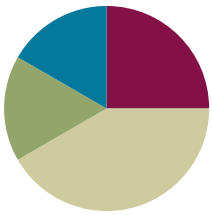
Lesson 5

Objective: Partition a whole into equal parts and define the equal parts to identify the unit fraction numerically.

Related Topics: More Lesson Plans for the Common Core Math

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Application Problem	(10 minutes)
Concept Development	(25 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (15 minutes)

- Count by Eight **3.OA.7** (5 minutes)
- Write the Fractional Unit **3.NF.1** (5 minutes)
- Partition Shapes **3.NF.1** (5 minutes)

Count by Eight (5 minutes)

Materials: (S) Personal white boards

Step 1: Students count by eight as high as they can for 90 seconds. 0, 8, 16, 24, 32, 40, 48, 56.
Step 2: Correct by reading the multiples. Students practice for an additional minute after correction.
Step 3: Students count by eight once again. Quickly celebrate improvement.

Write the Fractional Unit (5 minutes)

Materials: (S) Personal white boards

T: (Draw a shape with 3 units, 2 shaded in.) Write the fractional unit on your personal white board.
S: (Write: thirds)
T: Blank thirds are shaded. Write the number that goes in the blank.
S: (Write: 2)

Continue with possible sequence: 3 fourths, 2 fifths, 5 sixths, 7 tenths, 5 eighths, etc.

Partition Shapes (5 minutes)

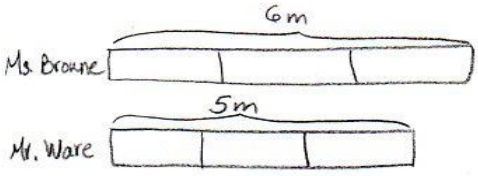
Materials: (S) Personal white boards

T: Draw a square.
S: (Students draw.)
T: (Write: $\frac{1}{2}$.) Estimate to equally partition the square into halves.
S: (Students partition.)

Continue with possible sequence: line $\frac{1}{5}$, circle $\frac{1}{4}$, circle $\frac{1}{8}$, bar $\frac{1}{10}$, and bar $\frac{1}{6}$.

Application Problem (10 minutes)

Ms. Browne cut a 6 meter rope into 3 equal size pieces to make jump ropes. Mr. Ware cut a 5 meter rope into 3 equal size pieces to make jump ropes. Which class has longer jump ropes? (Bonus: How long are the jump ropes in Ms. Browne's class?)

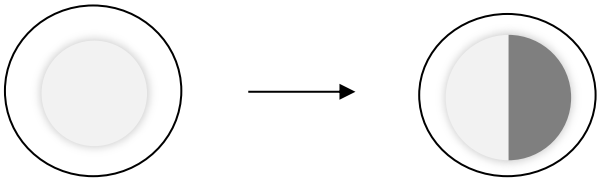


Ms. Browne's class gets longer jump ropes because the original rope was longer.
Bonus: 2m because I can count by 2 until I get to 6 m.

Concept Development (25 minutes)

Materials: (S) Personal white boards

T: Whisper the name of this shape.
S: Circle.



1 half; $\frac{1}{2}$

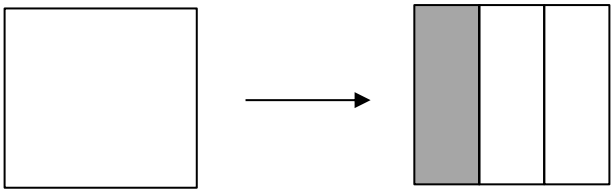
T: Watch as I cut the whole. How many equal parts are there?
S: 2 equal parts.
T: What's the name of each unit?
S: 1 half.
T: (Shade one unit.) What fraction is shaded?
S: 1 half.
T: 1 half is the unit form. This is how we write it numerically: $\frac{1}{2}$. (Write both forms under the circle.) Both of these refer to the same thing: 1 out of 2 equal units.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

As you introduce two new terms—"unit form" and "numerical form", check for student understanding. English Language Learners may choose to discuss definitions of these terms in their first language with you or peers.

T: What's the name of this shape?

S: It's a square.



1 third; $\frac{1}{3}$

T: Draw it on your personal board.

T: Estimate to partition the square into 3 equal parts.

S: (Students partition.)

T: What's the name of each unit?

S: 1 third.

T: Shade the unit. Then write the fraction in unit form and numerically on your board.

