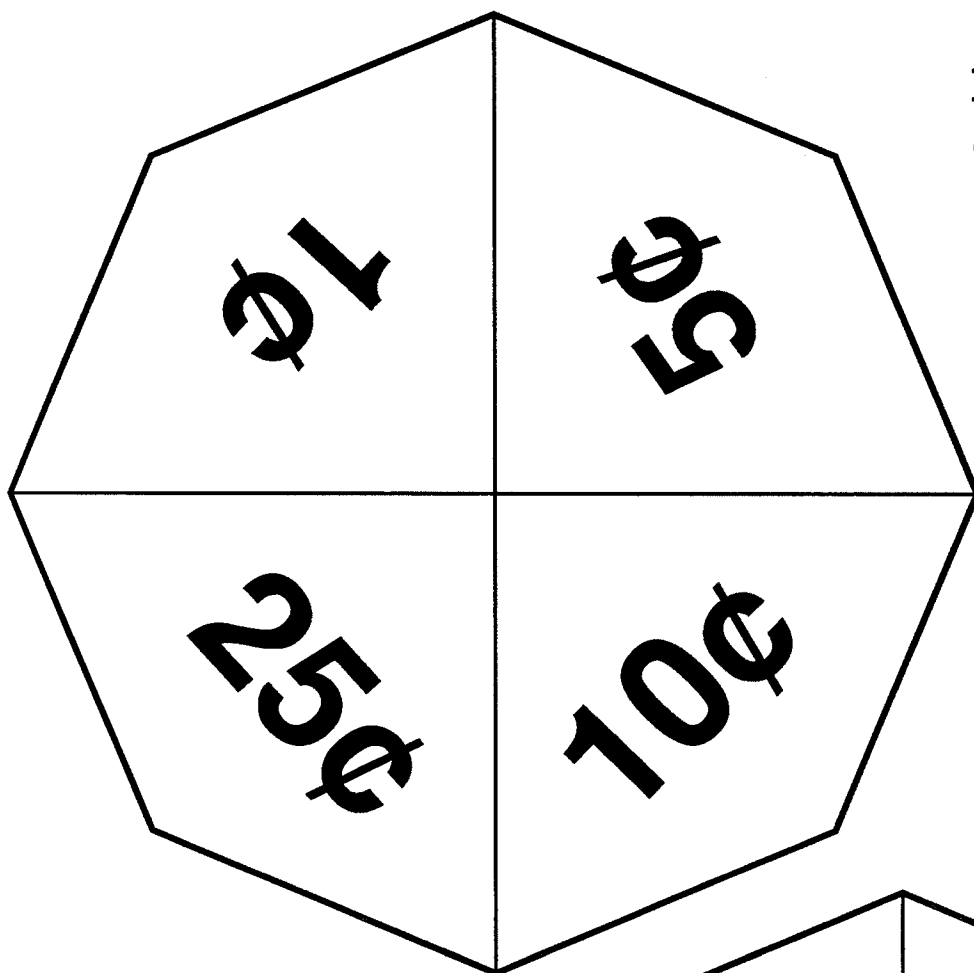


# Spin Two Dollars

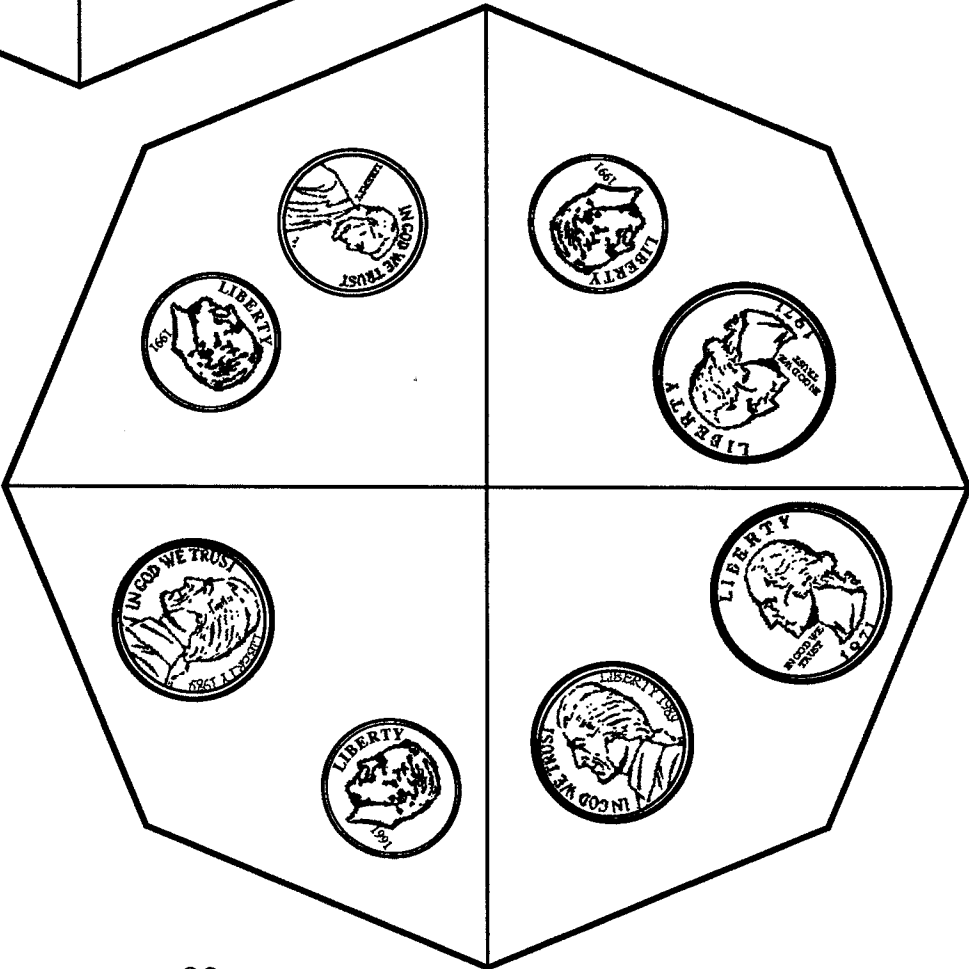
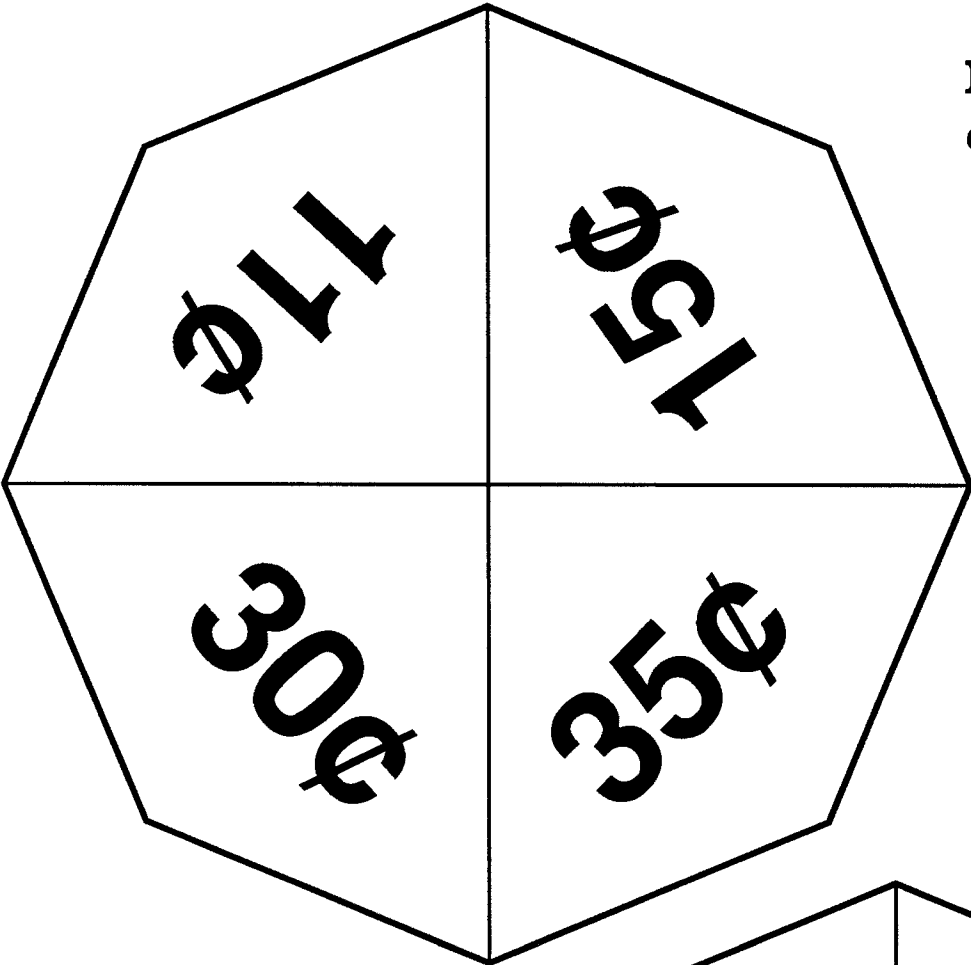


