Lesson 7

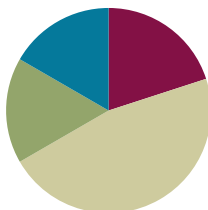## Objective: Identify and represent shaded and non-shaded parts of one whole as fractions.

Related Topics: [More Lesson Plans for the Common Core Math](#)

Suggested Lesson Structure

■	Fluency Practice	(12 minutes)
■	Application Problem	(10 minutes)
■	Concept Development	(28 minutes)
■	Student Debrief	(10 minutes)
	Total Time	**(60 minutes)**

Fluency Practice (12 minutes)

- Count by Nine **3.OA.7**   (2 minutes)
- Sprint: Divide by Seven **3.OA.4**   (8 minutes)
- Skip-Count by Halves on the Clock **3.G.2, 3.NF.1**   (2 minutes)

Count by Nine (2 minutes)

Materials: (S) Personal white boards

Students count up to and down from 90 by nines on their personal white boards.

    T: Circle 27. How many nines did you count?
    S: 3 nines.
    T: What is 27 divided by 9?
    S: 3.

Repeat with other examples.

Sprint: Divide by Seven (8 minutes)

Materials: (S) Divide by Seven Sprint

Skip-Count by Halves on the Clock (2 minutes)

    T: (Hold or project a clock.) Let's skip-count by halves on the clock starting with 1.
    S: 1 o'clock, half past 1, 2, half past 2, 3, half past 3, 4, (Switch direction.) half past 3, 3, half past 2, 2,

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half past 1, 1.

Continue counting up and down.

Application Problem (10 minutes)

Robert was snacking on a small container of applesauce. He ate half of the container. His mother and sister were upset he didn't save much for them. So he split up the remaining applesauce into 2 bowls. Robert said, "I ate 1 half, and each of you got 1 half." Is Robert right? Draw a picture to prove your answer.

Bonus Questions:

- What fraction of the apple sauce did his mother get?
- Why can't the container be partitioned into 3 equal parts?
- What fraction of the applesauce did Robert's sister eat?
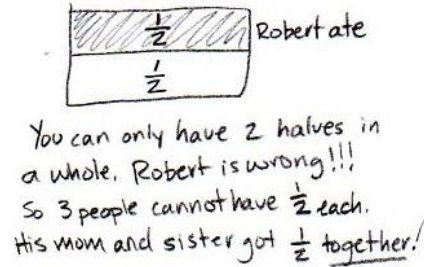
Concept Development (28 minutes)

Materials: (T) Beaker, water (S) Paper, scissors, crayons, math journals

Show a beaker of liquid half full.

- T: Whisper the fraction of liquid that you see to your partner.
- S: 1 half.
- T: What about the part that is not full? Talk to your partner: Could that be a fraction, too? Why or why not?
- S: No, because there's nothing there. → I disagree. It's another part. It's just not full. → It's another half. Because half is filled, and so it has 1 more half to be all the way full.
- T: Even though parts might not be full or shaded, they are still part of the whole.
- T: Let's explore this idea more. I'll give you 1 sheet of paper. Partition it into any shape you choose. Just be sure of these 3 things:
  1.   The parts must be equal.
  2.   There are no less than 5, and no more than 20 parts in all.
  3.   You use the entire sheet of paper.

You can only have 2 halves in a whole. Robert is wrong!!! So 3 people cannot have ½ each. His mom and sister got ½ together!

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Give explicit steps for problem solving to students below grade level. These steps can be organized as a checklist such as, "Underline important words, draw a model, label your model."

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

These daily class discussions, as well as "Think-pair-share", support ELLs English language acquisition, offering them an opportunity to talk about their math ideas in English and to actively use the language of mathematics.

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S: (Students estimate by folding to partition.)

T: Now use a crayon to shade the unit fraction.

S: (Students shade 1 part.)

T: Next we're going to cut our whole into parts. You'll reassemble your parts into a unique piece of art for our fraction museum. As you make your art, be sure that all parts are touching but not on top of or under each other.

S: (Students cut along the folds and reassemble pieces.)

T: As you tour our museum admiring the art, identify which unit fraction the artist chose and identify the fraction representing the un-shaded equal parts of the art. Write both fractions in your journal next to each other.

S: (Students walk around and collect data, to be used in the Debrief portion of the lesson.)

> **NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**
>
> Offer students working above grade level a Problem Set alternative of constructing a word problem for one of the models (pictured in number 10). Constructively review errors with students who are accustomed to always scoring correctly or who may be perfectionists.

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: Identify and represent shaded and non-shaded parts of one whole as fractions.

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.

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

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- Revisit students' art. Guide a discussion helping them recognize that everyone used the same whole but that each whole is composed of different unit fractions.

