TIPS FOR FAMILIES

KEY CONCEPT OVERVIEW

In Lessons 1 through 5, students learn how to **partition** a line or shape into equal parts. They create displays of **unit fractions** (e.g., $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$) by using items such as paper strips, clay, cups of water, paper circles and rectangles, and yarn.

You can expect to see homework that asks your child to do the following:

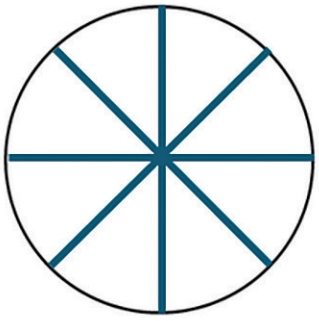
- Represent unit fractions in multiple ways (e.g., with circles, beakers, paper strips, or rectangles).
- Understand and represent objects that are "cut" into equal parts.
- Label the **fractional unit** on objects based on the number of equal cuts and identify how many parts are shaded.
- Recognize that equal parts of an identical rectangle can have different shapes.

SAMPLE PROBLEM *(From Lesson 3)*

Each shape is one whole. Estimate to divide each into equal parts by using a different fractional unit. Write the name of the fractional unit below the shape.

Thirds

Sixths



Eighths

HOW YOU CAN HELP AT HOME

- Chocolate bars are always fun and motivating for kids! Get a chocolate bar that has 12 sections. Ask your child to break up the chocolate bar and display it in different ways, such as halves, thirds, fourths, or sixths.
- Tape a string across a doorway so your child can reach it. Make sure the string is taut and parallel with the floor (not slanted). Using the door frame as the endpoints of the string, ask your child to show where to partition the string with clothespins to create different fractional units such as halves, thirds, fourths, sixths, eighths, or tenths. (Miniature clothespins can be found at hobby stores.) Alternatively, your child can thread O-shaped cereal or beads on the string before you tape the string to the door frame and then slide the beads or cereal into place based on fractional units you suggest.

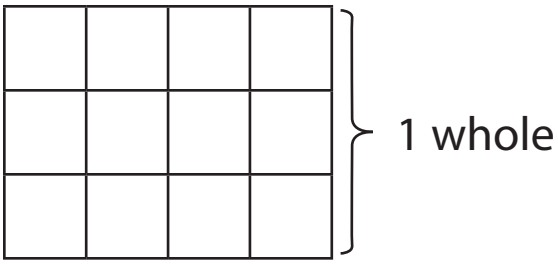
TERMS

Fractional unit: The number of parts in a whole, written in word form (e.g., halves, thirds, fourths, sixths, eighths).

Unit fractions: Fractions with a numerator of 1. For example, $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ are all unit fractions.

MODELS

Partition: To divide or "cut up" a whole into equal parts.



TIPS FOR FAMILIES

KEY CONCEPT OVERVIEW

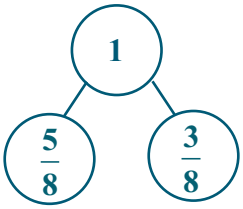
In Lessons 6 through 10, students continue to work with equal parts of a whole. They use **number bonds** to learn that any **non-unit fraction** is created by a series of unit fractions (e.g., 3 fourths is three copies of 1 fourth). Students also receive an introduction to fractions greater than one whole.

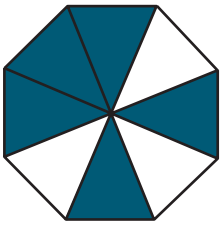
You can expect to see homework that asks your child to do the following:

- Identify the equal parts in **unit form** and **fraction form** in a diagram.
- Partition objects into equal parts and draw number bonds to match the images.
- Identify the number of shaded parts as well as the number of unshaded parts.
- Write a fraction as a sum of unit fractions.

SAMPLE PROBLEM *(From Lesson 9)*

Show a number bond that represents the shaded and unshaded parts in the rectangle shown below. Draw a different visual model that the same number bond could represent.





In the number bond, $\frac{5}{8}$ represents the shaded part in one whole.