# Money Sock Boxes

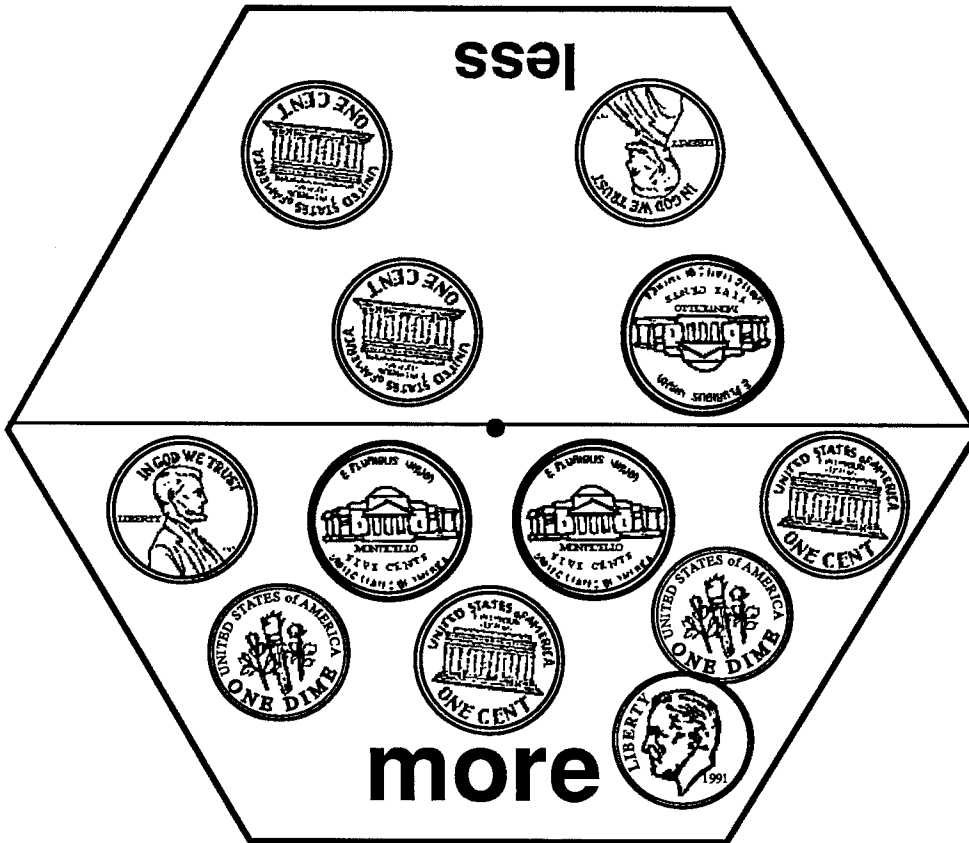
easy spinners



**Money Sock Boxes**  
challenging spinners

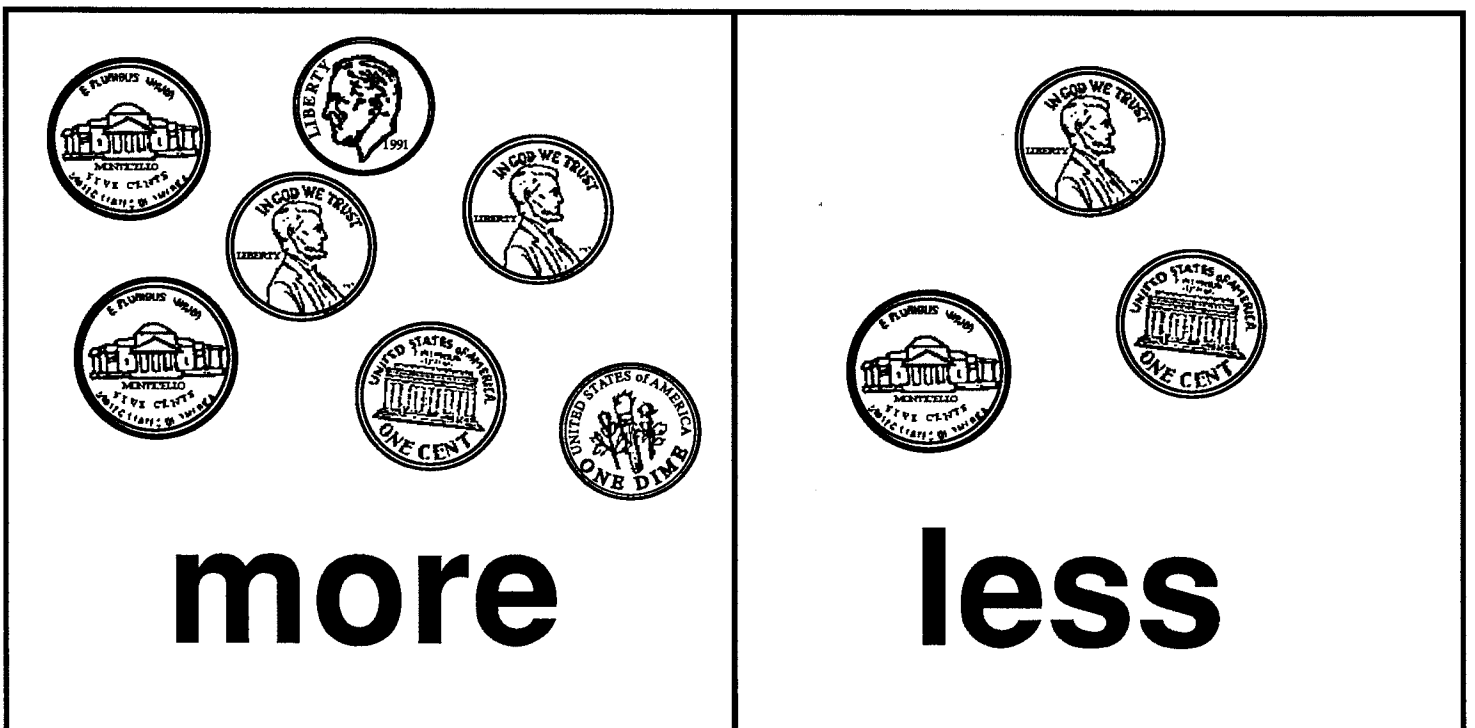


# Count, Tell, Spin and Win

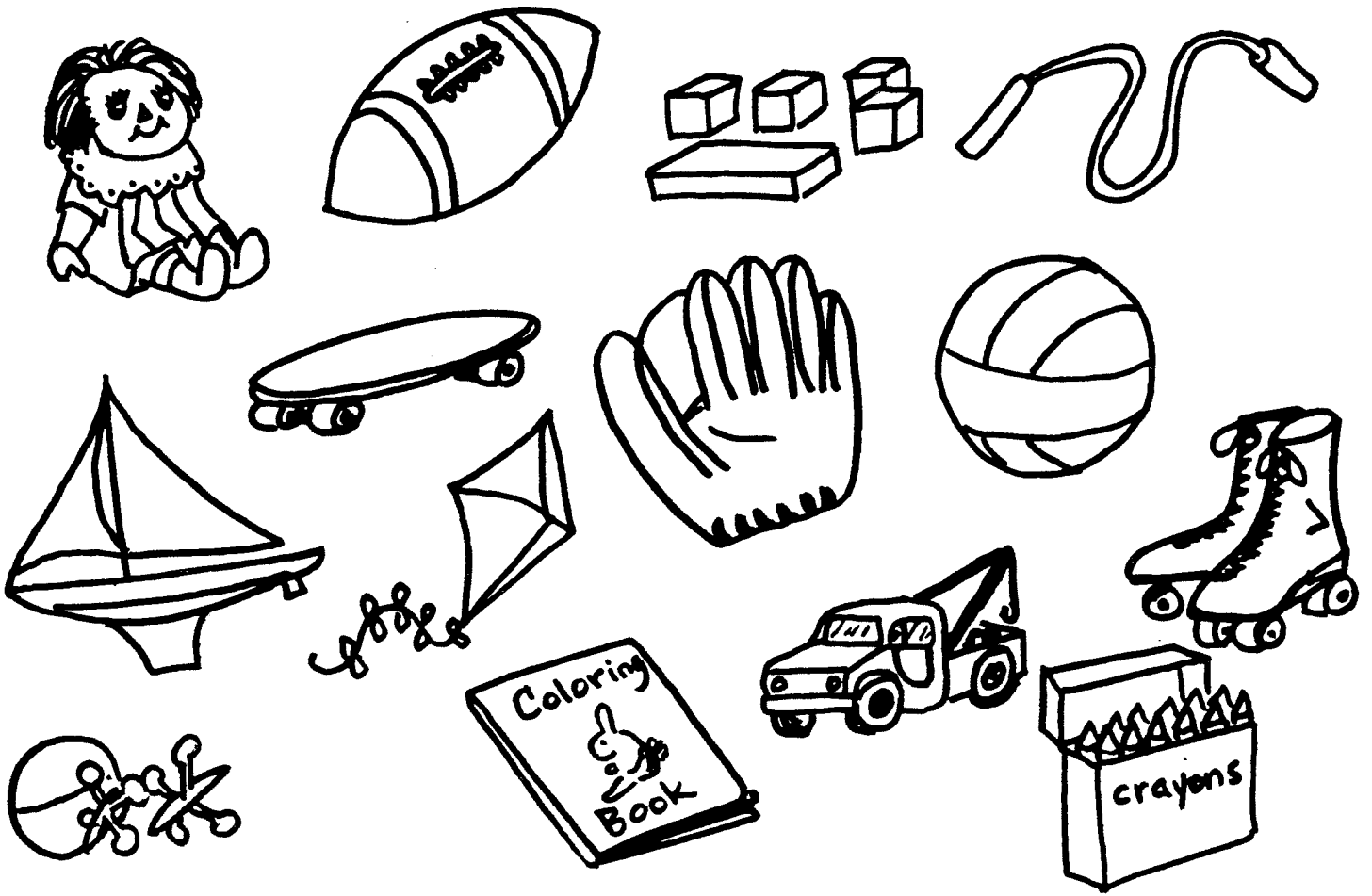


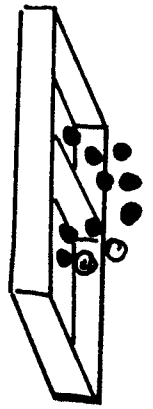
spinner top

marker cards (glue to tag)



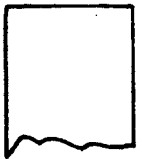
# Penny Push Gameboard



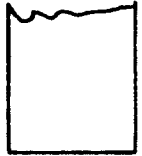


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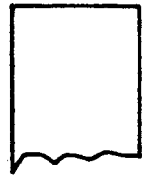
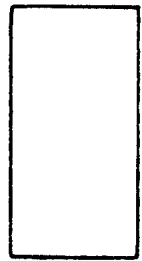
name: \_\_\_\_\_



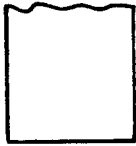
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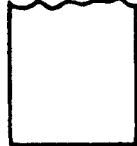
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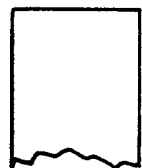
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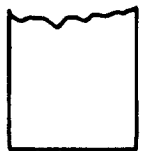
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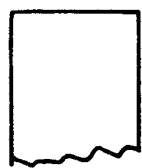
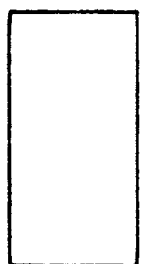
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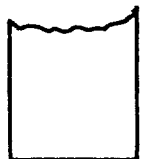
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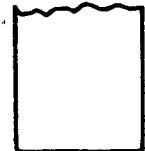
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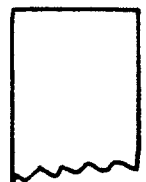
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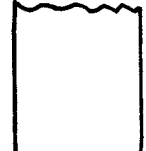
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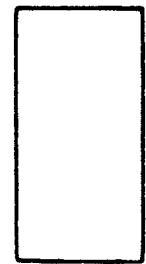
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=





