Topic A
Partition a Whole into Equal Parts

Focus Standard: 3.G.2
Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area and describe the area of each part as 1/4 of the area of the shape.

Instructional Days: 4
Coherence -Links from: G2–M7 Time, Shapes, and Fractions as Equal Parts of Shapes
-Links to: G4–M5 Fraction Equivalence, Ordering, and Operations

In Topic A, students partition a whole using a ruler to precisely measure equal parts. They then use a cup to measure equal parts of water. From there, students are invited to fold fraction strips, and estimate to draw pictorial models. The topic culminates in an exploration wherein they model a designated fraction with a meter string, 12 ounces of water, 200 grams of clay, a 4" × 4" square, a 12" × 1" strip, and a 6" × 2" strip. Students then tour the fraction displays created by their peers and analyze their observations. They specify that the whole has a certain number of equal parts.

A Teaching Sequence Towards Mastery of Partitioning a Whole into Equal Parts

Objective 1: Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete models.
   (Lesson 1)

Objective 2: Specify and partition a whole into equal parts, identifying and counting unit fractions by folding fraction strips.
   (Lesson 2)

Objective 3: Specify and partition a whole into equal parts, identifying and counting unit fraction by drawing pictorial area models.
   (Lesson 3)

Objective 4: Represent and identify fractional parts of different wholes.
   (Lesson 4)
Lesson 1

Objective: Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete models.

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)

- Skip Counting by Four and Eight 3.OA.4 (6 minutes)
- Multiplication by Four and Eight 3.OA.4 (6 minutes)

Skip Counting by Four and Eight (6 minutes)

Materials: (S) Personal white boards (use if students struggle to answer verbally)

By Fours:

Skip count forward and backward by fours two times with a pause between each effort so students see themselves improve on the second try. After doing the fours twice, have students underline the multiples of 8. (e.g., 0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 36, 32, 28, 24, 20, 16, 12, 8, 4, 0)

By Eights:

Skip count forward and backward by eights two times with a pause between each effort to analyze weak points.

Multiplication by Four and Eight (6 minutes)

Choose your mode of delivery (e.g., oral work, personal white board, etc.). Have students pair facts of 4 and 8 and uncover the doubling.

2 x 4 = 8 2 x 8 = 16
3 x 4 = 12 3 x 8 = 24
4 x 4 = 16 4 x 8 = 32
Lesson 1

Application Problem (8 minutes)

Measure the length of your paper or math textbook using a ruler. Your teacher will tell you whether to measure in inches or centimeters. (Assign partners different units.) After students complete the measurement on their own and compare their answer to their partner’s, have them consider the following questions.

- Which is a larger unit, an inch or a centimeter?
- Therefore, which would yield a greater number when measuring the book, inches or centimeters?
- Measure at least 2 different items with your partner, again using different units. What do you notice?
- Change units with your partner. Measure different items again.

Concept Development (32 minutes)

Materials: (T) 1 clear plastic cup full of colored water, 2 other empty identical clear plastic cups, two 12” by 1” strips of yellow construction paper (S) Two 12” by 1” strips of yellow construction paper for each student, 12 inch rulers for each student

T: Measure your yellow strip of paper using inches. How long is it?
S: 12 inches.
T: Make a small mark at 6 inches at both the top and bottom of the strip. Connect the two points with a straight line.
T: (After students do so.) How many equal parts or units have I split the paper into now?
S: Two.
T: What fraction of the whole strip is one of the parts?
S: 1 half.
T: Point and count the halves with me.
S: 1 half, 2 halves. (Point to each half of the strip as students count “one half, two halves.”)
T: Discuss with your partner how we know these parts are equal.
S: When I fold the strip along the line, the two sides match perfectly. → Because I measured and saw that each part was 6 inches long. → The whole strip is 12 inches long. 12 divided by 2 is six. → 6 times 2 or 6 plus 6 is 12, so they are equal in length.
Lesson 1: Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete models.

Date: 11/19/13

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Some students may benefit from a review of how to use a ruler to measure. You might suggest the following:
1. Identify the zero mark on the ruler.
2. Line up the zero mark with the left end of the yellow paper strip.
3. Push down on the ruler as you make your mark.

Additionally, students who would like more of a challenge can think about how to find eighths.

Continue with fourths on the same strip followed by thirds and sixths on the second strip.

**Fourths:**

Repeat the same line of questioning as with measuring halves.

