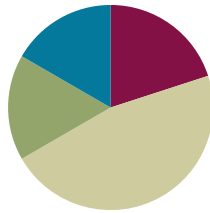# Lesson 6

Objective: Build non-unit fractions less than one whole from unit 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)

- ▪ Sprint Multiplication by Seven **3.OA.4**   (8 minutes)
- ▪ Write the Unit Fraction **3.G.2, 3.NF.1**   (2 minutes)
- ▪ Find the Whole **3.NF.3d**   (2 minutes)

Sprint Multiplication by Seven (8 minutes)

Materials: (S) Multiplication by Seven Sprint

Write the Unit Fraction (2 minutes)

Materials: (S) Personal white boards

   T: (Draw a shape with $\frac{1}{2}$ shaded.) Write the unit fraction.

   S: (Write: $\frac{1}{2}$.)

Continue with possible sequence: $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{10}$, $\frac{1}{5}$

Find the Whole (2 minutes)

Materials: (T) Blank number bond

   T: (Project number bond with parts $\frac{3}{5}$ and $\frac{2}{5}$.) Say the biggest part.

   S: 3 fifths.

   T: Say the smallest part.

engage^{ny}

S: 2 fifths.

T: How many fifths are in the whole?

S: 5 fifths.

T: (Write $\frac{5}{5}$ in the whole space.) Say the number sentence.

S: 3 fifths and 2 fifths equals 5 fifths.

Repeat with parts: $\frac{7}{10}$ and $\frac{3}{10}$, $\frac{5}{8}$ and $\frac{3}{8}$. Replace 8 eighths with one whole.

Application Problem (10 minutes)

Chloe's dad partitions his garden into 4 equal size sections to plant tomatoes, squash, peppers, and cucumbers. What fraction of the garden is available for growing tomatoes?

(Bonus: Chloe talked her dad into planting beans and lettuce too. He used equal size sections for all the vegetables. What fraction do the tomatoes have now?)
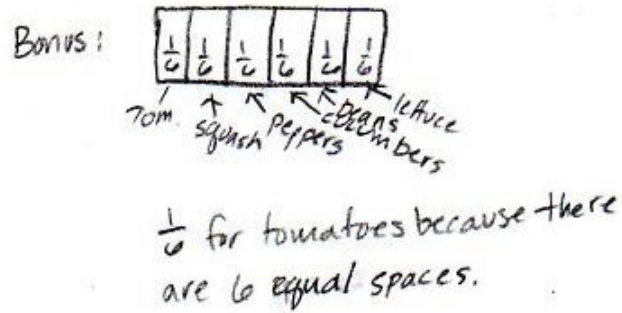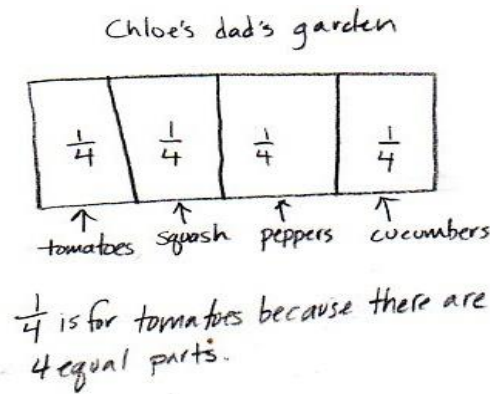
Concept Development (28 minutes)

Materials: (S) Personal white boards

T: Here is unit form. (Write: 1 half.)

T: Here is numerical form. (Write: $\frac{1}{2}$.)

T: What does the 2 mean?

S: 2 is the number of equal parts that the whole is cut into.

T: What does the 1 mean?

S: We are talking about 1 of the equal parts.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Recording choral response on the board alongside the model supports English language acquisition.

Shape 1:

T: (Show a circle partitioned into thirds.) This is 1 whole.

2 thirds $\frac{2}{3}$

T: What unit is it partitioned into?

S: Thirds.

T: What is the unit fraction?

S: 1 third.

T: (Shade 1 third.) I'm going to make a copy of my shaded unit fraction. (Shade one more unit.) How many units are shaded now?

S: 2 thirds.

T: Let's count them.

S: 1 third, 2 thirds.

T: I can write 2 thirds like this: $\frac{2}{3}$. (Write both forms under the shape.) What happened to our unit fraction when we made a copy? Turn and share.

S: We started with one unit shaded, then shaded in another unit to make a copy. Two copies make 2 thirds. → True. That's why we changed the 1 on the top to a 2. Now we're talking about 2 copies.

Continue with the following suggested shapes. Students identify the unit fraction and then make copies to build the new fraction.

Shape 2:

5 eighths $\frac{5}{8}$

Shape 3:

3 quarters or 3 fourths $\frac{3}{4}$
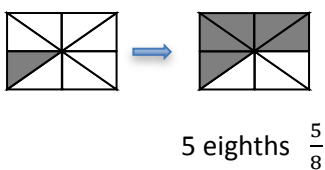
Students transition into guided practice using personal boards.

Directions:

1. Draw a unit fraction (select examples).
2. Make copies of the unit fraction to build a new fraction.
3. Count the unit fractions.
4. Identify the new fraction both in unit form and numerical form.

COMMON CORE

Lesson 6:   Build non-unit fractions less than one whole from unit fractions.
Date: 3/28/14

engage^ny

5.B.15

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: Build non-unit fractions less than one whole from unit 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.

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

- ▪ Through discussion, guide students to articulate the idea that in order to show non unit fractions they are creating copies of the unit fractions. This is just as when counting to 3 we are making copies of 1 or when counting by 8 we are making copies of 8.

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.

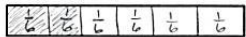Lesson 6:   Build non-unit fractions less than one whole from unit fractions.
Date: 3/28/14

engage^ny   5.B.16

A   # Correct _____

Multiply.