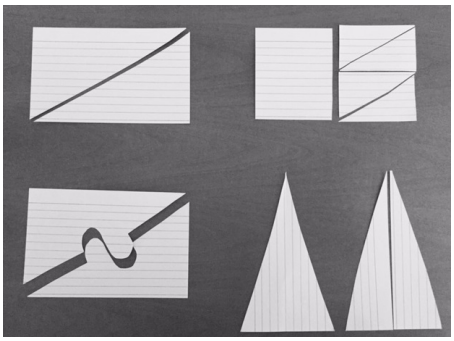
The $\frac{3}{8}$ represents the unshaded part.

HOW YOU CAN HELP AT HOME

- Ask your child to break apart a chocolate bar that has an even number of equal sections and display it in different ways, such as halves, thirds, fourths, and sixths. Ask him to show you different non-unit fractional amounts, such as $\frac{2}{6}, \frac{2}{3}, \frac{3}{4}, \frac{2}{4}$ and $\frac{5}{6}$. By adding a second chocolate bar, your child can create fractions larger than one whole, such as $\frac{11}{6}, \frac{5}{3}$, and $\frac{5}{4}$.

HOW YOU CAN HELP AT HOME

- Get a package of index cards and work with your child to see how many different "halves" you can cut out of the index cards. Challenge each other to get creative and defend why the images you create are (or are not) halves! Repeat this for other fractional units, such as thirds, fourths, sixths, and eighths.



TERMS

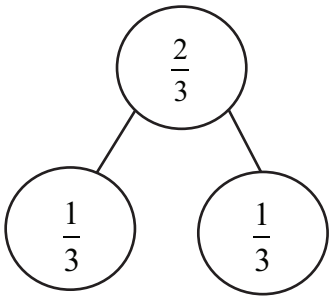
Fraction form: A number written in the form of a fraction, for example, $\frac{1}{2}$ or $\frac{19}{8}$.

Non-unit fraction: A fraction with a numerator other than 1. For example, $\frac{3}{4}$, $\frac{9}{8}$, and $\frac{2}{6}$ are all non-unit fractions.

Unit form: A number expressed in terms of its fractional unit. For example, 1 half, 2 thirds, and 3 fourths are all numbers written in unit form.

MODELS

Number Bond: A model that demonstrates a part–part–whole relationship.



TIPS FOR FAMILIES

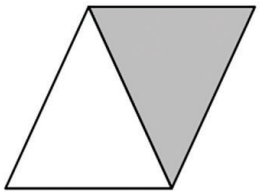
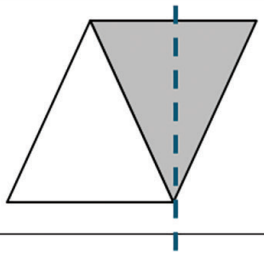
KEY CONCEPT OVERVIEW

In Lessons 11 through 14, students reason with and compare unit fractions based on the same whole.

You can expect to see homework that asks your child to do the following:

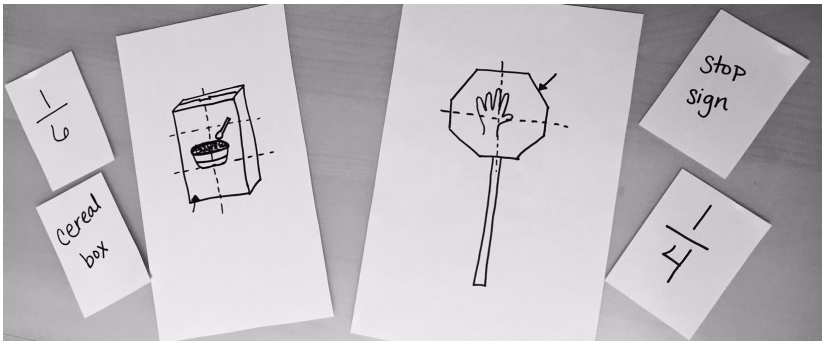
- Partition the same objects into different unit fractions and write a true comparison statement.
- Complete the drawing of a larger shape that represents one whole, when given the shape of a unit fraction.
- Identify a shaded part in different ways depending on what is defined as one whole. (See Sample Problem.)

SAMPLE PROBLEM *(From Lesson 14)*

The shape represents 1 whole. Write a unit fraction to describe the shaded part.	The shaded part represents 1 whole. Divide 1 whole to show the same unit fraction you wrote in part (a).
a.  $\frac{1}{2}$	b. 