- T: Make a small mark at 3 inches and 9 inches at the top and bottom of your strip. Connect the two points with a straight line. How many equal parts do you have now?
- S: Four.
- T: Count the fourths.
- S: 1 fourth, 2 fourths, 3 fourths, 4 fourths.
- T: Discuss with your partner how you know that these parts are equal.

**Thirds:**

Again repeat the same line of questioning. Have the students mark off 4 inches and 8 inches at the top and bottom of their strips. Ask them to identify the fraction. Ask them how they know the parts are equal and then have them count the equal parts, “1 third, 2 thirds, 3 thirds”.

**Sixths:**

Have the students mark off points at 2 inches, 6 inches and 10 inches. Repeat the same process as with halves, fourths, and thirds. Ask students to think about the relationship of the halves to the fourths and the thirds to the sixths.

- T: Just as we measured a whole strip of paper with a ruler to make halves, let’s now measure precisely to make 2 equal parts of a whole amount of liquid.
- Present two identical glasses as below.
- The glass to the right has a mark about 1 fourth the way up the cup.
- Fill the cup to that mark as in the second image.
- Pour that amount of liquid into the cup on the left and mark off the top of that amount of liquid.
Repeat the process. Fill the right hand cup again to the mark and pour it into the left hand cup.

Mark off the top of that amount of liquid. The cup now shows precisely the markings for half the amount of water and the whole amount of water. Have the students share to discuss how they can be sure the middle mark shows half the liquid. Compare the yellow strip showing a whole partitioned into 2 equal parts and the blue liquid partitioned into 2 equal parts. Have the students discuss how they are the same and different.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. Some problems do not specify a method for solving. This is an intentional reduction of scaffolding that invokes MP.5, Use Appropriate Tools Strategically. Students should solve these problems using the RDW approach used for Application Problems.

For some classes, it may be appropriate to modify the assignment by specifying which problems students should work on first. With this option, let the careful sequencing of the Problem Set guide your selections so that problems continue to be scaffolded. Balance word problems with other problem types to ensure a range of practice. Assign incomplete problems for homework or at another time during the day.

**Student Debrief (8 minutes)**

**Lesson Objective:** Specify and partition a whole into equal parts, identifying and counting unit fractions using concrete methods.

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.

- Encourage students to use the words, “equal parts, fraction, the whole, half, fourths, thirds, sixths.”
- The whole, the yellow strip never changes. What happened to the size of the equal parts when it was divided into more parts?
- In Problem 1, which was the harder fraction for you to draw well?
- Using our method with the cups, how could we make a cup that showed thirds?
- In Problem 2, what do you notice about the thirds and the sixths? When we made our measurements on the yellow strips, what did you remember about the measurement of 1 third of the strip and 1 sixth of the strip?
- In Problem 3, did you start drawing fourths by making a half? Can you do the same to draw eighths?
- Walk through the process explicitly of estimating to draw a half, then a half of a half to make fourths, etc.
- In Problem 4, describe to your partner how you can use an estimate of thirds to draw sixths.
- In Problems 5 and 6, let’s look at two different solution strategies and compare them.

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. A beaker is considered full when the liquid reaches the fill line shown near the top. Estimate the amount of water in the beaker by shading the drawing as indicated. The first one is done for you.

1 half
1 fourth
1 third

2. Juanita cut her string cheese into equal pieces as shown in the rectangles below. In the blanks below, name the fraction of the string cheese represented by the shaded part.

[Rectangle 1: One shaded, two unshaded]

[Rectangle 2: Two shaded, four unshaded]

[Rectangle 3: Two shaded, three unshaded]
3. In the space below, draw a small rectangle. Estimate to split it into 2 equal parts. How many lines did you draw to make 2 equal parts? What is the name of each fractional unit?

- Draw another small rectangle. Estimate to split it into 3 equal parts. How many lines did you draw to make 3 equal parts? What is the name of each fractional unit?

- Draw another small rectangle. Estimate to split it into 4 equal parts. How many lines did you draw to make 4 equal parts? What is the name of each fractional unit?

4. Each rectangle represents 1 sheet of paper. Estimate to show how you would cut the paper into fractional units as indicated below.

- What do you notice? How many lines do you think you would draw to make a rectangle with 20 equal parts?