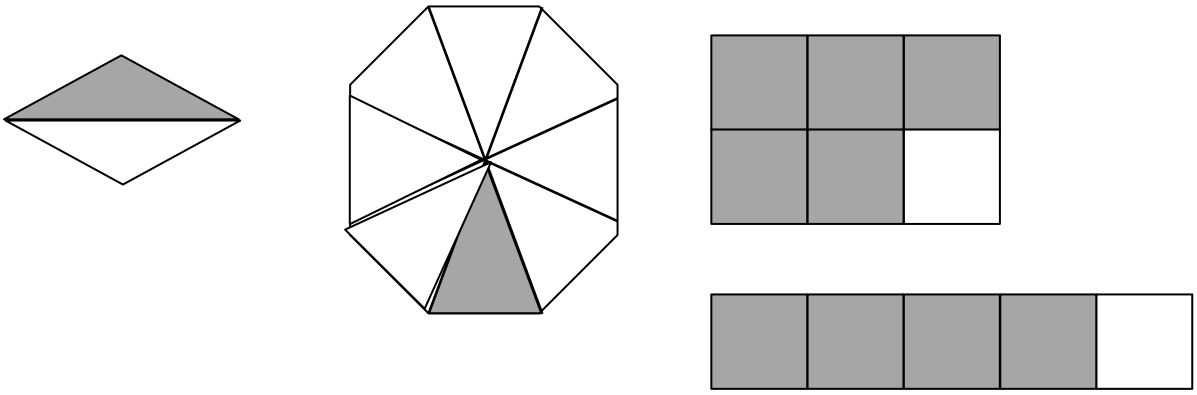
S: (Students shade and write 1 third and $\frac{1}{3}$.)

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Students above grade level may enjoy identifying fractions with an added challenge of each shape representing a *fraction* rather than the whole. For example, ask:

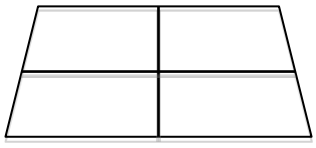
"If shape 2 is 1 third, name the shaded region (e.g., $\frac{3}{12}$ or $\frac{1}{4}$)."

Continue the process with more shapes as needed. The following suggested shapes include examples of both shaded and non-shaded unit fractions. Alter language accordingly.



T: (Draw the following image.) Discuss with your partner: Does the shape have equal parts? How do you know?

MP.6



S: No. The parts are not the same size. → They're also

not exactly the same shape. → The parts are not equal because the bottom parts are bigger. The lines on the sides lean in at the top.

T: Most agree that the parts are not equal. Alex, can you share how you would partition the shape to make the parts equal? MP.6

S: I can cut it into 2 equal parts. You have to cut it right down the middle going up and down. The lines aren't all the same length like in a square.

T: Turn and talk: If the parts are not equal, can we call these fourths? Why or why not?

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Review personal goals with students. For example, if students below grade level have chosen to solve one word problem (per lesson) last week, encourage them to work towards completing two word problems by the end of this week.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students solve these problems using the RDW approach used for Application Problems.

Student Debrief (10 minutes)

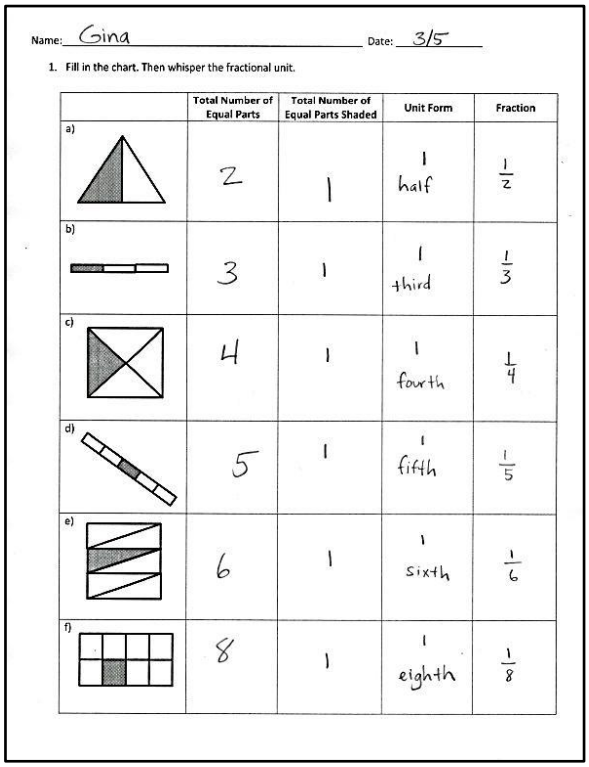
Lesson Objective: Partition a whole into equal parts and define the equal parts to identify the unit fraction numerically.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

You may choose to use any combination of the questions below to lead the discussion.

