CHAPTER RESOURCES • Chapter 8
Understand Fractions

INCLUDES
• School-Home Letter
• Vocabulary Game Directions
• Daily Enrichment Activities
• Reteach Intervention for every lesson
• Chapter 8 Test
• Chapter 8 Performance Task
• Answer Keys and Individual Record Forms
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Dear Family,

During the next few weeks, our math class will be learning about fractions. We will learn to identify, read, and write fractions as part of a whole and as part of a group.

You can expect to see homework that provides practice with fractions.

Here is a sample of how your child will be taught to use unit fractions to find a fractional part of a group.

**MODEL** Find How Many in a Fractional Part of a Group

This is how we will be finding how many are in a fractional part of a group.

**STEP 1**
Find $\frac{1}{3}$ of 9.
Put 9 counters on your MathBoard.

**STEP 2**
Since you want to find $\frac{1}{3}$ of the group, there should be 3 equal groups.

**STEP 3**
Circle one of the groups to show $\frac{1}{3}$. Then count the number of counters in that group.

There are 3 counters in 1 group.
So, $\frac{1}{3}$ of 9 = 3.

### Activity
Display a group of 12 objects, such as crayons. Have your child find fractional parts of the group by counting objects in equal groups. Ask your child to find these fractional groups of 12: $\frac{1}{2}$ (6), $\frac{1}{3}$ (4), $\frac{1}{4}$ (3), $\frac{1}{6}$ (2).

#### Vocabulary
- **denominator** The part of a fraction below the line that tells how many equal parts are in the whole or in the group
- **equal parts** Parts that are exactly the same size
- **fraction** A number that names part of a whole or part of a group
- **numerator** The part of a fraction above the line that tells how many equal parts are being counted
- **unit fraction** A fraction that names 1 equal part of a whole. It has 1 as its top number, or numerator.
Querida familia,
Durante las próximas semanas, en la clase de matemáticas aprenderemos sobre las fracciones. Aprenderemos a identificar, leer y escribir fracciones como parte de un todo y como parte de un grupo.

Llevaré a la casa tareas que sirven para practicar las fracciones.

Este es un ejemplo de la manera como aprenderemos a usar fracciones para hallar una parte fraccionaria de un grupo.

MODELO Hallar cuántos hay en una parte fraccionaria de un grupo

Así es como hallaremos cuántos hay en una parte fraccionaria de un grupo.

<table>
<thead>
<tr>
<th>PASO 1</th>
<th>PASO 2</th>
<th>PASO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halla $\frac{1}{3}$ de 9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coloca 9 fichas en el MathBoard.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Como quieres hallar $\frac{1}{3}$ del grupo, debe haber 3 grupos iguales.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encierra en un círculo uno de los grupos para mostrar $\frac{1}{3}$. Luego cuenta la cantidad de fichas en el grupo.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hay 3 fichas en 1 grupo. Por lo tanto, $\frac{1}{3}$ de 9 = 3.

Actividad

Muestre un grupo de 12 objetos, como crayolas. Pida a su hijo que halle las partes fraccionarias del grupo contando objetos en grupos iguales. Luego, pídale que halle estos grupos fraccionarios de 12: $\frac{1}{2}$ (6), $\frac{1}{3}$ (4), $\frac{1}{4}$ (3), $\frac{1}{6}$ (2).
Going Places with GO MATH! words

Going to
the Mint

For 2 to 4 players

Materials
- 3 red connecting cubes
- 3 blue connecting cubes
- 3 green connecting cubes
- 3 yellow connecting cubes
- 1 number cube

How to Play
1. Put your 3 connecting cubes in the START circle of the same color.
2. To get a cube out of START, you must roll a 6.
   - If you roll a 6, move 1 of your cubes to the same colored circle on the path.
   - If you do not roll a 6, wait until your next turn.
3. Once you have a cube on the path, toss the number cube to take a turn. Move the connecting cubes that many tan spaces. You must get all 3 of your cubes on the path.
4. If you land on a space with a question, answer it. If you are correct, move ahead 1 space.
5. To reach FINISH, move your connecting cubes up the path that is the same color as your cubes. The first player to get all three cubes on FINISH wins.

Word Box
- denominator
- eighths
- equal parts
- fourths
- fraction
- fraction greater than 1
- halves
- numerator
- sixths
- thirds
- unit fraction
- whole
Equal Parts of a Whole

When you divide a shape into **equal parts**, each part must be exactly the same size.

This rectangle is divided into 2 equal parts, or **halves**.

This rectangle is divided into 3 equal parts, or **thirds**.

This rectangle is divided into 4 equal parts, or **fourths**.

Write the number of equal parts. Then write the name for the parts.

1. 2 equal parts
2. 1 equal part
3. 2 equal parts

Write whether each shape is divided into **equal** parts or **unequal** parts.

4. ___________ parts
5. ___________ parts
6. ___________ parts

Draw lines to divide the squares into equal parts.

7. 3 thirds
8. 6 sixths
9. 8 eighths
Way to Share!