Stamp the Price

name \_\_\_\_\_

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Stamp the Price Twice

name \_\_\_\_\_

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--	--

\_\_\_\_\_

\_\_\_\_\_

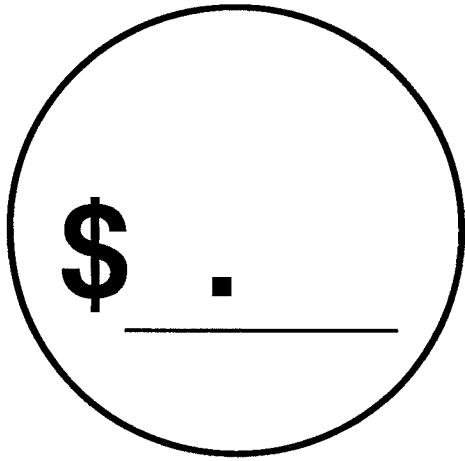
\_\_\_\_\_

\_\_\_\_\_

**\$ .15**

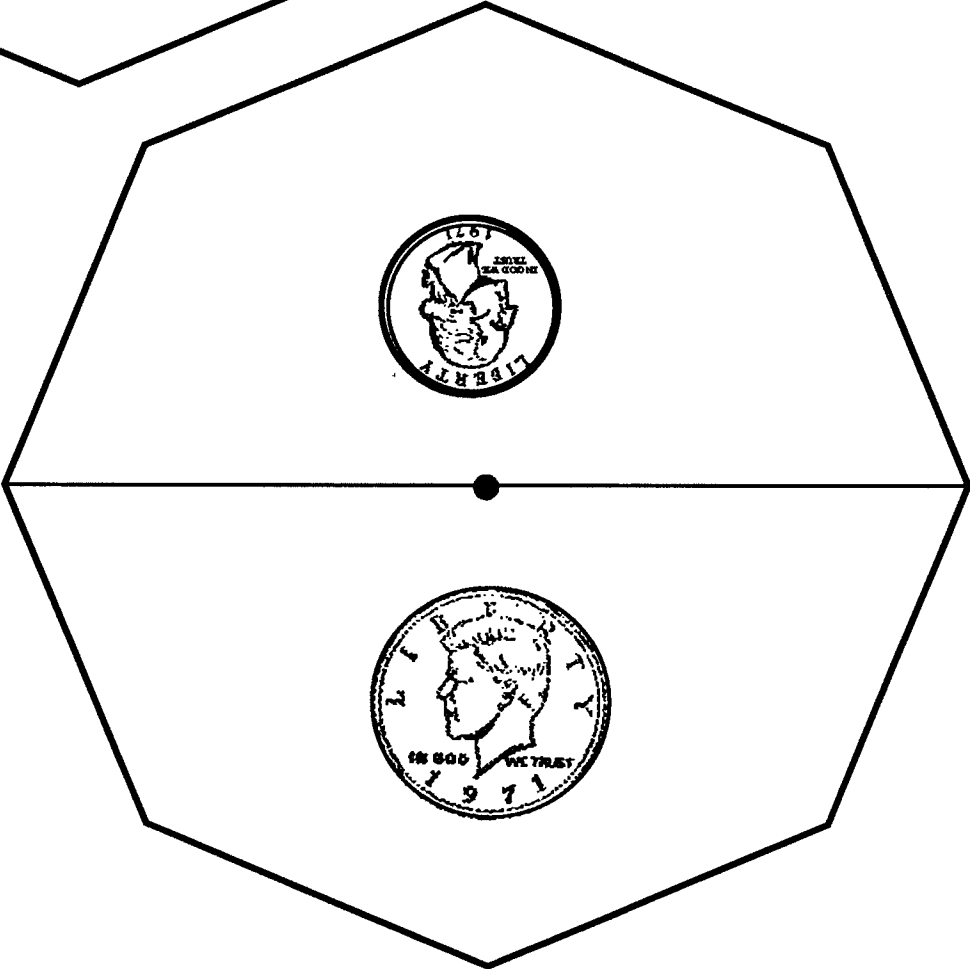
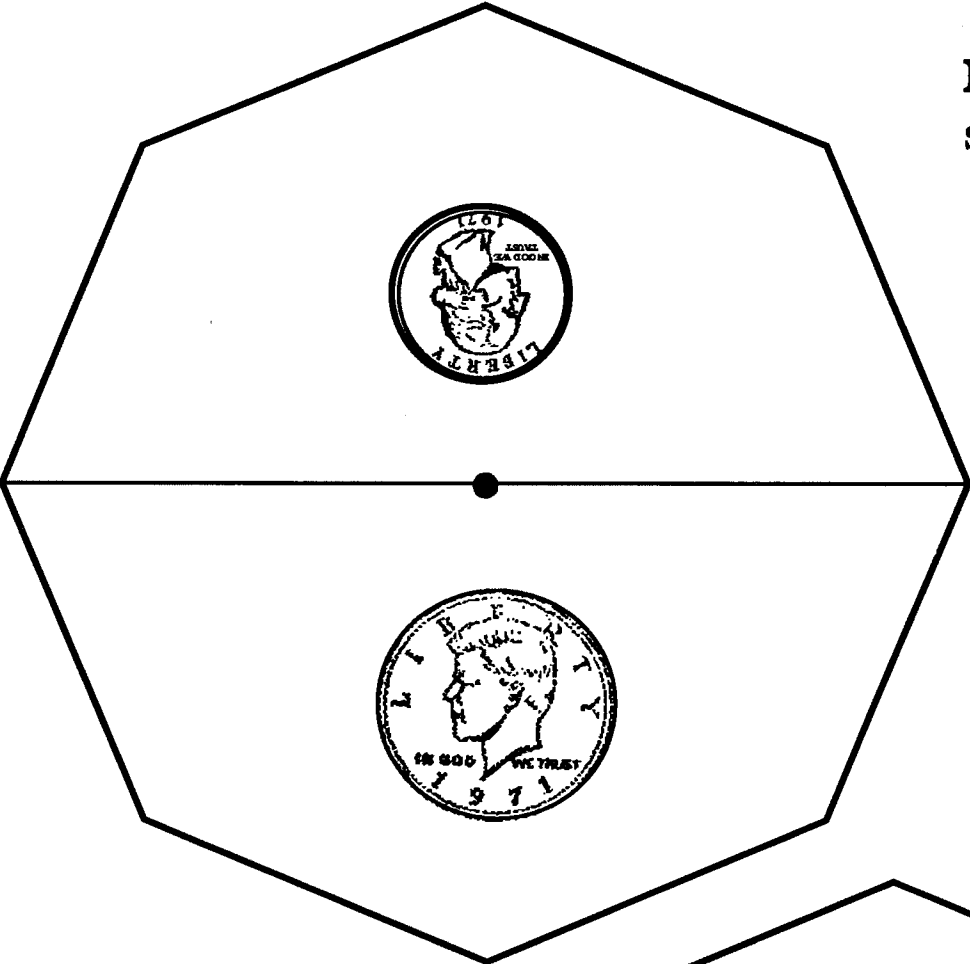


name \_\_\_\_\_



name \_\_\_\_\_

**Make Change**  
spinner tops



# Make Change

**item**

**price**

**amount paid**

**change needed**

**item**

**price**

**amount paid**

**change needed**

**item**

**price**

**amount paid**

**change needed**

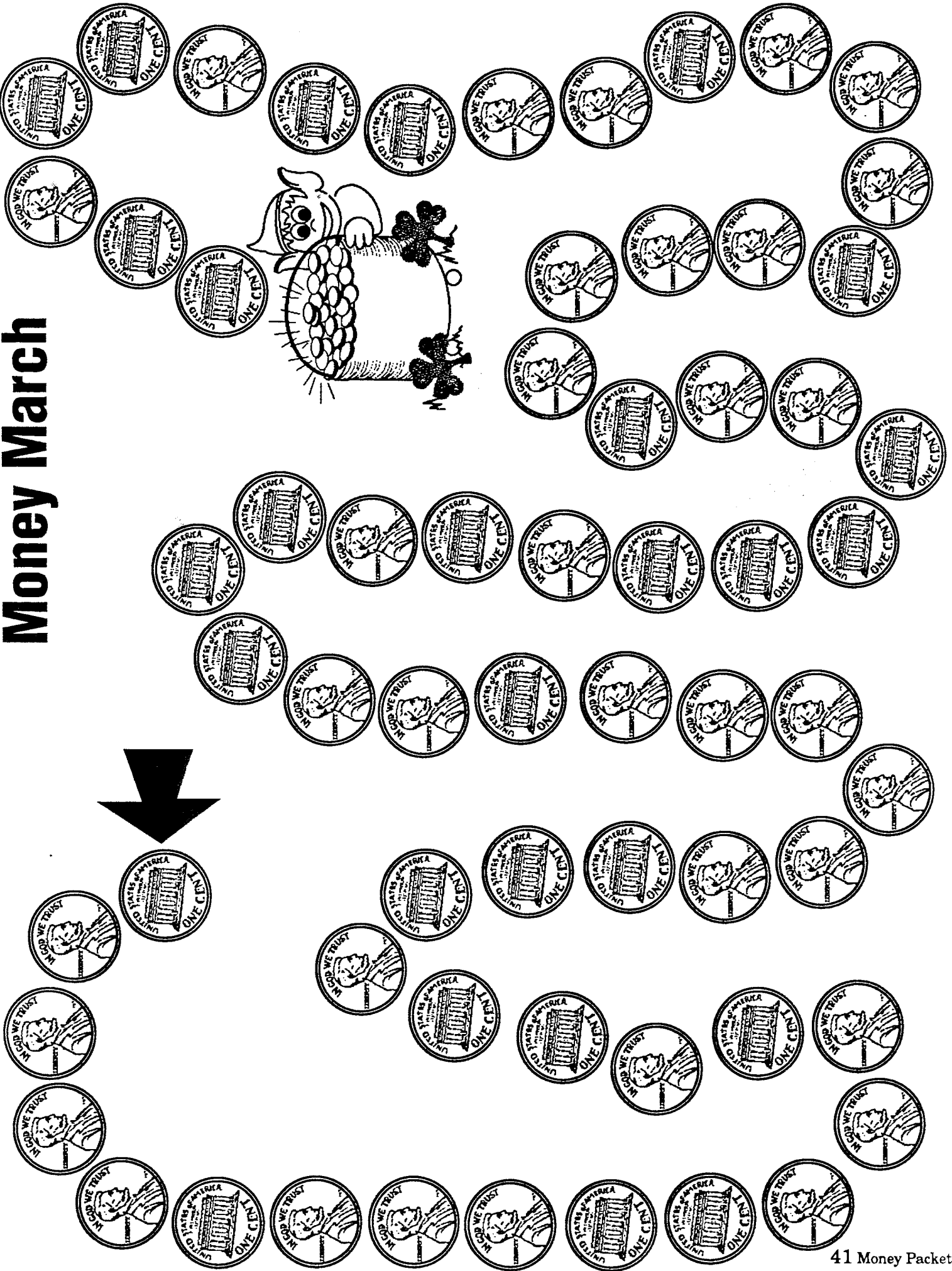
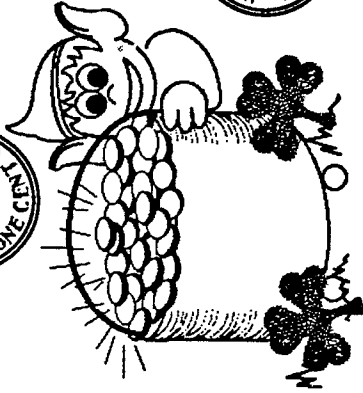
**item**

