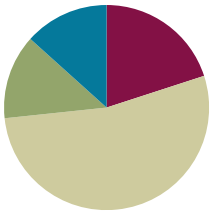
Lesson 12

Objective: Specify the corresponding whole when presented with one equal part.

Related Topics: More Lesson Plans for the Common Core Math

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(8 minutes)
Concept Development	(32 minutes)
Student Debrief	(8 minutes)
Total Time	**(60 minutes)**



Fluency Practice (12 minutes)

- Sprint: Multiply by 9 **3.OA.4** (6 minutes)
- Unit and Non-Unit Fractions of 1 Whole **3.G.2, 3.NF.2** (3 minutes)
- More Units Than 1 Whole **3.NF.2b** (3 minutes)

Sprint: Multiply by 9 (6 minutes)

Materials: (S) Sprint: Multiply by 9

Unit and Non-Unit Fractions of 1 Whole (3 minutes)

Materials: (S) Personal white boards

T: (Draw a shape partitioned in halves with 1 half shaded.) Write the fraction that is shaded.
S: (Write $\frac{1}{2}$.)
T: Write the fraction that is not shaded.
S: (Write $\frac{1}{2}$.)
T: Write the number bond.
S: (Draw number bond showing that 1 half and 1 half equals 2 halves.)

Continue with a possible sequence that includes the following shaded or non-shaded parts:

$\frac{2}{3}$ and $\frac{1}{3}$, $\frac{4}{5}$ and $\frac{1}{5}$, $\frac{9}{10}$ and $\frac{1}{10}$, $\frac{7}{8}$ and $\frac{1}{8}$.

More Units Than 1 Whole (3 minutes)

Materials: (S) Personal white boards (optional)

T: What's 1 more fifth than 1 whole?
S: 6 fifths.
T: 2 fifths more than 1 whole?
S: 7 fifths.

Continue for possible sequence: 4 fifths, 3 fifths, one tenth, 7 tenths, 1 third, 2 thirds, 1 eighth, 5 eighths, 1 sixth, 5 sixths.

It may be appropriate for some classes to draw responses on personal boards for extra support.

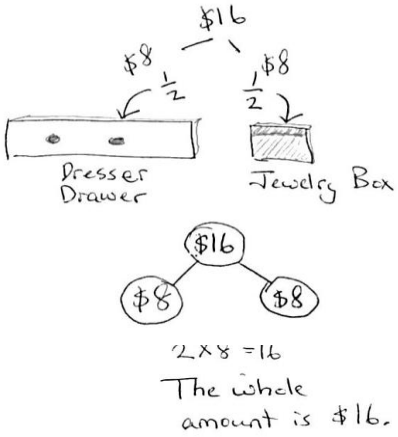
NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Support students below grade level as they participate in "More Units Than 1 Whole" with pictorial models—teacher drawn or student drawn (on personal white boards).

Or you may begin with halves, thirds, and fourths, gradually progressing to tenths.

Application Problem (8 minutes)

Jennifer hid half her birthday money in the top drawer of her dresser. The other half she put in her jewelry box. If she hid $8 in her top drawer, how much money did she get for her birthday?



Concept Development (32 minutes)

Materials: (S) Use similar materials to those used in Lesson 4 (at least 75 copies of each), 10 centimeter length of yarn, 4 inch x 1 inch rectangular piece of yellow construction paper, 3 inch x 1 inch brown paper, 1 inch x 1 inch orange square

Exploration: Designate the following stations for three students per station (more than three not suggested).

Station A: 1 half and 1 fourth
Station B: 1 half and 1 third
Station C: 1 third and 1 fourth
Station D: 1 third and 1 sixth
Station E: 1 fourth and 1 sixth
Station F: 1 fourth and 1 eighth
Station G: 1 fifth and 1 tenth
Station H: 1 fifth and 1 sixth

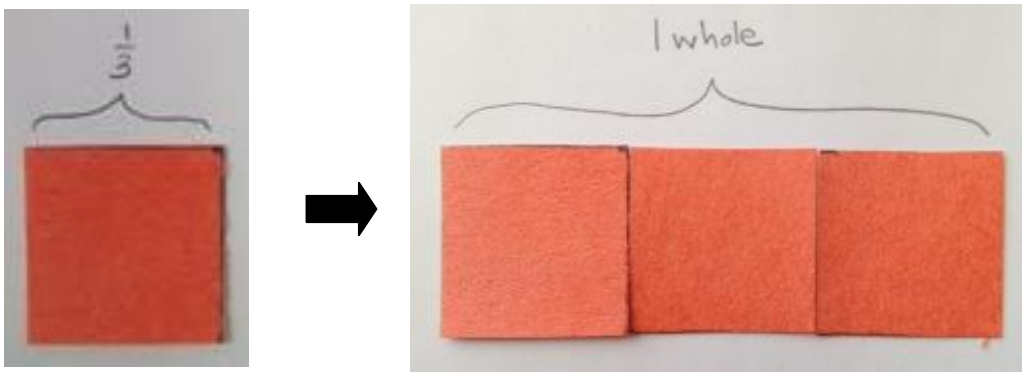
The students are to represent 1 whole using the materials at their station.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Organize students below grade level at the stations with the easier fractional units and students above grade level stations with the most challenging fractional units.