- Use the following possible introduction to start a discussion about Problem 4: Let's imagine we're at Andre's birthday party. Who would rather have an eighth of the cake? Who would rather have a tenth? Why? Suggested sentence frames: "I would rather have a _____ because _____.", and "I agree/disagree because _____."



Name: Gina Date: 3/5

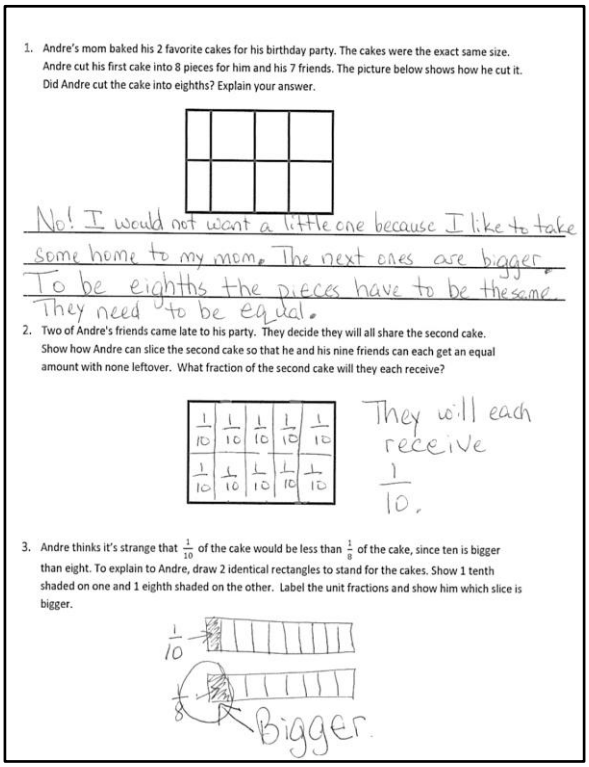
1. Fill in the chart. Then whisper the fractional unit.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction
a)	2	1	1 half	$\frac{1}{2}$
b)	3	1	1 third	$\frac{1}{3}$
c)	4	1	1 fourth	$\frac{1}{4}$
d)	5	1	1 fifth	$\frac{1}{5}$
e)	6	1	1 sixth	$\frac{1}{6}$
f)	8	1	1 eighth	$\frac{1}{8}$

- Guide students to start understanding that a greater number of parts results in smaller pieces.

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today and plan more effectively for future lessons. You may read the questions aloud to the students.



1. Andre's mom baked his 2 favorite cakes for his birthday party. The cakes were the exact same size. Andre cut his first cake into 8 pieces for him and his 7 friends. The picture below shows how he cut it. Did Andre cut the cake into eighths? Explain your answer.

No! I would not want a little one because I like to take some home to my mom. The next ones are bigger. To be eighths the pieces have to be the same. They need to be equal.

2. Two of Andre's friends came late to his party. They decide they will all share the second cake. Show how Andre can slice the second cake so that he and his nine friends can each get an equal amount with none leftover. What fraction of the second cake will they each receive?

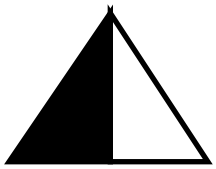
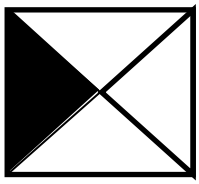
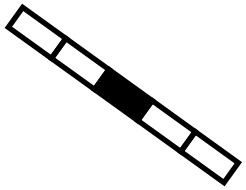
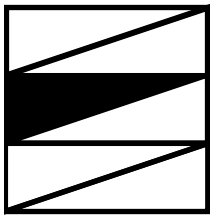
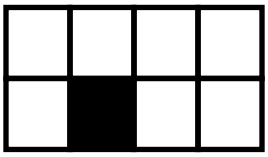
They will each receive $\frac{1}{10}$.

3. Andre thinks it's strange that $\frac{1}{10}$ of the cake would be less than $\frac{1}{8}$ of the cake, since ten is bigger than eight. To explain to Andre, draw 2 identical rectangles to stand for the cakes. Show 1 tenth shaded on one and 1 eighth shaded on the other. Label the unit fractions and show him which slice is bigger.