**price**

**amount paid**

**change needed**

# Money March





# Roll 25 Cents—Trading Boards



nickels



pennies



nickels



pennies



nickels



pennies



nickels



pennies

# Trading Boards—Money Trading Game



pennies



pennies



dimes



dimes



# Trading Boards—Money Trading Game



pennies



pennies



dimes

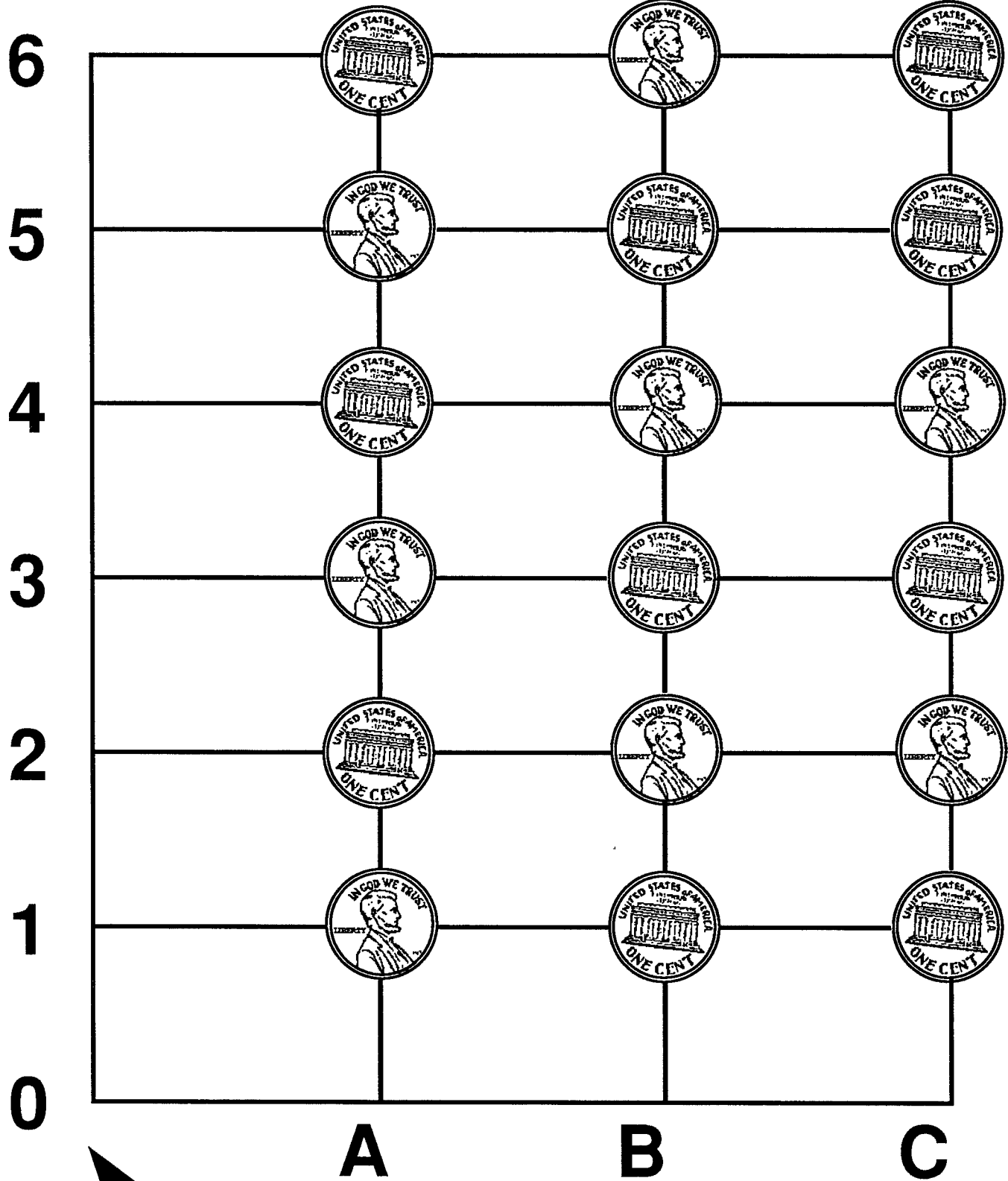


dimes

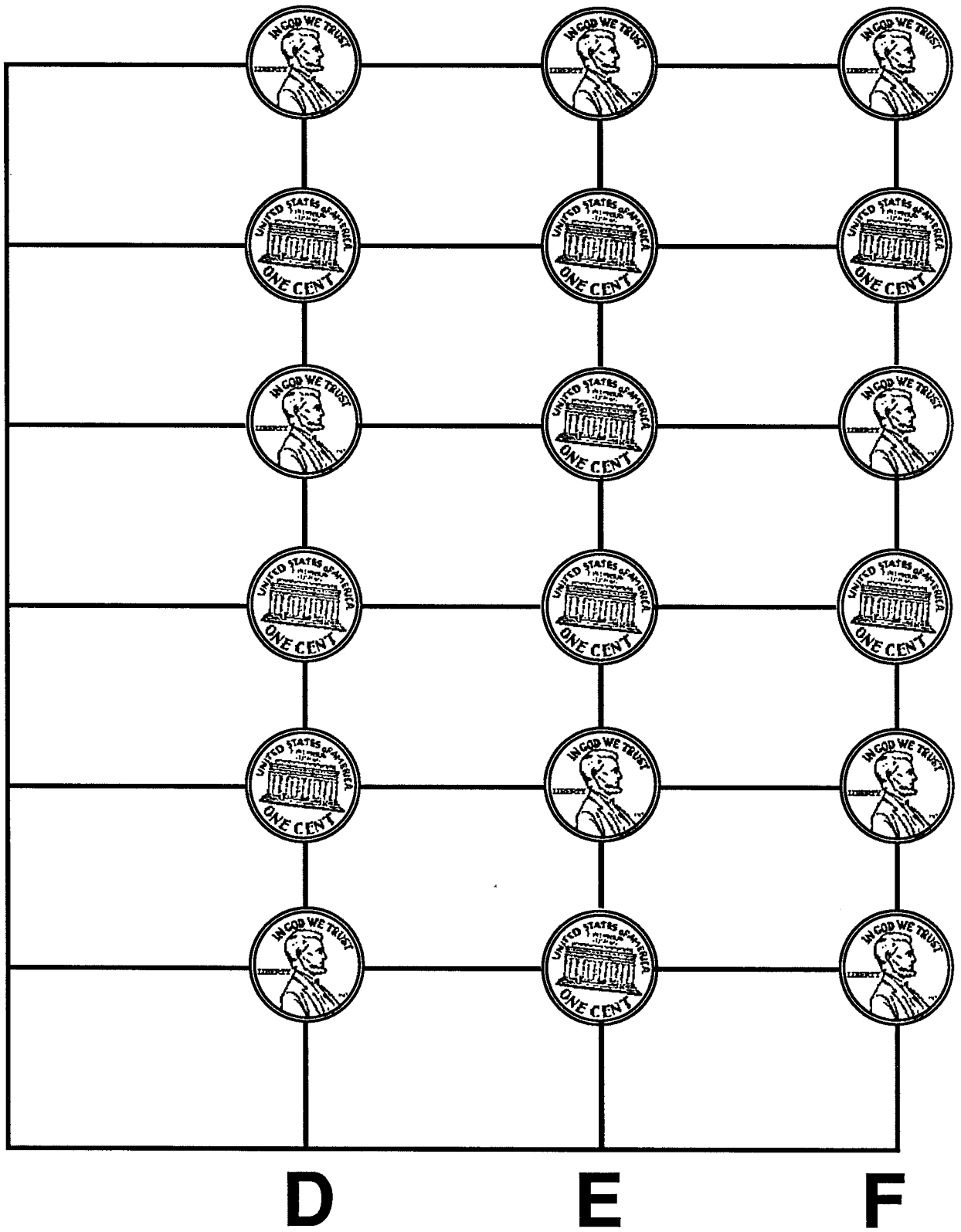


# Dig For Buried Treasure

easy gameboard