HOW YOU CAN HELP AT HOME

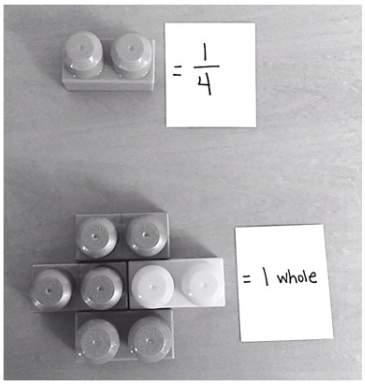
- Play Guess My Fraction Drawing with your child.
  1. Write the following five unit fractions on index cards, one fraction per card: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, and $\frac{1}{8}$. Place the cards facedown in a pile.
  2. On a second set of five cards, write the names of the following five objects: a volleyball, a stop sign, a cereal box, a rectangular TV screen, and a computer keyboard. You might also come up with other objects that can easily be divided into fractions. Place the cards facedown in another pile.

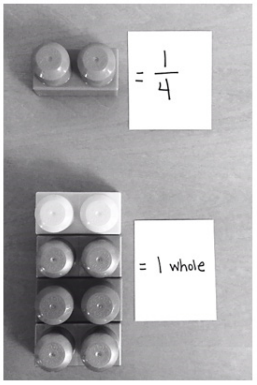


  3. The first player chooses one card from the fraction pile and one card from the object pile, keeping both cards hidden from the other player(s). The first player then attempts to draw just the unit fraction of that object (e.g., $\frac{1}{4}$). The other player(s) try to guess what the object is and what fraction is being depicted. (See image above.)
  4. The player who guesses correctly scores 1 point. The next player repeats Step 3. Continue taking turns until someone reaches 10 points.

     Place used cards face up, in separate object and fraction piles, off to the side. When all the cards have been used, shuffle each pile, turn them facedown, and keep playing! There will be new combinations.

- Use building blocks or snap block sets. Designate one block to represent a particular unit fraction, and ask your child to build one whole by using other same-sized blocks. For example, show your child a block and say, "This is $\frac{1}{4}$. Let's build what one whole could look like!" You can make several different representations. (See images at right.) Discuss why your representations are correct.





  You can also play the game the other way. Build something simple to represent one whole by using several same-sized blocks, and tell your child, "This is one whole. How many equal-sized units did I use? What fraction is each block?" Let your child then build something to represent one whole for you to guess what unit fraction was used.

TIPS FOR FAMILIES

KEY CONCEPT OVERVIEW

In Lessons 15 through 20, students learn to place and compare fractions on the number line.

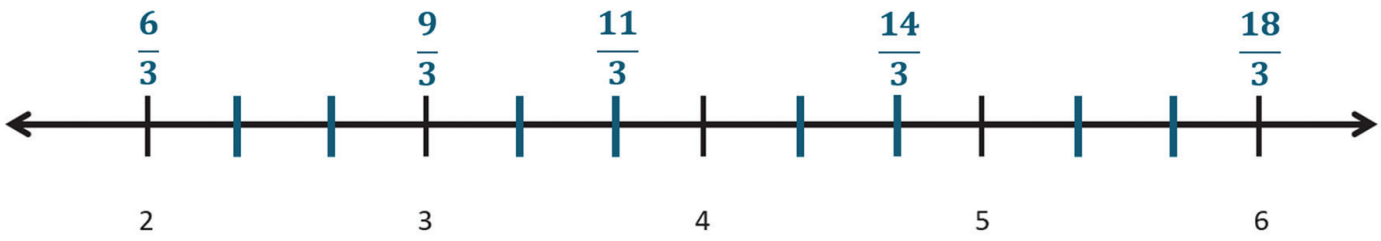
You can expect to see homework that asks your child to do the following:

- Locate and label fractions on a number line.
- Identify the location of whole numbers on the number line and rename those whole numbers in fraction form (e.g., $1 = \frac{3}{3}$, $2 = \frac{6}{3}$, $3 = \frac{9}{3}$).
- Use number lines as tools to compare fractions by reasoning about the distance of the fraction from zero and from other fractions.