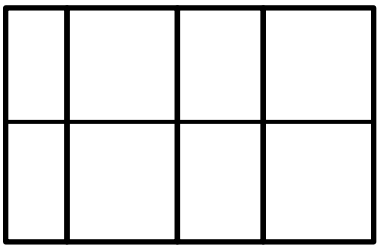
Bigger

Name _____ Date _____

1. Fill in the chart. Then whisper the fractional unit.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction
a. 				
b. 				
c. 				
d. 				
e. 				
f. 				

2. Andre's mom baked his 2 favorite cakes for his birthday party. The cakes were the exact same size. Andre cut his first cake into 8 pieces for him and his 7 friends. The picture below shows how he cut it. Did Andre cut the cake into eighths? Explain your answer.

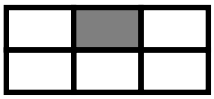


3. Two of Andre's friends came late to his party. They decide they will all share the second cake. Show how Andre can slice the second cake so that he and his nine friends can each get an equal amount with none leftover. What fraction of the second cake will they each receive?

4. Andre thinks it's strange that $\frac{1}{10}$ of the cake would be less than $\frac{1}{8}$ of the cake, since ten is bigger than eight. To explain to Andre, draw 2 identical rectangles to stand for the cakes. Show 1 tenth shaded on one and 1 eighth shaded on the other. Label the unit fractions and show him which slice is bigger.

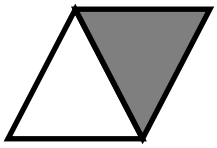
Name _____ Date _____

1. Fill in the chart.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction
a. 				

2. Each image below is 1 whole. Write the fraction that is shaded.

_____



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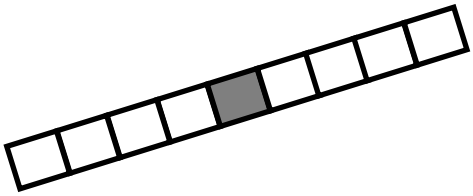

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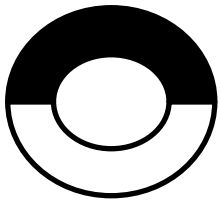
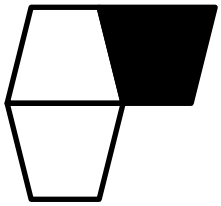
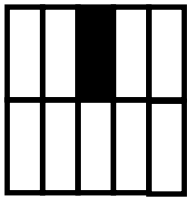
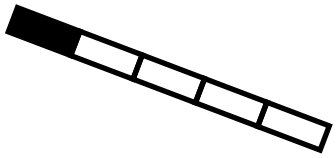
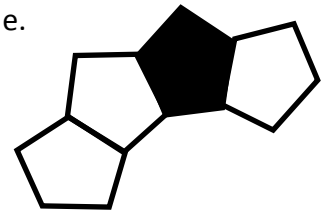
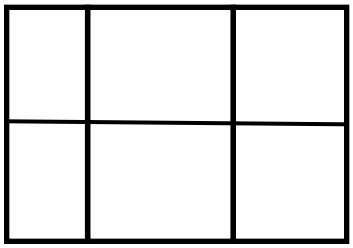
3. Draw two rectangles. Partition one into 5 equal parts. Partition the other into 8 equal parts. Label the unit fractions and shade 1 equal part in each rectangle. Use your drawing to explain why $\frac{1}{5}$ is larger than $\frac{1}{8}$.

Name _____ Date _____

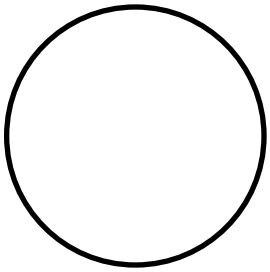
1. Fill in the chart. Then whisper the fraction.

	Total Number of Equal Parts	Total Number of Equal Parts Shaded	Unit Form	Fraction
a. 				
b. 				
c. 				
d. 				
e. 				

2. This figure is divided into six parts. Are they sixths? Explain your answer.



3. Terry and his 3 friends baked a pizza during his sleepover. They want to share the pizza equally. Show how Terry can slice the pizza so that he and his 3 friends can each get an equal amount with none leftover.



4. Draw two identical rectangles. Shade 1 seventh of one rectangle and 1 tenth of the other. Label the unit fractions. Use your rectangles to explain why $\frac{1}{7}$ is greater than $\frac{1}{10}$.