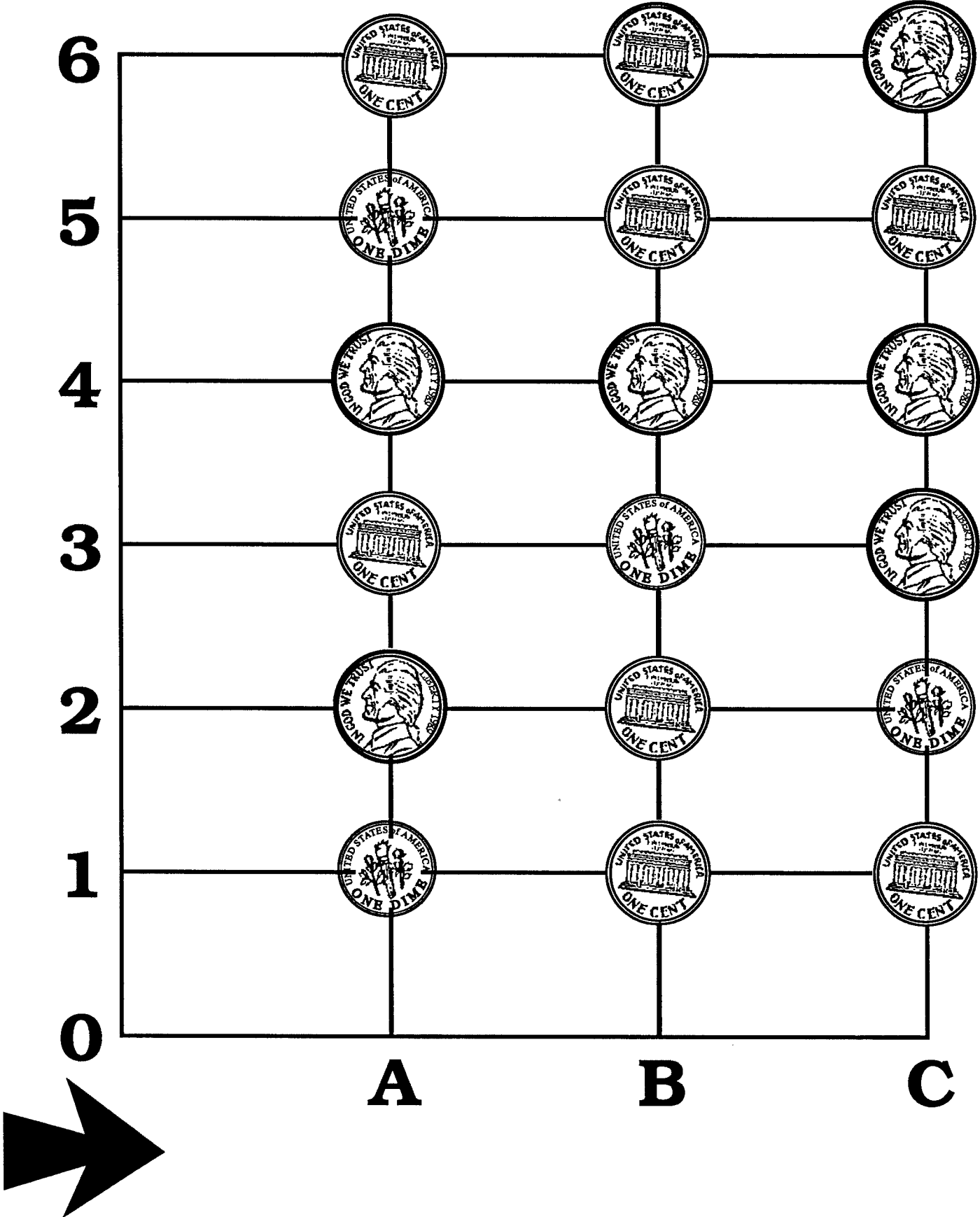


# easy gameboard

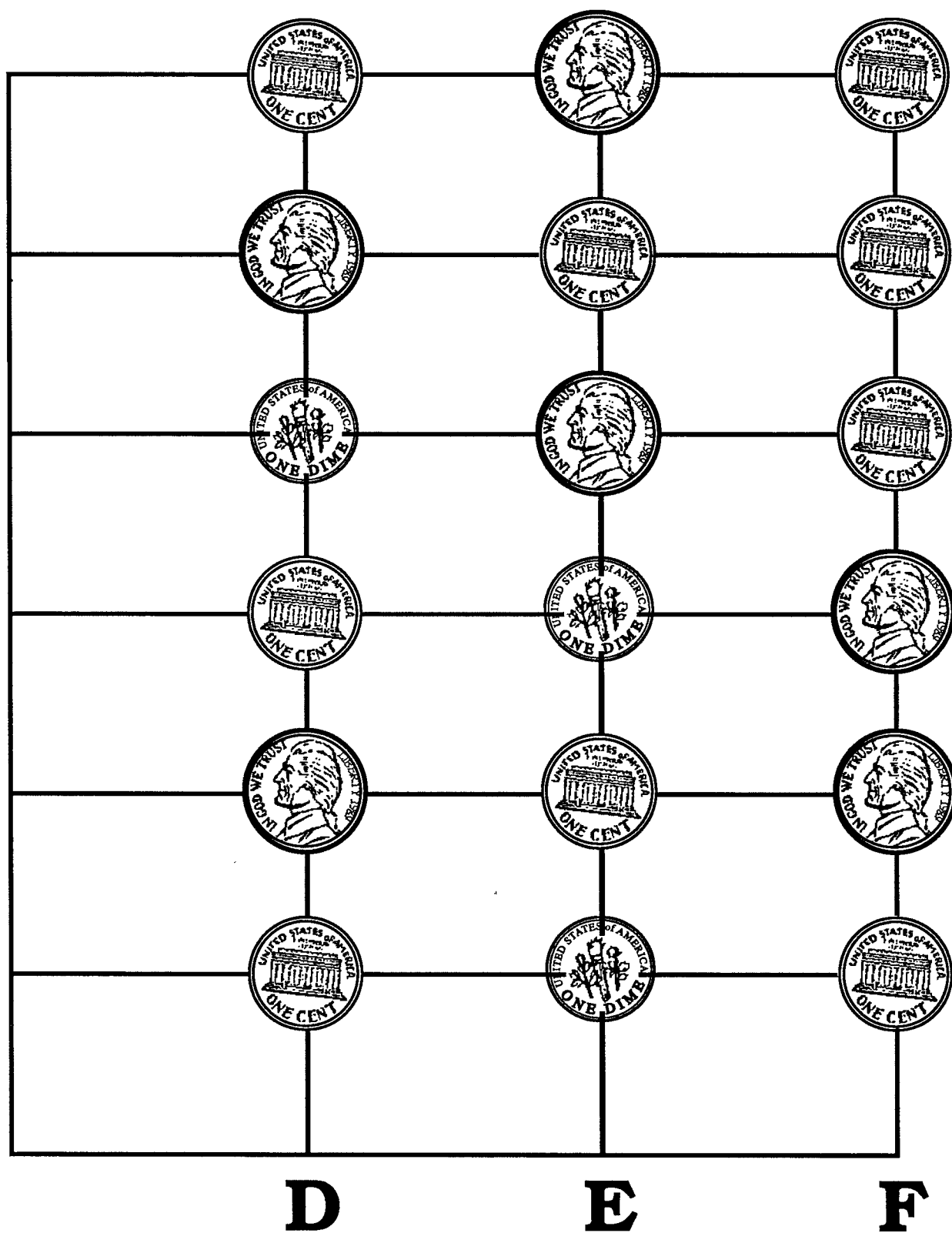


# Dig For Buried Treasure

mid-level gameboard

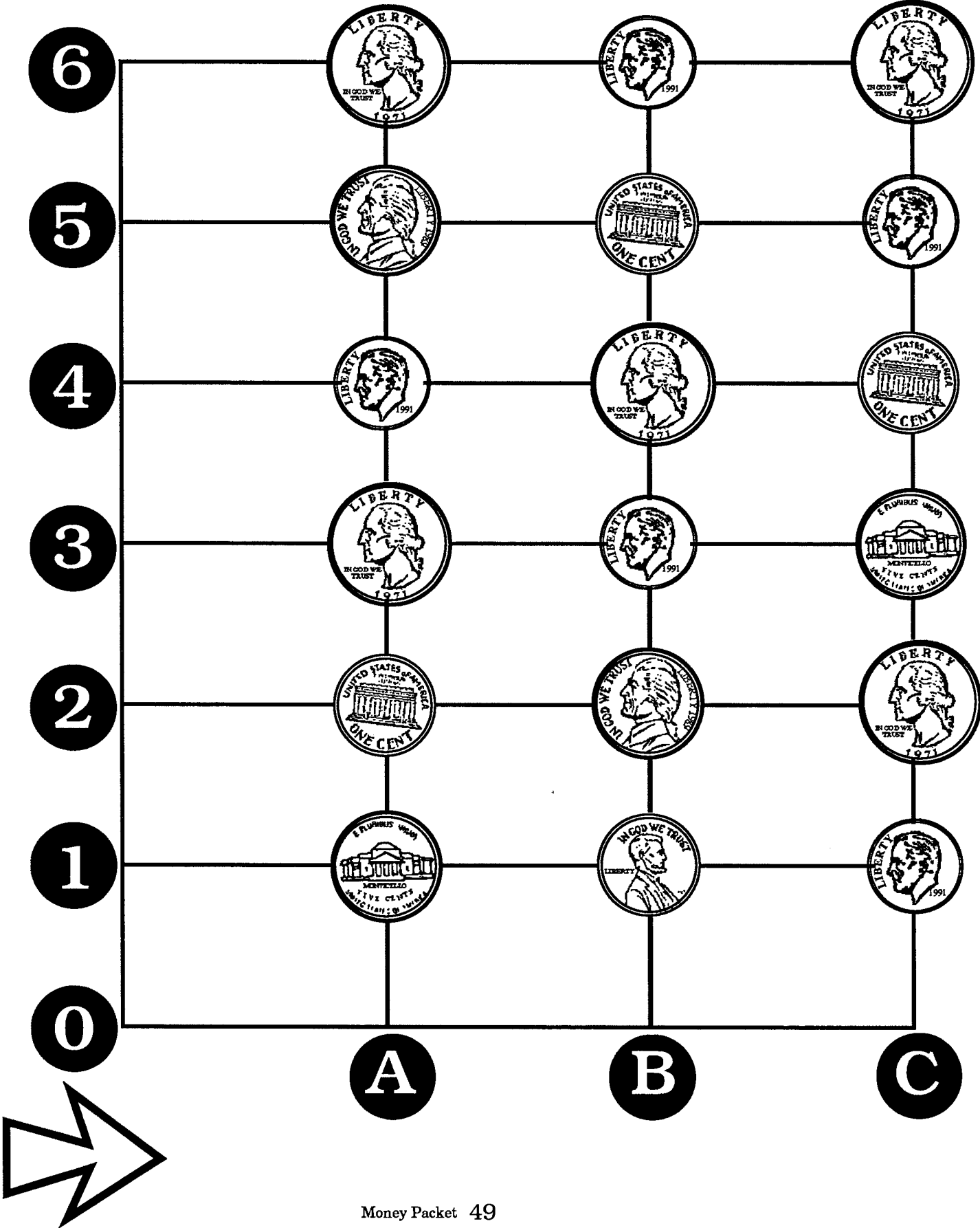


## mid-level gameboard



# Dig For Buried Treasure

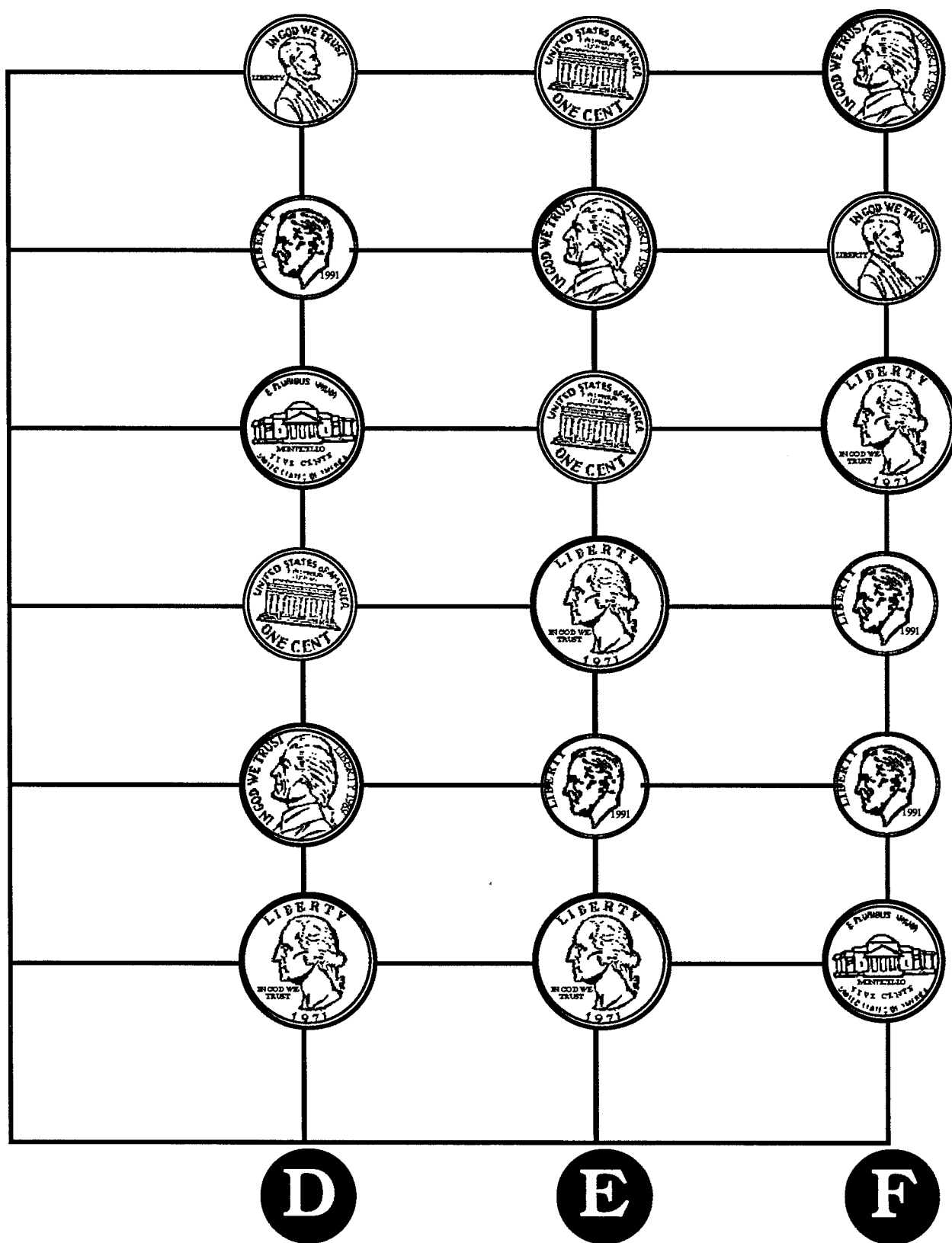
challenging gameboard





# Dig for Buried Treasure

challenging gameboard



D, 1

D, 2

D, 3

D, 4

D, 5

D, 6

E, 1

E, 2

E, 3

E, 4

E, 5

E, 6

F, 1

F, 2

F, 3

F, 4

F, 5

F, 6

A,1

A,2