Note:

- Each item at the station represents the indicated unit fractions.
- Students are to show 1 whole corresponding to the given unit fraction. Each station includes 2 objects representing unit fractions, and therefore 2 different whole amounts.
- The entire quantity of each item must be used as the fraction indicated. For example, if showing 1 third with the orange square, the whole must use 3 thirds or 3 of the orange squares.



T: (Hold up the same size ball of clay, 200 g, from Lesson 4.) This piece of clay represents 1 third. What does 1 whole look like? Discuss with your partner.

S: (Discuss.)

T: (After discussion, model the whole as 3 equal lumps of clay (600 g).)

T: (Hold up a 12 inch by 1 inch yellow strip.) This strip represents 1 fourth. What does 1 whole look like?

S: (Discuss.)

T: (After discussion, model the whole using 4 equal strips laid end to end: 48 inches.)

T: (Show a 12oz cup of water.) This cup represents 1 fifth. What does the whole look like? What if it represents 1 fourth? (Measure the 2 quantities into 2 separate containers.)

Give the students five minutes to create their display. Next, conduct a "museum walk" where they tour the work of the other stations. As they tour, students should identify the fractions and think about the relationships they are seeing. Use the following points to guide student thinking.

- Identify the unit fraction.
- Think about how the whole amount relates to your own and to other whole amounts.
- At 1 station, think about how the 2 whole amounts relate to each other.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

The museum walk is a rich opportunity for students to practice language. Pair students and give them sentence frames or prompts to use at each station to help them discuss what they see with their partner.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Give ELLs a little more time to respond as they formulate their math thinking into English language. Offer a choice of responding in writing or in their first language.

- Compare the yarn to the yellow strip.
- Compare the yellow strip to the brown paper.

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 (8 minutes)

Lesson Objective: Specify the corresponding whole when presenting with one equal part**.**

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

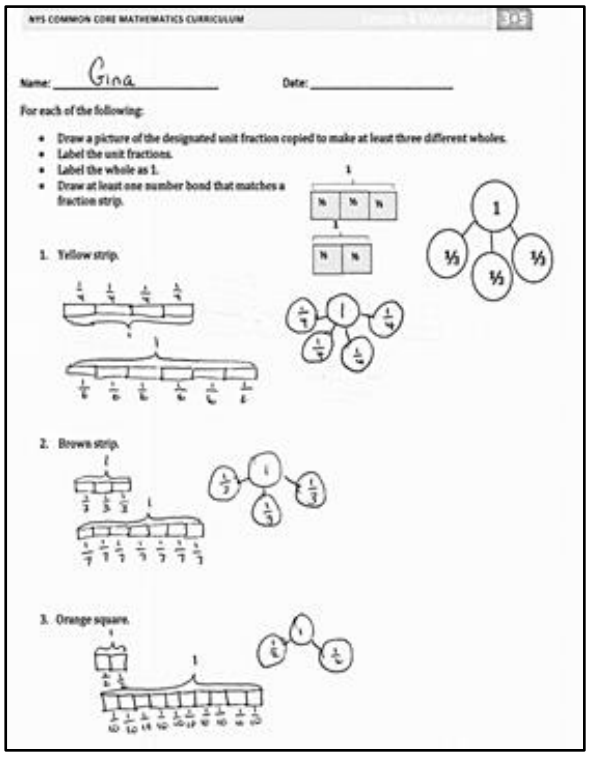
Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set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

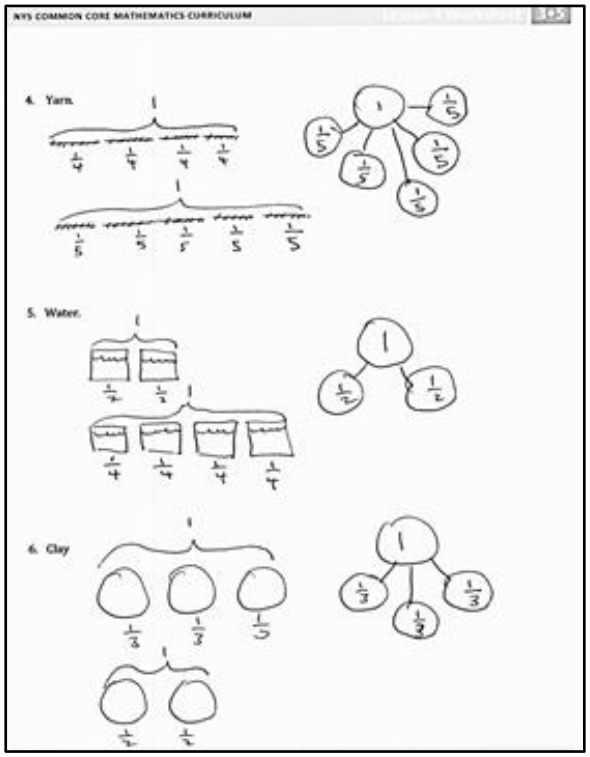
You may choose to use any combination of the questions below to lead the discussion.