SAMPLE PROBLEM *(From Lesson 18)*

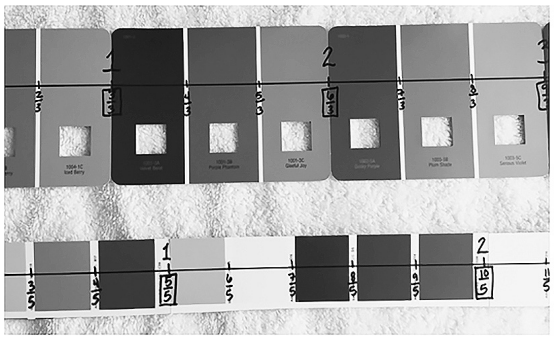
Locate and label the following fractions on the number line.

$$\frac{6}{3}, \frac{18}{3}, \frac{9}{3}, \frac{11}{3}, \frac{14}{3}$$

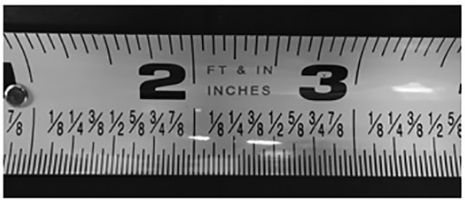


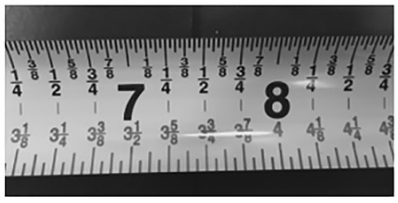
HOW YOU CAN HELP AT HOME

- Collect a few free paint sample strips from a hardware store and tape several of the same size and style together, end to end. Ask your child to use a permanent marker and a straight edge to draw a number line across the paint samples. Each paint sample strip represents a whole number and each change of color on the card represents the next fraction. (See image below.) Have your child mark off and label fractions and draw boxes around fractions that are equivalent to whole numbers.



- Let your child play with a tape measure and have a discussion about what is labeled between the numbers. Not all tape measures are labeled the same way, so consider taking a trip to the hardware store to examine different tape measures. Talk about which fractions appear on the tape measure and why.





TIPS FOR FAMILIES

KEY CONCEPT OVERVIEW

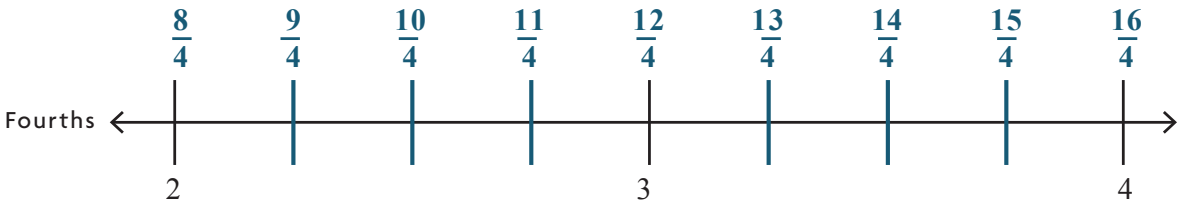
In Lessons 21 through 28, students learn to recognize and create **equivalent fractions**, including fractions that are greater than 1 whole (e.g., $\frac{5}{4} = \frac{10}{8}$). They also continue to write whole numbers as fractions.

You can expect to see homework that asks your child to do the following:

- Use drawings and number lines to determine whether two fractional amounts are equivalent.
- Complete written fractions to make equivalent statements (e.g., $\frac{1}{2} = \frac{2}{4}$).
- Write equivalent fractions on a number line, including fractions equal to whole numbers (e.g., $1 = \frac{4}{4}$).
- Relate number bonds to number lines to show fractional units.

SAMPLE PROBLEM *(From Lesson 27)*

Partition the number line to show the fractional units. Then draw number bonds, using copies of 1 whole for the circled whole numbers.