A,3

A,4

A,5

A,6

B,1

B,2

B,3

B,4

B,5

B,6

C,1

C,2

C,3

C,4

C,5

C,6

# Easy Money Starter Cards



Penny Push



Penny Push

# Easy Money Starter Cards

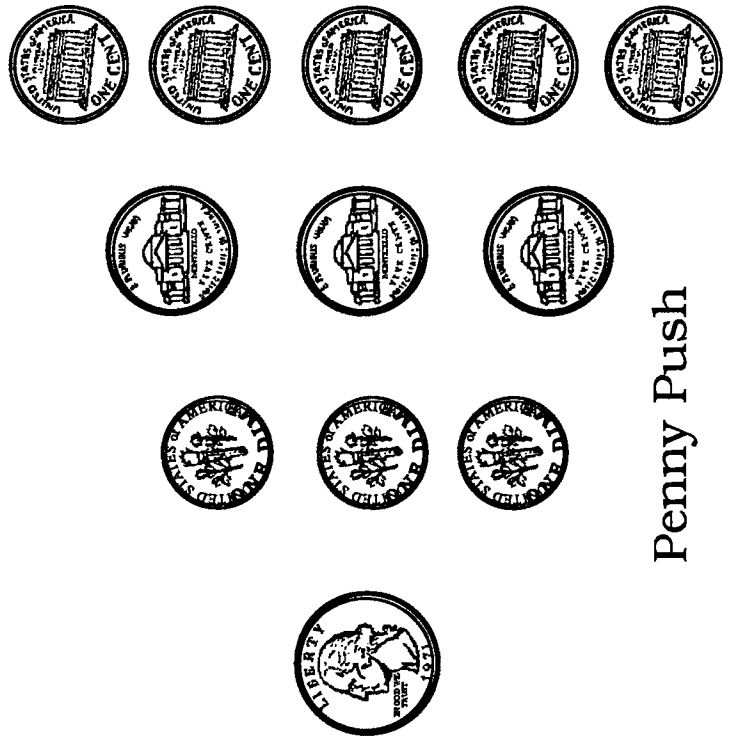
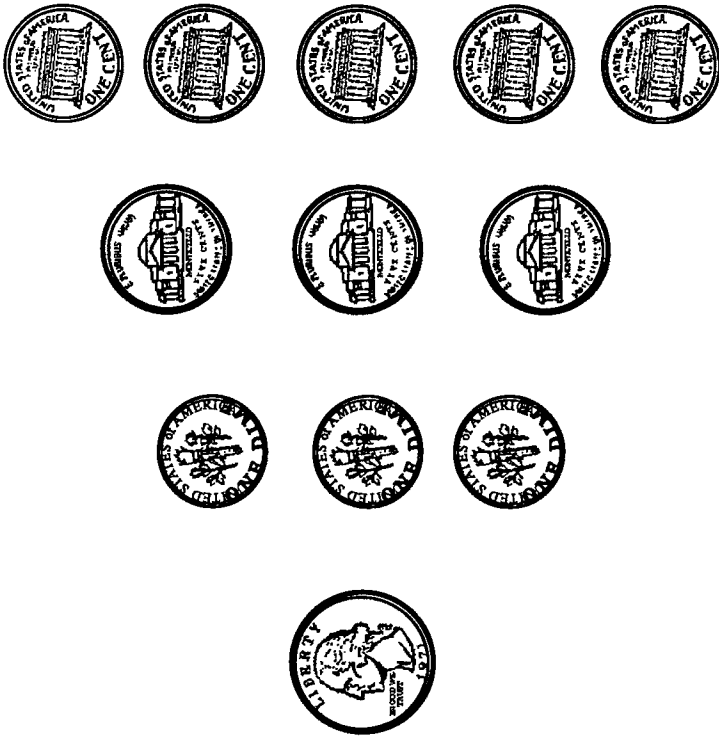


Penny Push

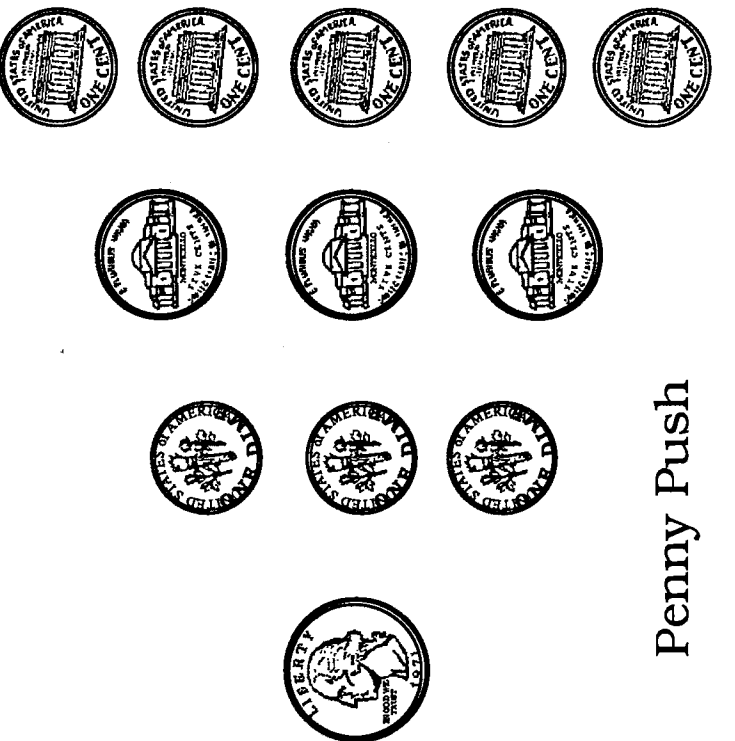
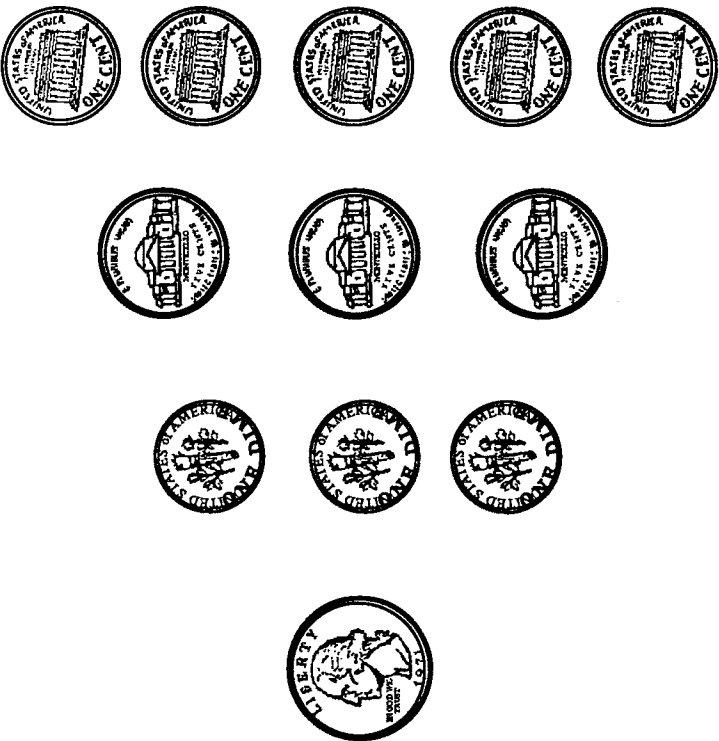


Penny Push

# Challenging Money Starter Cards

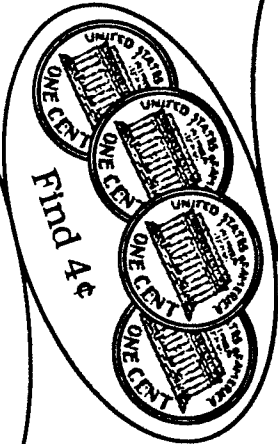
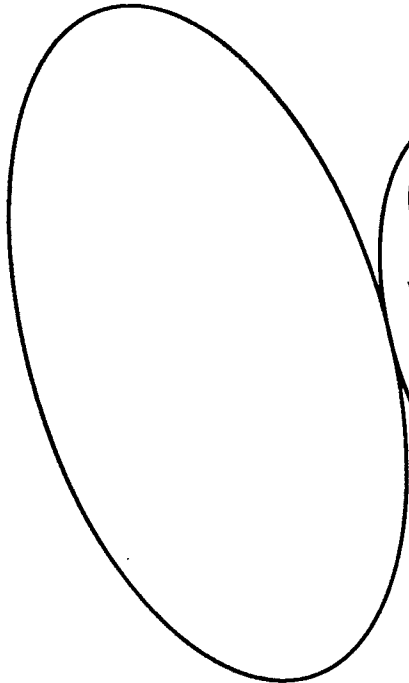