- Returning to the Problem Set, show examples of student work on question 4. Justin mowed 9 tenths of his lawn. What fraction of his lawn did he not mow? Isn't Justin's goal to mow the whole lawn? Guide the students to notice that the whole lawn can be depicted as the part he has mowed and the part he has not mowed. From that discussion, you might briefly return to the opening "shaded" and "un-shaded" figures and have students notice that the whole is able to be expressed as two parts, the shaded and un-shaded.

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.

9. a) How many eighths are in 1 whole? ____8____

b) How many ninths are in 1 whole? ____9____

c) How many twelfths are in 1 whole? ____12____

10. Each strip represents 1 whole. Write a fraction to label the shaded and un-shaded parts.

$\frac{1}{5}$ $\frac{4}{5}$

$\frac{1}{7}$ $\frac{6}{7}$

$\frac{1}{11}$ $\frac{10}{11}$

11. Avanti read 1 sixth of her book. What fraction of the book has she not read yet?

She has not read $\frac{5}{6}$ of her book.

book

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A   # Correct _____

Multiply or divide.

1	2 x 7 =		23	__ x 7 = 70	
2	3 x 7 =		24	__ x 7 = 14	
3	4 x 7 =		25	__ x 7 = 21	
4	5 x 7 =		26	70 ÷ 7 =	
5	1 x 7 =		27	35 ÷ 7 =	
6	14 ÷ 7 =		28	7 ÷ 7 =	
7	21 ÷ 7 =		29	14 ÷ 7 =	
8	35 ÷ 7 =		30	21 ÷ 7 =	
9	7 ÷ 7 =		31	__ x 7 = 42	
10	28 ÷ 7 =		32	__ x 7 = 49	
11	6 x 7 =		33	__ x 7 = 63	
12	7 x 7 =		34	__ x 7 = 56	
13	8 x 7 =		35	49 ÷ 7 =	
14	9 x 7 =		36	63 ÷ 7 =	
15	10 x 7 =		37	42 ÷ 7 =	
16	56 ÷ 7 =		38	56 ÷ 7 =	
17	49 ÷ 7 =		39	11 x 7 =	
18	63 ÷ 7 =		40	77 ÷ 7 =	
19	42 ÷ 7 =		41	12 x 7 =	
20	70 ÷ 7 =		42	84 ÷ 7 =	
21	__ x 7 = 35		43	14 x 7 =	
22	__ x 7 = 7		44	98 ÷ 7 =	

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Improvement _____   # Correct _____

Multiply or divide.

1	1 x 7 =		23	__ x 7 = 14	
2	2 x 7 =		24	__ x 7 = 70	
3	3 x 7 =		25	__ x 7 = 21	
4	4 x 7 =		26	14 ÷ 7 =	
5	5 x 7 =		27	7 ÷ 7 =	
6	21 ÷ 7 =		28	70 ÷ 7 =	
7	14 ÷ 7 =		29	35 ÷ 7 =	
8	28 ÷ 7 =		30	21 ÷ 7 =	
9	7 ÷ 7 =		31	__ x 7 = 21	
10	35 ÷ 7 =		32	__ x 7 = 28	
11	10 x 7 =		33	__ x 7 = 63	
12	6 x 7 =		34	__ x 7 = 49	
13	7 x 7 =		35	56 ÷ 7 =	
14	8 x 7 =		36	63 ÷ 7 =	
15	9 x 7 =		37	42 ÷ 7 =	
16	49 ÷ 7 =		38	49 ÷ 7 =	
17	42 ÷ 7 =		39	11 x 7 =	
18	56 ÷ 7 =		40	77 ÷ 7 =	
19	70 ÷ 7 =		41	12 x 7 =	
20	63 ÷ 7 =		42	84 ÷ 7 =	
21	__ x 7 = 7		43	13 x 7 =	
22	__ x 7 = 35		44	91 ÷ 7 =	

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Whisper the fraction of the shape that is shaded. Then match the shape to the amount that <u>is not</u> shaded.

1.

2.

3.

4.

5.

6.

7.

8.

- 2 thirds

- 6 sevenths

- 4 fifths

- 8 ninths

- 1 half

- 5 sixths

- 7 eighths

- 3 fourths

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9.
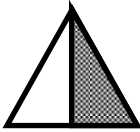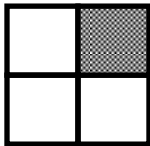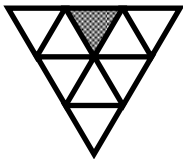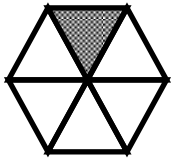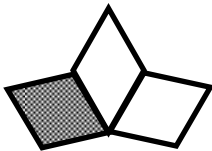
    a. How many eighths are in 1 whole? _____