5. Rochelle has a strip of wood 12 inches long. She cuts it into pieces that are each 6 inches in length. What fraction of the wood is one piece? Use your yellow strip from the lesson to help you. Draw a picture to show the piece of wood and how Rochelle cut it.
Name _____________________________________________ Date __________________________

1. Name the fraction that is shaded

2. Estimate to partition the rectangle into thirds

3. A plumber has 12 feet of pipe. He cuts it into pieces that are each 3 feet in length. What fraction of the pipe would one piece represent? (Use your yellow strip from the lesson to help you.)
1. A beaker is considered full, when the liquid reaches the fill line shown near the top. Estimate the amount of water in the beaker by shading the drawing as indicated. The first one is done for you.

![1 half](image)

1 fifth

1 sixth

2. Danielle cut her candy bar into equal pieces as shown in the rectangles below. In the blanks below, name the fraction of candy bar represented by the shaded part.

3. Each circle represents 1 whole pie. Estimate to show how you would cut the pie into fractional units as indicated below.

halves

thirds

sixths
Lesson 1 Homework

4. Each rectangle represents 1 sheet of paper. Estimate to draw lines to show how you would cut the paper into fractional units as indicated below.

- halves
- fourths
- eighths

5. Each rectangle represents 1 sheet of paper. Estimate to draw lines to show how you would cut the paper into fractional units as indicated below.

- sixths
- thirds

6. Yuri has a rope 12m long. He cuts it into pieces that are each 2m long. What fraction of the rope is one piece? (Use your yellow strip from the lesson to help you.) Draw a picture.

7. Dawn bought 12 grams of chocolate. She ate half of the chocolate. How many grams of chocolate did she eat?
Lesson 2

Objective: Specify and partition a whole into equal parts, identifying and counting unit fractions by folding fraction strips.

Suggested Lesson Structure

- Fluency Practice (12 minutes)
- Application Problem (5 minutes)
- Concept Development (35 minutes)
- Student Debrief (8 minutes)

Total Time (60 minutes)

Fluency Practice (12 minutes)

- Skip Counting by Three and Six 3.OA.4 (6 minutes)
- Multiplication by Three and Six 3.OA.4 (6 minutes)

Skip Counting by Three and Six (6 minutes)

Materials: (S) Use personal white boards (if students struggle to answer verbally)

By Threes:
Skip count forward and backward by threes two times with a pause between each effort so that students see themselves improve on the second try. After doing the threes twice, have students underline the multiples of 6. (e.g., 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 27, 24, 21, 18, 15, 12, 9, 6, 3, 0)

By Sixes:
Skip count forward and backward by sixes two times with a pause between each effort to analyze weak points.

Multiplication by Three and Six (6 minutes)

Materials: (T) Choose your mode of delivery (e.g., oral work, personal white boards)

Students pair facts of 3 and 6 and uncover the doubling.

| 2 x 3 = 6 | 2 x 6 = 12 |
| 3 x 3 = 9 | 3 x 6 = 18 |
| 4 x 3 = 12 | 4 x 6 = 24 |
Application Problem (5 minutes)

Anu needs to cut a piece of paper into 6 equal parts. Draw at least three pictures to show how Anu can cut her paper so that all the parts are equal. (Early finishers can do the same thing with halves, fourths or eighths.)

Concept Development (35 minutes)

Materials: (S) About 8 paper strips sized 4¼” x 1” per student (vertically cut an 8½” x 11” paper down the middle), pencil, and crayon

Have students take one strip and fold it to make halves. (They might fold it one of two ways. This is correct but for the purpose of this lesson it is best to fold as pictured below.)

T: How many equal parts do you have in the whole?
S: Two.
T: What fraction of the whole is 1 part?
S: 1 half.
T: Draw a line to show where you folded your paper. Write the name of the unit onto each equal part.

Use the following sentence frames with the students chorally.

1. There are ____________ equal parts in all.
2. One equal part is called ____________________.

Students should fold and label strips showing fourths and eighths to start, followed by thirds and sixths, and fifths and tenths. Some students may create more strips than others.

Circulate as you watch for students who are not folding in equal parts. Encourage students to try specific strategies for folding equal parts. A word wall would be helpful to support correct spelling of the units, especially eighths.
Before beginning the activity sheet when the students have all created their fraction strips, ask a series of questions such as the following:

- Look at your set of fraction strips. Suppose they are pieces of delicious pasta. Raise the strip in the air that best shows how to cut one piece of pasta in two equal parts with your fork.
- Look at your fraction strips. Suppose they are lengths of ribbon. Raise the strip in the air that best shows how to divide the ribbon into 3 equal parts.
- Look at your fraction strips. Suppose they are candy bars. Which best shows how to share your candy bar fairly with one person? Which shows how to share your half fairly with three people?

