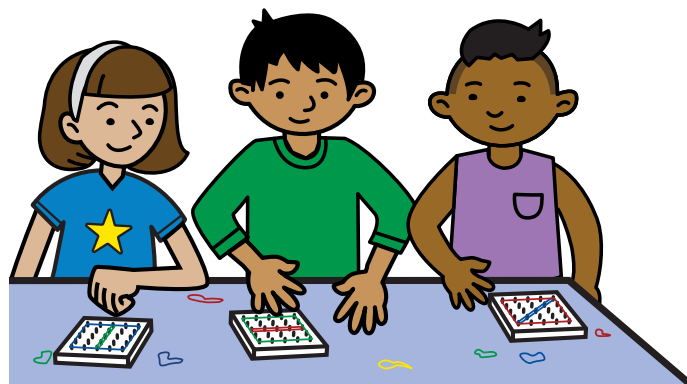


Fractions & Decimals

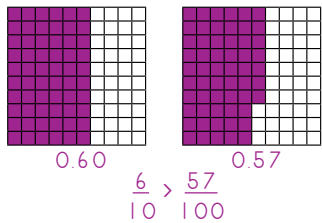
In this unit your student will:

- Compare fractions with like and unlike denominators
- Locate fractions on a number line
- Add and subtract fractions with like denominators
- Identify equivalent fractions and decimals
- Compare decimal numbers
- Add and subtract fractions with denominators of 10 and 100



Your student will learn and practice these skills by solving problems such as these:

PROBLEM	COMMENTS
<p>Which is greater, $\frac{1}{2}$ or $\frac{1}{3}$? Use the egg cartons to show your thinking.</p> <p style="text-align: center;">$\frac{1}{2}$ $\frac{1}{3}$</p>	<p>Students use images of egg cartons and colored tiles as “eggs” to model fractions. This visual model is useful because a set of 12 can be divided in different ways to show many fractions — halves, thirds, fourths, sixths, and twelfths. This makes it a good tool for representing, comparing, adding, and subtracting all fractions whose denominators are factors of 12 (1, 2, 3, 4, 6, and 12).</p>
<p>A square pan of veggie lasagna was cut into 9 equal pieces. Jamal and his dad ate 4 pieces. What fraction of the whole pan is left over?</p> <p>$1 - \frac{4}{9} =$</p> <p>$\frac{9}{9} - \frac{4}{9} = \frac{5}{9}$</p>	<p>When students model fractions, they need to be clear about what the whole is, how many equal parts it has been divided into, and how many of those parts have been selected.</p> <p>In this example, the whole is the pan of veggie lasagna, which was divided into 9 equal parts. Of those, 4 have been eaten. This means that $\frac{4}{9}$ (4 of 9 equal pieces of the pan of lasagna) has been eaten. The whole pan has 9 pieces, so $\frac{9}{9}$ represents the whole.</p>
<p>Put the following fractions where they belong on the number line: $\frac{1}{2}$ $\frac{3}{4}$ $\frac{1}{8}$ $\frac{1}{4}$.</p>	<p>The number line is an important visual model because it illustrates not just individual fractions but also the relationships among them. For example, we can see that $\frac{1}{4}$ is half of $\frac{1}{2}$ and $\frac{1}{8}$ is half of $\frac{1}{4}$ by looking at this number line.</p> <p>Students learn that familiar fractions can be useful when comparing fractions. For example, if a student knows that $\frac{1}{4}$ is less than $\frac{1}{2}$ and that $\frac{2}{3}$ is greater than $\frac{1}{2}$, they can use that information to determine that $\frac{1}{4} < \frac{2}{3}$.</p>

PROBLEM	COMMENTS
<p>Which is greater, $\frac{6}{10}$ or $\frac{57}{100}$? Show each fraction on a decimal unit frame, write the equivalent decimal number, and explain which is greater.</p>  <p style="text-align: center;">$\frac{6}{10} > \frac{57}{100}$</p>	<p>Fractions with denominators that are powers of 10 (10; 100; 1,000; and so on) are often called <i>decimal fractions</i>, because they can be written as decimal numbers and as fractions.</p> <p>Students represent such numbers on a decimal unit frame—a grid that shows a whole divided into tenths and hundredths. Using these representations helps students compare and find equivalent decimals and fractions.</p>

For additional support, you can use the Math Vocabulary Cards app at apps.mathlearningcenter.org.

Frequently Asked Questions About Unit 3

Q: Why are students using so many pictures to show fractions and decimals? Why not just use numbers?

A: Students use models like the egg carton, rectangles divided into equal parts, and the number line to represent fractions. They also use a decimal unit frame to visualize decimal numbers and fractions. These models give students something tangible to hold in their minds for numerical values, helping them visualize what numbers represent. Students will eventually work with numbers alone, but using models help them start to build a strong foundation of numerical understanding.

Q: How can I support my student's learning?

A: You don't have to know all the answers to help. Students do a lot of sensemaking in class by using models and logic to think about fractions, so invite your student to talk about what has been happening in class. To further support your student in learning mathematics, you can:

- Ask your student to point out examples of fractions in their everyday life or pictures—anything from the number of eggs left in the egg carton to what portion of the whole each serving of food is. Ask questions like, “Where do you see a fraction?” “What is the whole?” “How many equal parts are there?” and “How many of those equal parts are we talking about?”

Other ways to support your student include:

- Visit mathathome.mathlearningcenter.org and work together through some or all of the activities in Grade 4: Set 3. These activities complement the learning taking place in the classroom during Unit 3 and provide fun ways to engage everyone at home in mathematical thinking. This set also includes digital versions of games that your student learned at school, such as Dozens of Eggs and Racing Fractions. Your student might be excited to teach you how to play these games.
- If your student would enjoy learning about math concepts through literature, consider looking for math-related books at your local library. Encourage your student to read to you and point out the mathematical relationships they see. Some suggestions include:
 - » *Fry Bread: A Native American Family Story* by Kevin Noble Maillard, illustrated by Juana Martinez-Neal. (Try making the recipe together.)
 - » *Sweet Potato Pie* by Kathleen D. Lindsey, illustrated by Charlotte Riley-Webb
 - » *Solving for M* by Jennifer Swenden