    b. How many ninths are in 1 whole? _____

    c. How many twelfths are in 1 whole? _____

10. Each strip represents 1 whole. Write a fraction to label the shaded and un-shaded parts.
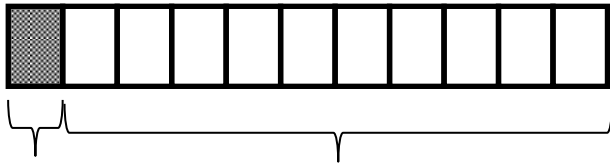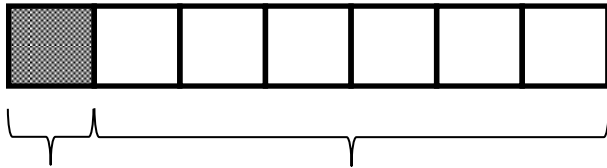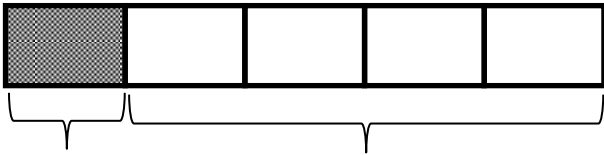
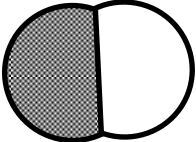11. Avanti read 1 sixth of her book. What fraction of the book has she not read yet?

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1. Write the fraction that is <u>not</u> shaded.

2. There are _____ sixths in 1 whole.
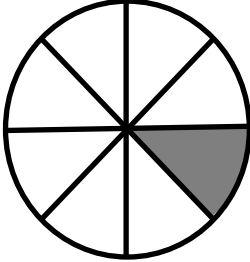
3. The fraction strip is 1 whole. Write fractions to label the shaded and un-shaded parts.
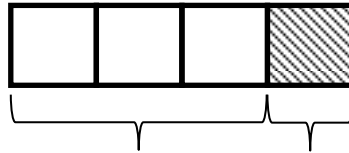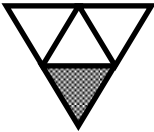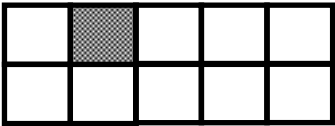
4. Justin mows part of his lawn. Then his lawnmower runs out of gas. He has not mowed $\frac{9}{10}$ of the lawn.
    What part of his lawn is mowed?

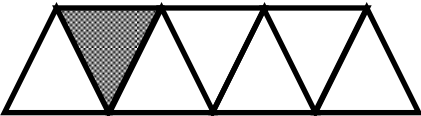COMMON CORE | Lesson 7: Identify and represent shaded and non-shaded parts of one whole as fractions.
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Whisper the fraction of the shape that is shaded. Then match the shape to the amount that is not shaded.
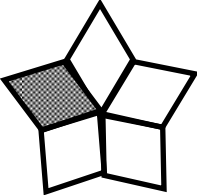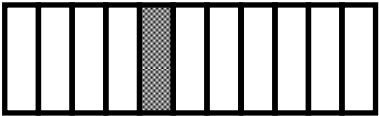
1.

- 9 tenths

2.

- 4 fifths

3.

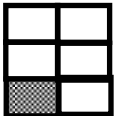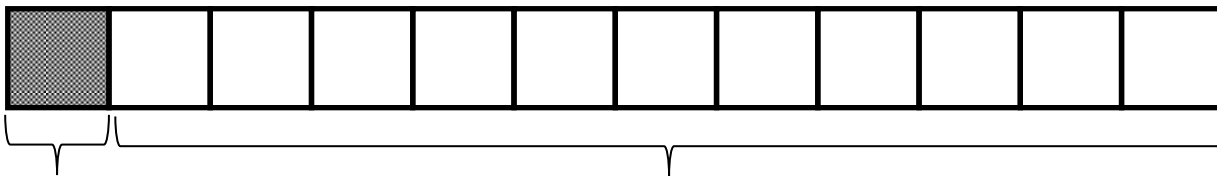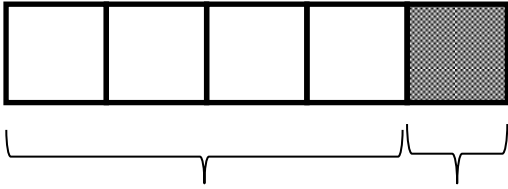
- 10 elevenths

4.

- 5 sixths

5.

- 1 half

6.

- 2 thirds

7.

- 3 fourths

8.

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9. Each strip represents 1 whole. Write a fraction to label the shaded and un-shaded parts.

10. Carlia finished 1 fourth of her homework on Saturday. What fraction of her homework has she not finished? Draw and explain.

11. Jerome cooks 8 cups of oatmeal for his family. They eat 7 eighths of the oatmeal. What fraction of the oatmeal is uneaten? Draw and explain.