Penny Push



Penny Push

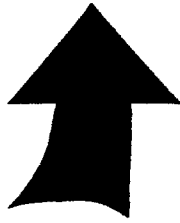
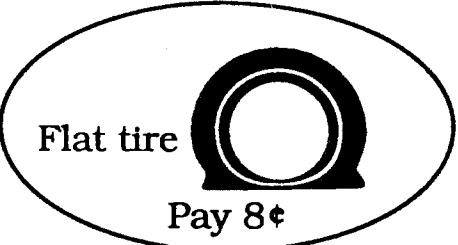
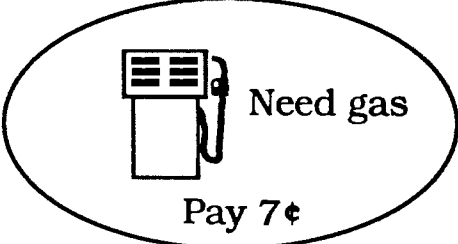
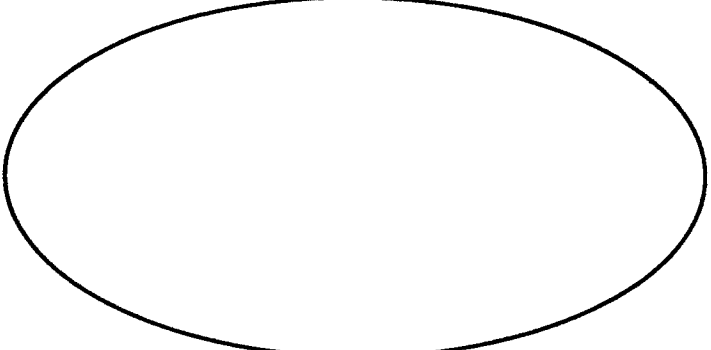
# Shopping Spree

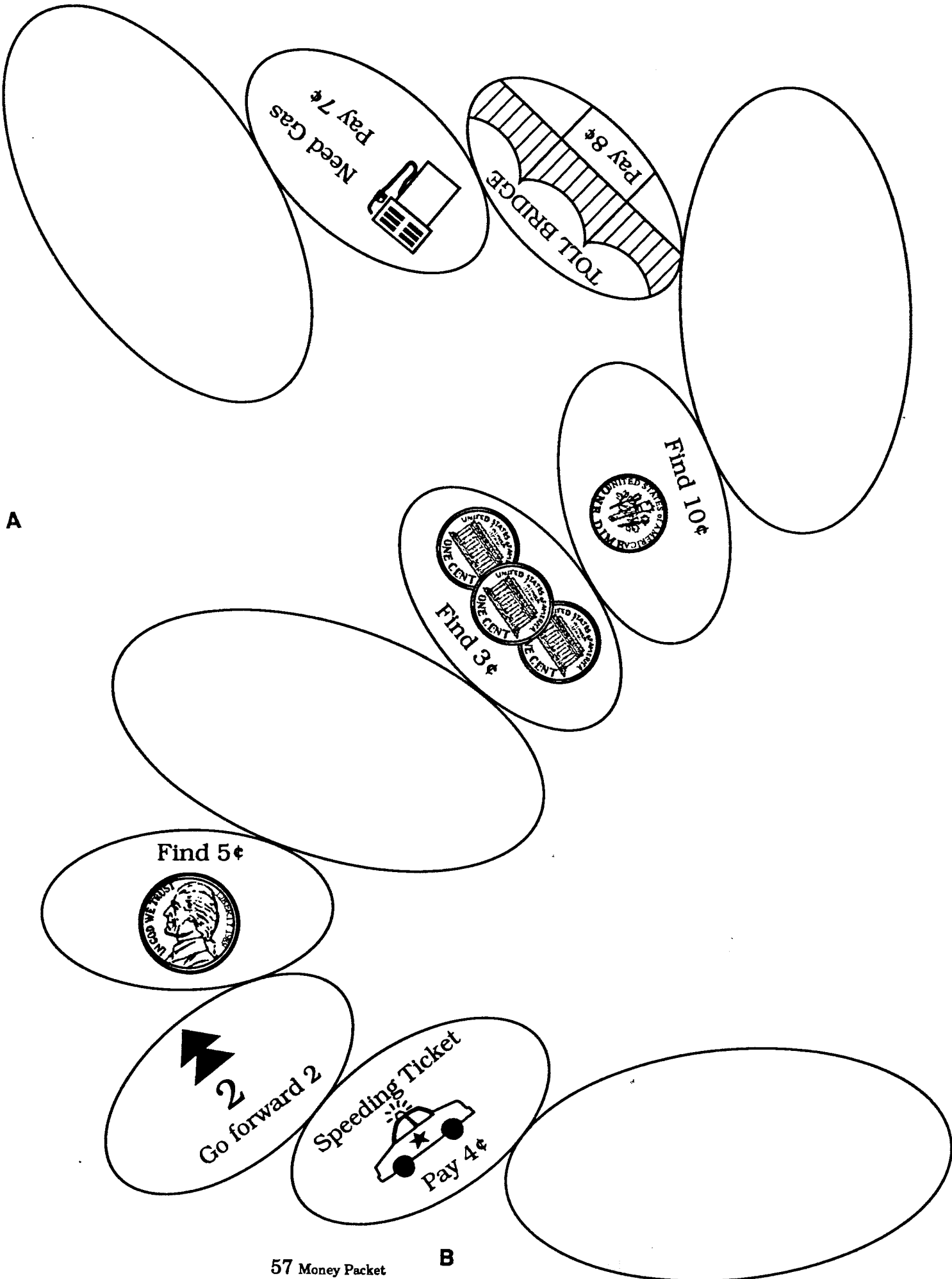


The End



▲  
2  
Go forward 2



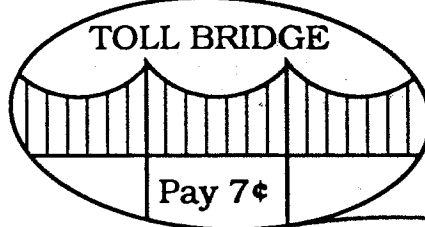
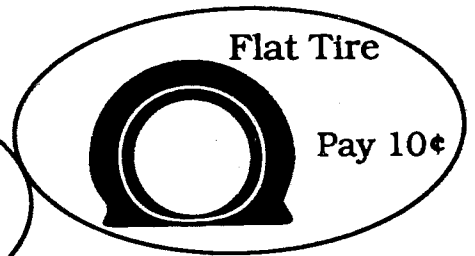
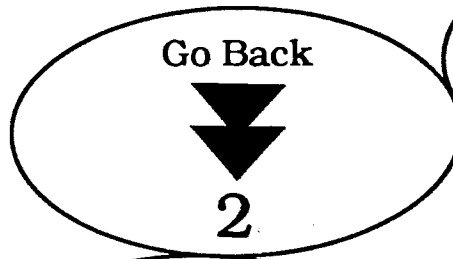


A

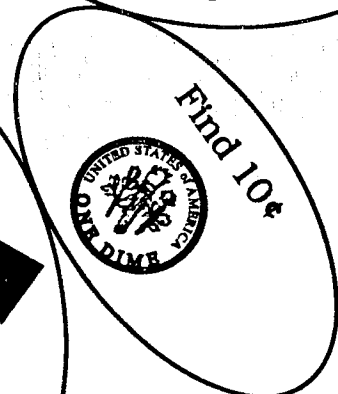
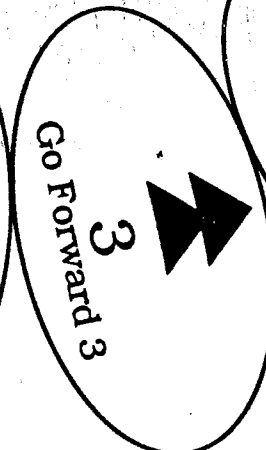
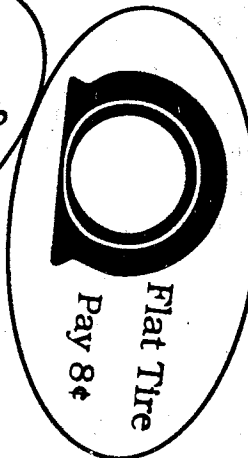
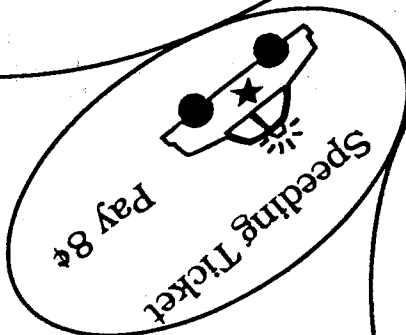
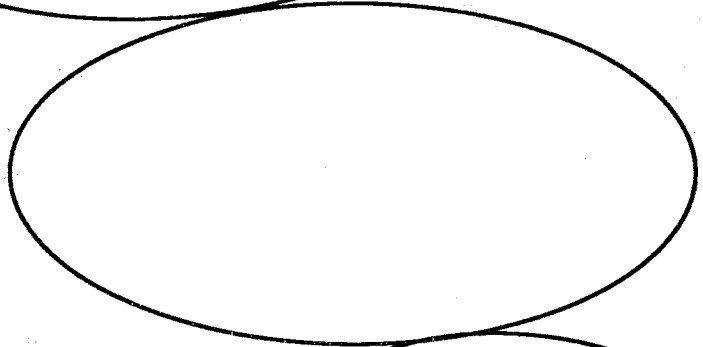
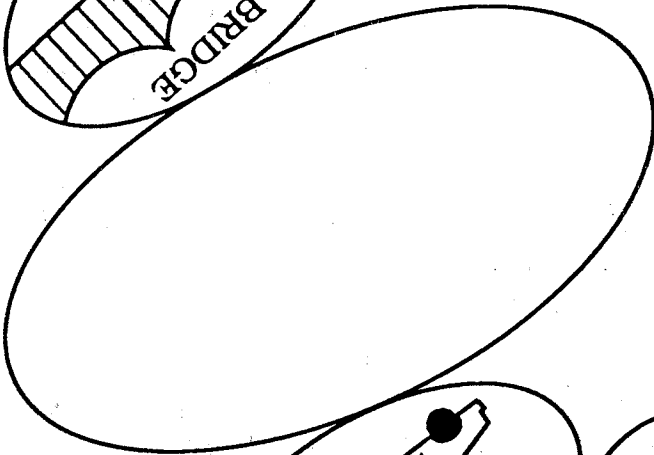
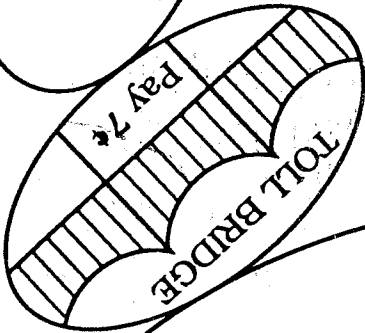
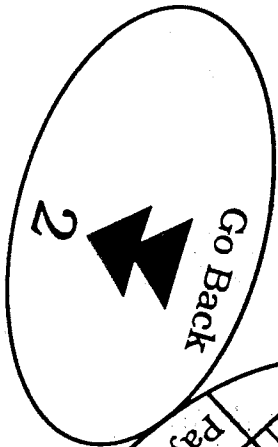
B