- What were the different wholes we saw at each station that were the same?
- What different unit fractions did you see as you went from station to station?
- What did you notice about different unit fractions at the stations?

MP.2

- Which unit fractions had the most equal parts?
- Which unit fractions had the least equal parts?
- What surprised you about the different representations of thirds, or any other fraction?
- How does the water compare to the clay? The clay to the yarn?





MP.2
- What if all the wholes were the same size? What would happen to the equal parts?\
- Does it make sense to use Problem 2 picture (the brown strip) to compare $\frac{1}{3}$ and $\frac{1}{7}$? Why not?

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.

A # Correct _____

Multiply.

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

B Improvement _____ # Correct _____

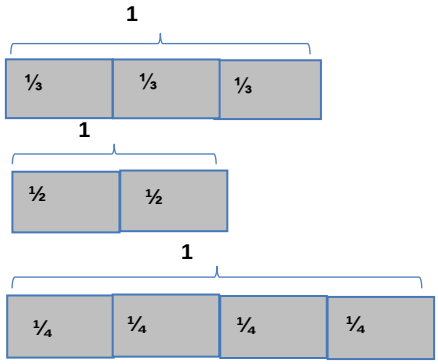
Multiply.

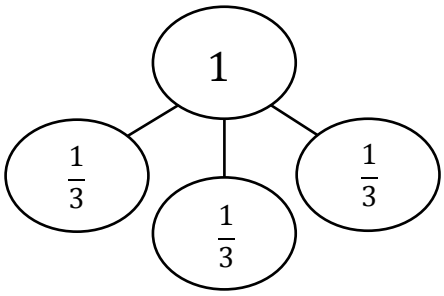
1	1 x 9 =		23	10 x 9 =	
2	9 x 1 =		24	9 x 9 =	
3	2 x 9 =		25	4 x 9 =	
4	9 x 2 =		26	8 x 9 =	
5	3 x 9 =		27	3 x 9 =	
6	9 x 3 =		28	7 x 9 =	
7	4 x 9 =		29	6 x 9 =	
8	9 x 4 =		30	9 x 10 =	
9	5 x 9 =		31	9 x 5 =	
10	9 x 5 =		32	9 x 6 =	
11	6 x 9 =		33	9 x 1 =	
12	9 x 6 =		34	9 x 9 =	
13	7 x 9 =		35	9 x 4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

Name _____ Date _____

For each of the following:

- Draw a picture of the designated unit fraction copied to make at least two different wholes.
- Label the unit fractions.
- Label the whole as 1.
- Draw at least one number bond that matches a drawing.





1. Yellow strip

2. Brown strip

3. Orange square

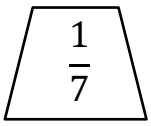
4. Yarn

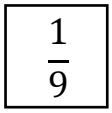
5. Water

6. Clay

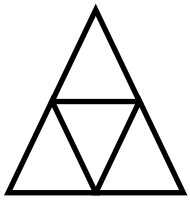
Name _____ Date _____

Each shape represents the unit fraction. Draw a possible picture representing 1 whole.

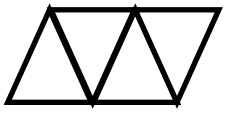
1. 

2. 

3. Aileen and Jack used the same triangle representing the unit fraction $\frac{1}{4}$ to create 1 whole. Who did it correctly? Explain.



Aileen's drawing

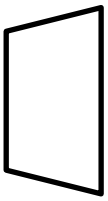


Jack's drawing

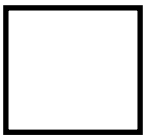
Name _____ Date _____

Each shape represents the given unit fraction. Estimate to draw the whole.

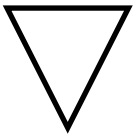
1. $\frac{1}{2}$



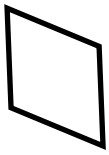
2. $\frac{1}{6}$



3. 1 third

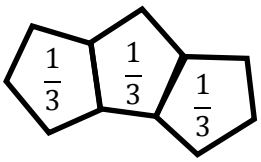


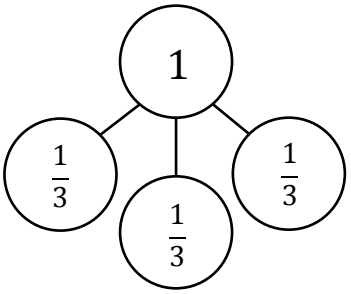
4. 1 fourth



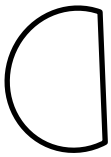
Each shape represents the given unit fraction. Estimate to draw the corresponding whole, label the unit fractions, then write a number bond that matches the drawing. The first one is done for you.

5. $\frac{1}{3}$





6. $\frac{1}{2}$



7. $\frac{1}{5}$

8. $\frac{1}{7}$

9. Evan and Yong used this shape  , representing the unit fraction $\frac{1}{3}$, to draw 1 whole. Shania thinks both of them did it correctly. Do you agree with her? Explain.