**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 and partition a whole into equal parts, identifying and counting unit fractions by folding fraction strips.

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.
NOTES ON MULTIPLE MEANS OF REPRESENTATION:
Act out both word problems on the Problem Set using concrete materials which will aid students in better understanding.

- The size of the whole never varies. What happens to the size of the parts?
- The relationship of the number of equal parts to the name of the fraction.
- Methods for folding different fractional parts.
- The relationship of the halves to the fourths then to the eighths.
- The relationship of the thirds to the sixths.
- The relationship of the halves, fourths, and eighths to the thirds and sixths.
- The relationship of the multiplication and “count by” activity beginning the lesson in fluency to the relationship of the thirds and sixths.

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. Circle the strips that are folded to make equal parts.

2.

   a. There are ______ equal parts in all. ______ are shaded.

   b. There are ______ equal parts in all. ______ are shaded.

   c. There are ______ equal parts in all. ______ are shaded.

   d. There are ______ equal parts in all. ______ are shaded.
For the following problems, use your fraction strips as tools to help you.

3. Noah, Pedro, and Sharon want to share a whole candy bar fairly. Which of your fraction strips shows how they can each get an equal part? Draw the candy bar below. Label to show who gets which part. Label the fraction of the candy bar Sharon gets.

4. To make a small playhouse for his toy truck, Zeno took a rectangular piece of thin cardboard and bent it in half. He then bent each half in half again. Which of your fraction strips matches this story well?
   a. What fraction of the original cardboard is each part? Draw and label the matching fraction strip below.
   b. Zeno took a different piece of cardboard and bent it in thirds. He then bent each third in half again. Which of your fraction strips matches this story well? Draw and label the matching fraction strip in the space below.
1. Circle the model that shows one third.

![Model Options]

2. Michael bakes a piece of garlic bread for dinner. He shares it equally with his three sisters. Show how Michael and his three sisters can each get an equal share of the garlic bread.

3. There are _______ equal parts in all. _______ are shaded.
1. Circle the strips that are cut into equal parts.

![Strip Images]

2. a. There are _____ equal parts in all. _____ are shaded.

![Strip Images]

b. There are _____ equal parts in all. _____ are shaded.

![Strip Images]

c. There are _____ equal parts in all. _____ are shaded.

![Strip Images]

d. There are _____ equal parts in all. _____ are shaded.
3. Dylan plans to eat $\frac{1}{5}$ of his candy bar. His 4 friends want him to share the rest equally. Show how Dylan and his friends can each get an equal share of the candy bar.

4. Nasir baked a pie and cut it in fourths. He then took each of the pieces and cut them in half.
   a. What fraction of the original pie does each piece represent?
   b. Nasir ate one piece of pie on Wednesday and two pieces on Tuesday. What fraction of the original pie was not eaten?
Lesson 3

Objective: Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

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)

- Multiply by Six 3.OA.4 (10 minutes)
- Skip Counting 3.OA.4 (2 minutes)

Multiply by Six (10 minutes)

Materials: (S) Multiply by Six Sprint

 Skip Counting (2 minutes)

Skip count forward and backward by sevens, eights, and nines without exceeding ten multiples of each number.

Application Problem (10 minutes)

Marcos has a 1-liter container of milk he is going to share with his mother, father, and sister at dinner. Draw a picture to show how Marcos must share the container of milk so that all 4 of them get the same amount of milk. What fraction of the milk does each person get?

Each person gets 1 fourth of the milk.
Lesson 3

Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

Date: 11/19/13

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Lesson 3

Concept Development (28 minutes)

Materials: (T) Rectangular and circle-shaped papers (S)

Personal white boards, marker for each student

T: I have a rectangle. I want to split it into 4 equal units. Fold the paper so that the parts are not the same size. Then open it up to draw the lines where it was folded, and show the class. Invite the students to notice the inequality of the parts.

T: Let me try again. (Fold it equally into 4 equal parts.)
T: How many total units did I split the whole into?
S: 4.
T: What is each fractional unit called?
S: 1 fourth or 1 quarter.
T: I’m going to shade in 3 copies of 1 fourth. (Shade in 3 units.) What fraction is shaded?
S: 3 fourths are shaded.
T: Let’s count them.
S: 1 fourth, 2 fourths, 3 fourths.
T: I have a circle. I want to split it into 2 equal parts.