B

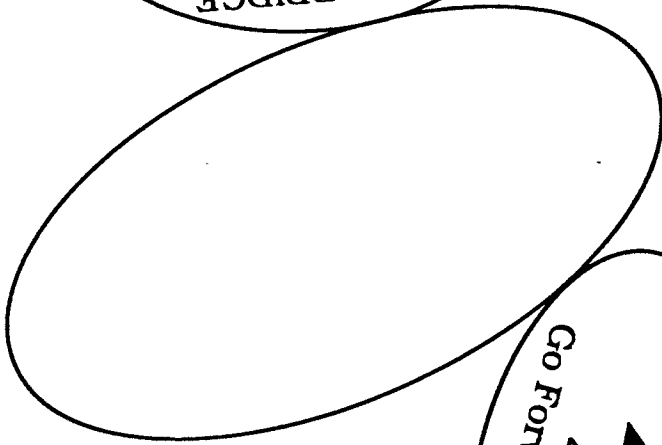
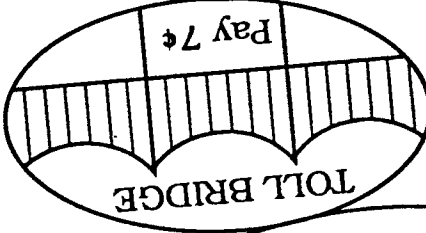
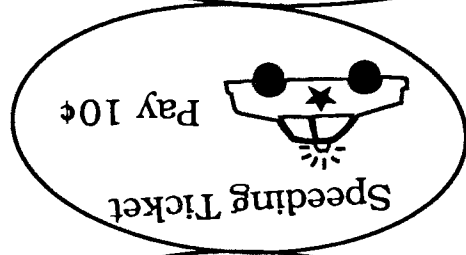
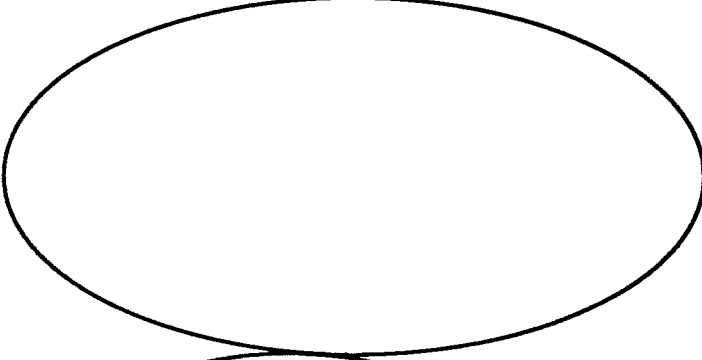
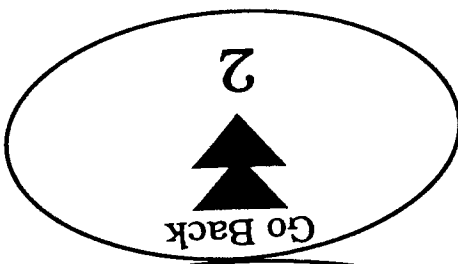
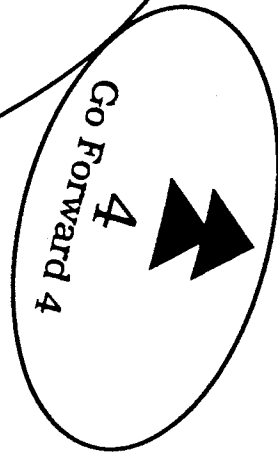
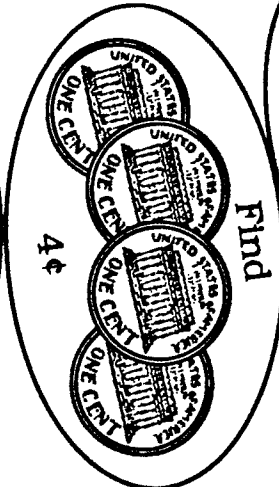
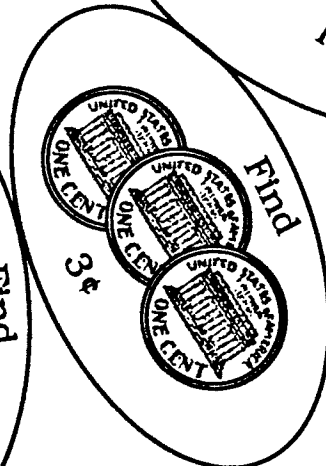
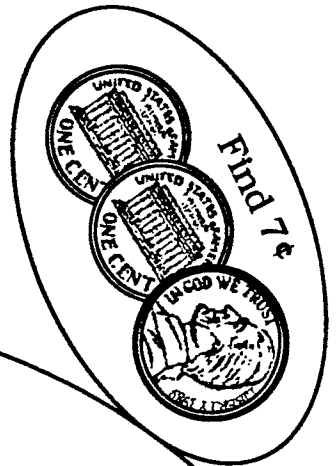


C



D

C



# Money Starter Cards-Easy



## Shopping Spree



# Shopping Spree

# Money Starter Cards-Easy



## Shopping Spree



# Shopping Spree

# Challenging Money Starter Cards



Shopping Spree



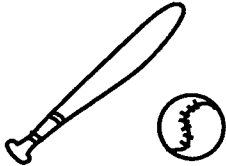


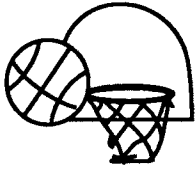
Shopping Spree

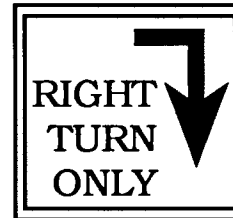


Shopping Spree

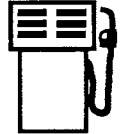


Shopping Spree

<b>Earn</b> <b>5¢</b>	 <b>27¢</b>	 <b>32¢</b>	 <b>8¢</b>	 <b>16¢</b>
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**BUY**



**Pay 5¢**



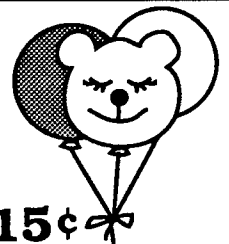
**18¢**



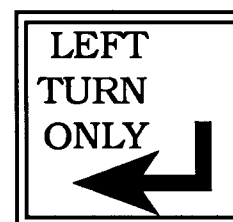
**5¢**

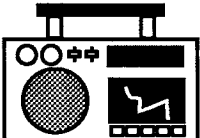





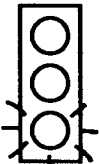


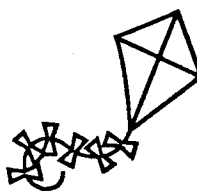

**15¢**





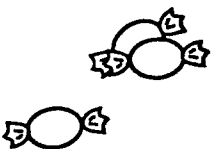

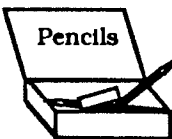
**32¢**

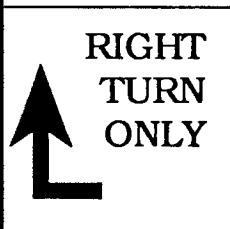


 <b>23¢</b>	 <b>26¢</b>	 <b>5¢</b>	 <b>16¢</b>	<b>EARN</b> <b>5¢</b>
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 <b>GO</b>	 <b>24¢</b>	 <b>9¢</b>	 <b>22¢</b>	 <b>19¢</b>
--	---	--	--	---





 <b>STOP</b>
 <b>1¢</b>
 <b>2¢</b>
Parking  <b>PAY 5¢</b>
 <b>27¢</b>




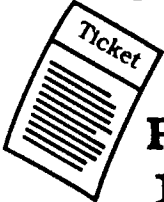


**PARK and SHOP MALL**  
**SPORTS CITY**

**Nicki's**  
 Bears,  
 Penguins,  
 and ♥  
 to go...

**Mac Nesbit's**  


  
 Clothes  
 by  
 Jeanette

 <b>8¢</b>	 <b>24¢</b>	 <b>17¢</b>	Parking  <b>PAY 10¢</b>
--	---	---	--

# Challenging Money Starter Cards



Park and Shop



Park and Shop



Park and Shop



Park and Shop



Apply the appropriate labels on both ends of each box lid. Either run the labels on full-sheet Avery Labels No. 5165, cut apart and attach; or simply cut apart these pages and glue or tape on.



## Coin Graphs

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money March

6 9

**A PRACTICE & ENRICHMENT BOX**



## Spin a Half Dollar

6 9

**A PRACTICE & ENRICHMENT BOX**



## Spin Two Dollars

6 9

**A PRACTICE & ENRICHMENT BOX**



## Roll Twenty-Five Cents

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Trading Game

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Socks Boxes

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Puzzles

6 9

**A PRACTICE & ENRICHMENT BOX**



## Count, Tell, Spin and Win

6 9

**A PRACTICE & ENRICHMENT BOX**



## Earn a Nickel

6 9

**A PRACTICE & ENRICHMENT BOX**



## Earn a Dime

6 9

**A PRACTICE & ENRICHMENT BOX**



## Top Draw

6 9

**A PRACTICE & ENRICHMENT BOX**



## Dig for Buried Treasure

6 9

**A PRACTICE & ENRICHMENT BOX**



## Penny Push

6 9

**A PRACTICE & ENRICHMENT BOX**



## Coin Graphs

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money March

6 9

**A PRACTICE & ENRICHMENT BOX**



## Spin a Half Dollar

6 9

**A PRACTICE & ENRICHMENT BOX**



## Spin Two Dollars

6 9

**A PRACTICE & ENRICHMENT BOX**



## Roll Twenty-Five Cents

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Trading Game

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Socks Boxes

6 9

**A PRACTICE & ENRICHMENT BOX**



## Money Puzzles

6 9

**A PRACTICE & ENRICHMENT BOX**



## Count, Tell, Spin and Win

6 9

**A PRACTICE & ENRICHMENT BOX**



## Earn a Nickel

6 9

**A PRACTICE & ENRICHMENT BOX**



## Earn a Dime

6 9

**A PRACTICE & ENRICHMENT BOX**



## Top Draw

6 9

**A PRACTICE & ENRICHMENT BOX**



## Dig for Buried Treasure

6 9

**A PRACTICE & ENRICHMENT BOX**



## Penny Push

6 9

**A PRACTICE & ENRICHMENT BOX**



## Shopping Spree

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Drop the Money

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Stamp the Price

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Stamp the Price Twice

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Coin Stamp Booklets

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Shop the Ads

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Park and Shop

③ ③

**A PRACTICE & ENRICHMENT BOX**



## Make Change

③ ③

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## Shopping Spree

③ ③

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## Drop the Money

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## Make Change

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