

Understand What a Fraction Is

Think It Through

How can we describe equal parts?



Fractions are numbers that tell about equal parts of a whole. A fraction is named by the number of equal parts. One of three equal parts is one third. One of four equal parts is one fourth, and so on. One third and one fourth are fractions.

There are two parts to a fraction. The bottom number is the **denominator**. It tells how many equal parts are in the whole. The top number is the **numerator**. It tells how many equal parts you have.

$\frac{1}{3}$
1 ← **numerator**
3 ← **denominator**



$\frac{1}{3}$ part shaded
3 equal parts in the whole

Think Fractions always show equal parts.

To use a fraction to tell about the parts of a whole, all the parts must be the same size. Think about sharing a cake with some friends. You cut the cake into pieces that are the same size so that it is fair.



There are 6 equal parts.
These parts are sixths.
Each part is $\frac{1}{6}$.



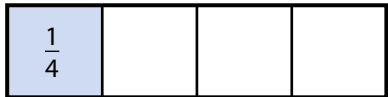
All the parts are not the same size.
These parts are not sixths.



Circle the model that shows equal parts.

Think Unit fractions help us understand other fractions.

A **unit fraction** has a 1 in the numerator. $\frac{1}{4}$ is a unit fraction. It names 1 part of a whole that has 4 equal parts.



If you know the name of 1 part of the whole, you can count to name more parts of that whole.

Look at the rectangle below. It has 4 equal parts. Each part is $\frac{1}{4}$.

The rectangle has three parts shaded. Three $\frac{1}{4}$ s is $\frac{3}{4}$.



When you count the shaded parts of this rectangle, you say: one fourth, two fourths, three fourths. Three fourths of the rectangle is shaded.

You can also describe the whole rectangle by counting the number of $\frac{1}{4}$ s.

There are four $\frac{1}{4}$ s in the rectangle, or $\frac{4}{4}$.



You can count unit fractions like you count whole numbers. Instead of 1, 2, 3, count $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$.

▶ Reflect

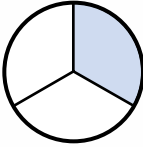
- 1** Mike draws a large rectangle. He wants to color $\frac{3}{8}$ of the rectangle blue. How many equal parts should he make? What fraction names each part? How many parts should he color?

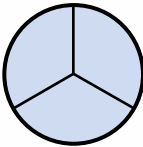
Think About ➔ **Describing Parts of a Whole with Fractions**



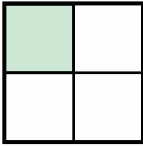
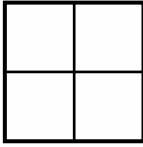
Let's Explore the Idea You can use models to help you think about fractions.

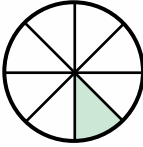
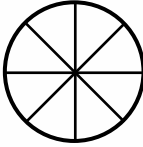


2  How many equal parts are shown in this model? _____
 How many parts are shaded? _____
 Write the fraction that names the shaded part. _____
 Circle the name for this fraction: one half one third one fourth

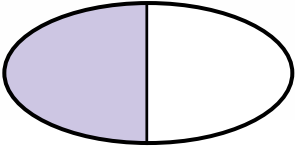
3  How many equal parts are shown in this model? _____
 How many parts are shaded? _____
 Write the fraction that names the shaded parts. _____
 Circle the name for this fraction: three halves three thirds three fourths

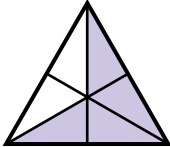
First write the unit fraction shown. Then shade the given number of parts. Write the fraction that names the shaded parts.

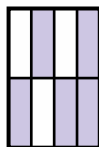
4  Shade 2 parts: 
 Unit fraction: _____ What fraction of the square did you shade? _____

5  Shade 6 parts: 
 Unit fraction: _____ What fraction of the circle did you shade? _____

Write the fraction of the figure that is shaded. The parts in each model are all equal.

6 
 Fraction: _____

7 
 Fraction: _____

8 
 Fraction: _____

Let's Talk About It

Solve the problems below as a group.

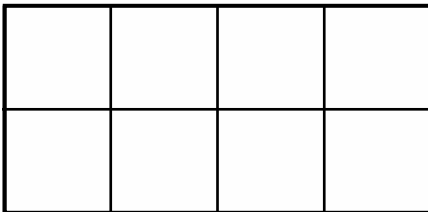


- 9 Look at your answers to problems 4 and 5. Explain how you figured out what unit fraction was shown in each model. _____

Explain how you figured out what fractions to write for the parts you shaded.

Do you think you could have shaded the number of parts another way in each model? Explain. _____

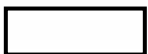
- 10 Look at the rectangle below.



What unit fraction is each part? _____ Now shade $\frac{4}{8}$ of the rectangle.

Try It Another Way Work with your group to use the pictures to draw the figure described.

- 11 The model below shows $\frac{1}{3}$ of a square. Draw what $\frac{2}{3}$ of the square looks like.



- 12 The model below shows $\frac{1}{6}$ of a shape. Draw what $\frac{3}{6}$ of the shape could look like.



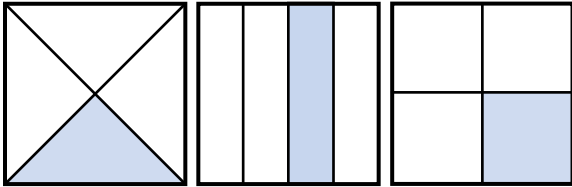
Connect  **Parts of a Whole with Fractions**

Talk through these problems as a class, then write your answers below.

- 13 Create** The part shown below is $\frac{1}{6}$ of a rectangle. Draw a model to show what the whole rectangle might look like.

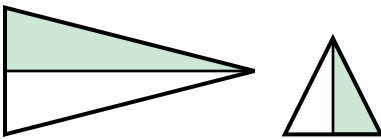


- 14 Explain** Look at the squares below. Each square is divided into equal parts.



Lynn says each square has the same fraction shaded. Rose says each square has a different fraction shaded. Explain who is correct and why.

- 15 Compare** Look at the triangles below. Each triangle is divided into equal parts.



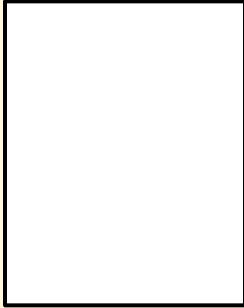
What is the same about the fraction of each model that is shaded?

What is different about the fraction of each model that is shaded?

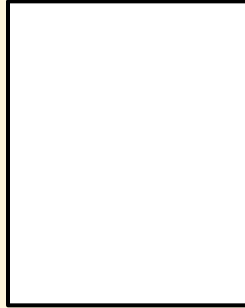
Apply  **Ideas About Parts of a Whole with Fractions**

16 Put It Together Use what you have learned to complete this task.

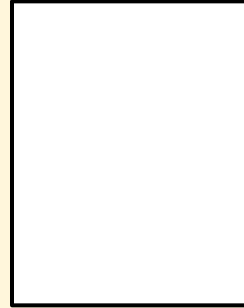
Adam has $\frac{1}{3}$ of a pizza, Hillary has $\frac{2}{6}$ of a pizza, and John has $\frac{3}{8}$ of a pizza.



Adam



Hillary



John

Part A Show the number of equal parts in each pizza. Then shade each pizza to show the fraction each person has.

Part B Circle one of the pizzas. Explain how you knew how many equal parts to show and how many parts to shade.