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

COMMON CORE | Lesson 6: | Build non-unit fractions less than one whole from unit fractions. | engage^ny | 5.B.17
| | Date: | 3/28/14 | | |

B

Improvement _____   # Correct _____

Multiply.

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

COMMON CORE | **Lesson 6:** Build non-unit fractions less than one whole from unit fractions.
Date: 3/28/14

engage^{ny}

5.B.18
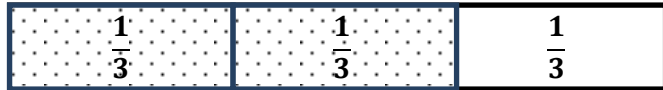
Name _____   Date _____

1. Complete the number sentence. Estimate to equally partition each strip and shade the answer.

   Sample:

   2 thirds = $\dfrac{2}{3}$

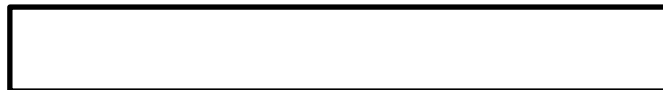 | $\dfrac{1}{3}$ | $\dfrac{1}{3}$ | $\dfrac{1}{3}$ |

   a. 3 fourths =

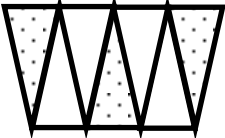   b. 3 sevenths =

   c. 4 fifths =
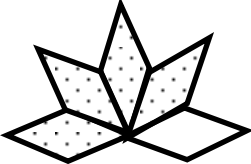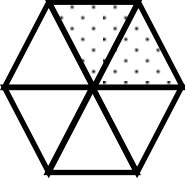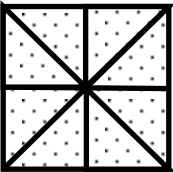
   d. 2 sixths =
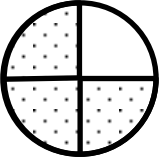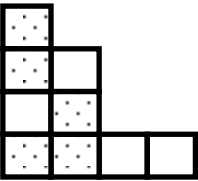
2. Mr. Stevens bought 8 liters of soda for a party. His friends drank 1 liter.

   a. What fraction of the soda did his guests drink?

   b. What fraction of the soda was left?

Lesson 6: Build non-unit fractions less than one whole from unit fractions.

Date: 3/28/14

engage^{ny}

5.B.19

3. Fill in the chart. Whisper the total number of fractional units.

	Total Number of Equal Parts	Total Number of Shaded Equal Parts	Unit Fraction	Fraction Shaded
Sample:	4	3	$\dfrac{1}{4}$	$\dfrac{3}{4}$
a.				
b.				
c.				
d.				
e.				

COMMON CORE

Lesson 6: Build non-unit fractions less than one whole from unit fractions.
Date: 3/28/14
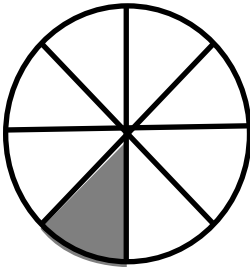
engage^{ny}

5.B.20

Name _____   Date _____

Estimate to equally partition the strip and shade the answer. Write the unit fraction inside each shaded unit.

2 fifths =
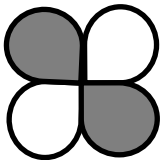
1.

a.   What fraction of the circle is shaded?

b.   What fraction of the circle is not shaded?

2.   Complete the chart.

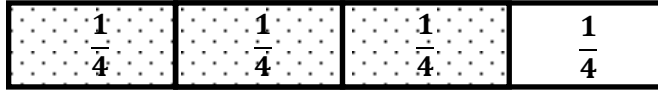|	Total Number of Equal Parts	Total Number of Shaded Equal Parts	Unit Fraction	Fraction Shaded

Name _____　　　Date _____

1.　Complete the number sentence.　Estimate to equally partition each strip and shade the answer.

Sample:

3 fourths = 　　$\dfrac{3}{4}$

$\dfrac{1}{4}$	$\dfrac{1}{4}$	$\dfrac{1}{4}$	$\dfrac{1}{4}$

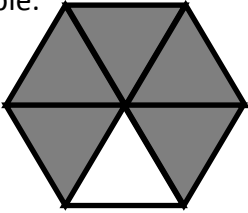a.　2 thirds =

b.　5 sevenths =

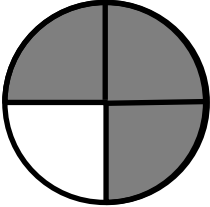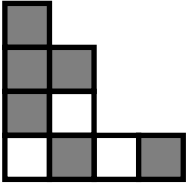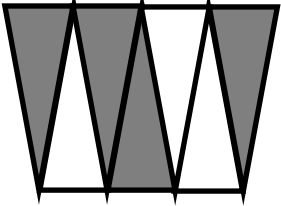c.　3 fifths =

d.　2 eighths =

2.　Mr. Abney bought 6 kg of rice.　He cooked 1 kg of it for dinner.

a.　What fraction of the rice did he cook for dinner?

b.　What fraction of the rice was left?

Lesson 6:　Build non-unit fractions less than one whole from unit fractions.
Date:　3/28/14

engage^{ny}　5.B.22

3. Fill in the chart.

	Total Number of Equal Parts	Total Number of Shaded Equal Parts	Unit Fraction	Fraction Shaded
Sample:	6	5	$\dfrac{1}{6}$	$\dfrac{5}{6}$
a.				
b.				
c.				
d.				

COMMON CORE

Lesson 6:   Build non-unit fractions less than one whole from unit fractions.
Date: 3/28/14

engage^ny   **5.B.23**