Fold the paper so that the parts are not the same size. Then open it up to draw the lines where it was folded, and show the class. Again, invite the students to notice and analyze the inequality of the parts.

T: Let me try again. (Fold it into 2 equal parts.)
T: How many total units did I split the whole into?
S: 2.
T: Good. What’s the fractional unit called?
S: 1 half.
T: I’m going to shade in 1 unit. (Shade in 1 unit.) What fraction is shaded?
S: 1 half is shaded.

Having established the meaning of equal parts, proceed to briskly analyze the following shapes possibly using the brief sequence of questions mapped out with Shape 1:

Shape 1:
Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

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T: How many fractional units are there in all?
S: 3.
T: What’s each unit called?
S: 1 third.
T: How many units are shaded?
S: 2 thirds.
T: Count them.
S: 1 third, 2 thirds.

Shape 2:

Shape 3:

Shape 4:

Repeat the steps and procedures with other shapes. Use more or fewer examples as needed.

T: Now take out your white board, and we’ll try to draw a few shapes and split them equally into smaller units.
T: Draw a rectangle and show a third. (Circulate while students draw.)
T: How many units do we have altogether?
S: 3.
T: Shade in 1 unit. (Circulate while students draw.) What fraction is shaded?

Notes on Multiple Means of Engagement:
- Open-ended activities, such as partitioning a whole into student-chosen fractional units, challenge above grade level students.
S: 1 third.

Select a couple student drawings to show the class.

Repeat sequence to have students show 2 sixths of a square, 3 fourths of a line segment, and other examples as needed.

**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:** Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

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 is the same and different about these two problems?
- What is the same and different about fair shares of a jug of milk and fair shares of a candy bar? (Though a fraction of a jug of milk and a fraction of a candy bar is clearly different, we might draw each of them by drawing a rectangle.)
- How can drawing fourths help you to draw fifths well?
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 3 Sprint

Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

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### A

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### Lesson 3 Sprint

#### Lesson 3:
Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

**Date:** 11/19/13

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Lesson 3: Specify and partition a whole into equal parts, identifying and counting unit fractions by drawing pictorial area models.

Name ________________________________ Date ________________

1. Each shape is a whole divided into equal parts. Name the fractional unit and then count and tell how many of those units are shaded. The first one is done for you.

   ![Shapes](image)

   - The unit is 1 fourth.
   - 2 fourths are shaded.

2. Circle the shapes that are divided into equal parts. Write a sentence telling what “equal parts” means.

   ![Shapes](image)

   ____________________________________________

   ____________________________________________

3. Each shape is 1 whole. Estimate to divide each into 4 equal parts. Name the fractional unit below.

   ![Shapes](image)

   ____________________________________________

   ____________________________________________

   ____________________________________________
4. Each shape is 1 whole. Divide and shade to show a fractional unit of:

- A half
- A sixth
- A third

5. Each shape is 1 whole. Estimate to divide each into equal parts (Do not draw fourths). Divide each whole using a different fractional unit. Write the name of the fractional unit on the line below the shape.

6. Charlotte wanted to equally share a candy bar with her 4 other friends. Draw Charlotte’s candy bar. Show how she can divide her candy bar so that Charlotte and her 4 friends each get an equal share. What fraction of the candy bar does each girl receive?

Each girl receives ____________________.
Lesson 3 Exit Ticket

Name ____________________________  Date __________________

1. 

2. Circle the shapes that are divided into equal parts.

3. Steven wants to equally share his pizza with his 3 sisters. What fraction of the pizza do he and each sister receive?

He and each sister receive ________________________.
1. Each shape is a whole divided into equal parts. Name the fractional unit and then count and tell how many of those units are shaded. The first one is done for you.

   The unit is 1 fourth.  
   2 fourths are shaded.  

2. Each shape is 1 whole. Estimate to divide each into equal parts. Divide each whole using a different fractional unit. Write the name of the fractional unit on the line below the shape.

3. An artist wants to draw a calendar on one sheet of paper to show each month of the year. Draw the artist’s calendar. Show how he can divide his calendar so that each month is given the same space. What fraction of the calendar bar does each month receive?

   Each month receives _________________________.
Lesson 4

Objective: Represent and identify fractional parts of different wholes.

Suggested Lesson Structure

- Fluency Practice (11 minutes)
- Application Problem (4 minutes)
- Concept Development (35 minutes)
- Student Debrief (10 minutes)
- Total Time (60 minutes)

Fluency Practice (11 minutes)

- Dividing by Six Sprint 3.OA.4 (9 minutes)
- Skip Counting 3.OA.4 (2 minutes)

Dividing by Six Sprint (9 minutes)

Materials: (S) Dividing by Six Sprint

Skip Counting (2 minutes)

Skip count forward and backward by sixes, eights, and/or nines without exceeding ten multiples of each number.