2 = 8 fourths

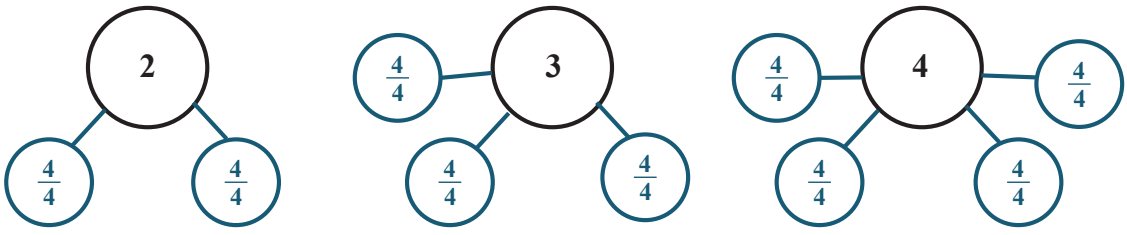
$2 = \frac{8}{4}$

3 = 12 fourths

$3 = \frac{12}{4}$

4 = 16 fourths

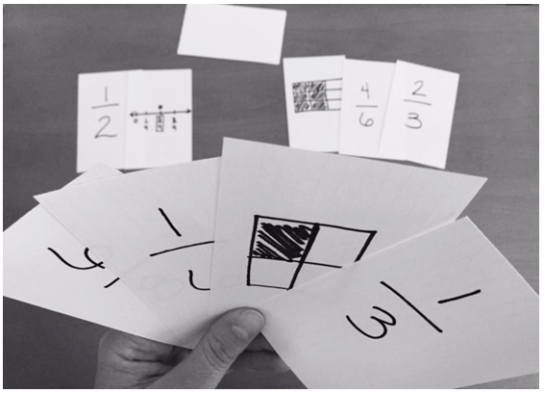
$4 = \frac{16}{4}$



HOW YOU CAN HELP AT HOME

Play the Equivalent Fractions Go Fish game with your child.

1. Make a set of 40 to 60 fraction cards by using index cards or construction paper and a marker. For every fraction card you make, make at least one other card showing an equivalent fraction. You can draw pictures to represent fractions, write fractions in number form, write fractions on a number line, or choose another representation.
2. Mix the cards and deal 6 to each player. Place the rest facedown in a stack between the players as the draw pile.
3. Players examine their cards, keeping them hidden, to see if any make an equivalent match. For example, a card with $\frac{1}{2}$ written on it and another card showing a square divided into four equal parts with two of them shaded is a match. Players lay their matching pairs face up in front of them for everyone to see.
4. Using fractional language, players take turns asking each other for matching cards. For example, if you want to match a card that represents $\frac{1}{3}$, you say, "Do you have any one-thirds?" If the player you ask has a card matching the fraction you request, he must hand it over, and you lay down the match. You then take another turn, continuing until you do not find a match. If the player you ask does not have a card matching the requested fraction, he says, "Go fish!" You must take one card from the top of the draw pile. If you can make a match with the new card, you lay down the match and take another turn. If not, you keep the new card in your hand. Play then goes to the next person.
5. The first player to match all of the cards in her hand wins the game!



TERMS

Equivalent fractions: Fractions that have the same value (e.g., $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$).

TIPS FOR FAMILIES

KEY CONCEPT OVERVIEW

In Lessons 29 through 31, students compare fractions. They focus on fractions that have the same numerator (top number), using models that they are already familiar with (e.g., fraction strips, number lines, and shapes).

You can expect to see homework that asks your child to do the following:

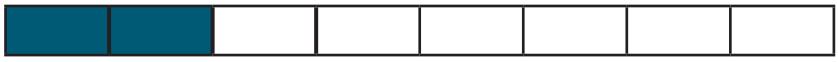
- Shade and compare fractional amounts on models and number lines.
- Draw a model to compare fractions in word problems.
- Precisely partition a whole into equal parts by using a number line method to create a set of fraction strips.

SAMPLE PROBLEM *(From Lesson 29)*

Shade the models to compare the fractions.

2 fourths

2 eighths



Which is larger, 2 fourths or 2 eighths? Why? Use words to explain.

2 fourths is larger than 2 eighths because the more times you cut the whole, the smaller the pieces get. The number of pieces shaded is the same, but the sizes of the pieces are different. Eighths are much smaller than fourths.

HOW YOU CAN HELP AT HOME

- Give your child some measuring cups, several bowls that are exactly the same size, and a pitcher of water. Ask questions like, "What contains more water, 2 one-third cups or 2 one-fourth cups?" Have your child fill the measuring cups with water and then pour the water into the bowls to compare the amounts of water side by side. Talk about why one bowl has more water even though your child added 2 units of water to both bowls.
- Invite your child to watch you chop vegetables or fruit while you are preparing a meal. Talk about fractions while you work. For example, if you are cutting up two carrots that are the same size, cut one into fourths and the other into sixths, and ask whether 3 fourths or 3 sixths is more.