Application Problems (4 minutes)

Mr. Ramos sliced an orange into 8 equal pieces. He ate 1 slice. Draw a picture to represent the 8 slices of an orange. Shade in the slice Mr. Ramos ate. What fraction of the orange did Mr. Ramos eat? What fraction did he not eat?

Remember that students should always answer a problem with a complete statement.

Concept Development (35 minutes)

Exploration: Designate the following stations for 3 students per station (More than 3 not suggested.).
Station A: Halves
Station B: Fourths
Station C: Eighths
Station D: Thirds
Station E: Sixths
Station F: Ninths
Station G: Fifths
Station H: Tenths

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.

Equip each station with the following suggested materials:
- 1 meter length of yarn
- 1 rectangular piece of yellow construction paper (1” by 12”)
- 1 piece of brown construction paper (candy bar) (2” by 6”)
- 1 square piece of orange construction paper (4” by 4”)
- A number of 12 ounce cups corresponding to the denominator of the station’s fractional unit and 12 ounces of water in a separate larger cup.
- A 200 gram ball of clay or play dough (The key is to have precisely the same amount at each station.)

(Optional stations for sevenths and/or twelfths.)

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

Note:
- Each item at their station represents one whole.
- They are to show the whole partitioned into equal parts as designated by their station.
- The entire quantity of each item must be used. So, for example, if showing thirds, all the clay must be used to do so, all the water must be used.
- The clay is to be partitioned by subdividing it into smaller equal pieces formed into equal sized balls. Demonstrate for the students.

To get them going, give as little direction as possible but enough for your particular class. Ask for clarification of the task by the students.

Note: It is suggested to work without scissors or cutting. Paper and yarn are folded. Clay is formed into smaller balls. Pencil can be used on the paper to designate equal parts rather than folding.

Give the students 15 minutes to create their display. Next, conduct a "museum walk" where they tour the work of the other stations.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:
As the students move around the room during the "museum walk", have students gently and respectfully pick up the materials to encourage better analysis. This will encourage more talk, too.
Before the “museum walk” review the following charted analysis points. If analysis dwindles during the tour, circulate and refer them back to the chart.

- Identify the fractional unit.
- Think about how that unit relates to your own and to other units.
- Think about how the units relate to each other at that station.
- Compare the yarn to the yellow strip.
- Compare the yellow strip to the brown paper or candy bar.
- Compare the water to the clay.

**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:** Represent and identify fractional parts of different wholes.

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 fractional units did you see as you went from station to station?
- What did you notice about different fractional units at the stations?
- Which fractional units had the most and the smallest equal parts?
- Which fractional units had the least and the largest equal parts?
- What surprised you when you were looking at the different fractional units?

**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 4 Sprint

A

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Date: 11/19/13

Lesson 4: Represent and identify fractional parts of different wholes.

5.A.36

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Lesson 4 Problem Set

Name _______________________________ Date _________________

A. Draw a picture of the yellow strip at 3 (or 4) different stations. Shade and label one fractional unit of each.

B. Draw a picture of the brown bar at 3 (or 4) different stations. Shade and label one fractional unit of each.

C. Draw a picture of the square at 3 (or 4) different stations. Shade and label one fractional unit of each.
D. Draw a picture of the clay at 3 (or 4) different stations. Shade and label one fractional unit of each.

E. Draw a picture of the water at 3 (or 4) different stations. Shade and label one fractional unit of each.

F. Challenge: Draw a picture of the yarn at 3 (or 4) different stations.
Lesson 4 Exit Ticket

Each shape is 1 whole. Estimate to equally partition the image to show the fractional unit of:

1. \( \frac{1}{4} \)

2. \( \frac{1}{5} \)

3. The shape represents 1 whole. Write the fractional unit of the shaded part.

The shaded part is ______
Each shape is 1 whole. Estimate to equally partition the following images to show the fractional unit of:

1. $\frac{1}{2}$
   - A
   - B
   - C
   - D

2. $\frac{1}{4}$
   - A
   - B
   - C
   - D

3. $\frac{1}{3}$
   - A
   - B
   - C
   - D
4. Each of the shapes represent 1 whole. Match each shape to its unit fraction.

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