Draw lines to divide each shape 3 different ways into the number of parts given.

1. 4 equal parts

2. 3 equal parts

3. 6 equal parts

4. Write Math Look back at Exercise 1. How did you decide where to divide each square?

5. Stretch Your Thinking How do you know the square is divided into equal parts even though they are not the same shape?
Equal Shares

Six brothers share 5 sandwiches equally. How much does each brother get? Draw to model the problem.

**Step 1** Draw 5 squares for the sandwiches.

```
[5 squares]
```

**Step 2** There are 6 brothers. Draw lines to divide each sandwich into 6 equal parts.

```
[5 squares divided into 6 equal parts]
```

**Step 3** Each brother will get 1 equal part from each sandwich.

So, each brother gets **5 sixths** of a sandwich.

Draw lines to show how much each person gets.
Write the answer.

1. 4 sisters share 3 pies equally.
```
[3 circles]
```

2. 6 friends share 3 fruit bars equally.
```
[3 rectangles]
```
A Fair Share

Mary and her 3 friends go on a picnic. They share some food. Show how they can make the fewest cuts possible to share the food equally among 4 people. Shade your drawing to show one person’s share. Then write how much each person gets.

1. 4 sandwiches

2. 2 muffins

3. 3 small pizzas

4. 6 granola bars

5. How can you tell if an equal share is more than one whole? Use an example from above to explain your answer.
Unit Fractions of a Whole

A fraction is a number. It names part of a whole or part of a group.

The top number tells how many equal parts are being counted.
The bottom number tells how many equal parts are in the whole.
A unit fraction names 1 equal part of a whole. It always has 1 as its top number.

How much is 1 part of a fruit bar that is cut into 8 equal parts?

Step 1 Use fraction strips. Make a strip showing 8 equal parts, or eighths.

Step 2 Shade 1 of the parts and name it.

This fraction is called \( \frac{1}{8} \).

So, 1 part of a fruit bar that can be divided into 8 equal parts is \( \frac{1}{8} \).

Write the number of equal parts in the whole.
Then write the fraction that names the shaded part.

1. \( \square \) equal parts
2. \( \square \) equal parts
3. \( \square \) equal parts
Whole Lot of Fractions!

Draw lines and shade each shape to show the fraction.

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

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

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

4. \( \frac{1}{8} \)

5. \( \frac{1}{3} \)

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

7. **Stretch Your Thinking** What unit fraction of the figure is shaded? **Explain** your answer.
Fractions of a Whole

Some shapes can be cut into equal parts. A fraction can name more than 1 equal part of a whole.

Write a fraction in words and in numbers to name the shaded part.

How many equal parts make up the whole shape? 6 equal parts

How many parts are shaded? 3 parts

So, 3 parts out of 6 equal parts are shaded. Read: three sixths. Write: $\frac{3}{6}$

1. Shade three parts out of eight equal parts. Write a fraction in words and in numbers to name the shaded part.

Read: _______ eighths

Write: _______

Write the fraction that names each part. Write a fraction in words and in numbers to name the shaded part.

2. Each part is _______.
   _______ sixths

3. Each part is _______.
   _______ fourths

4. Each part is _______.
   _______ eighths
Flag Fractions

Write a fraction to name the shaded part of each flag.

1. 

2. 

3. 

4. 

5. 

6. 

7. **Write Math** Draw your own flag. Divide it into equal parts. Shade some of the equal parts. Then write the fraction that names the shaded part of your flag.
Fractions on a Number Line

Use the fraction strips to help name the points on the number line.

Draw a point to show \( \frac{1}{3} \).

Step 1  The denominator is 3, so use fraction strips for thirds. Place the fraction strips above the number line. Use the fraction strips to divide the number line into three equal lengths.

Step 2  Label each mark on the number line.

Think: The distance between each mark is \( \frac{1}{3} \) of the total distance, so count the number of \( \frac{1}{3} \) lengths.

Step 3  Draw a point on the number line to show \( \frac{1}{3} \).

1. Complete the number line. Draw a point to show \( \frac{2}{4} \).

Write the fraction that names the point.

2. point \( A \) _______

3. point \( B \) _______
Fraction Find

Write a fraction that names the shaded part of each whole. Then locate the fraction on the number line below. Write the letter of the model that represents the fraction.

A.  

B.  

C.  

D.  

E.  

F.  

0 — — — 4/8 — — 7/8 — 1
Relate Fractions and Whole Numbers

A fraction greater than 1 has a numerator greater than its denominator.

Jason ran 2 miles and Tyra ran \( \frac{6}{3} \) miles. Did Jason and Tyra run the same distance?

**Step 1** Use fraction strips to show the distances.
- Use 2 whole strips to show Jason's distance.
- Use six \( \frac{1}{3} \)-strips to show Tyra's distance.

<table>
<thead>
<tr>
<th>Jason</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyra</td>
<td>( \frac{1}{3} )</td>
<td>( \frac{1}{3} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{1}{3} )</td>
<td>( \frac{1}{3} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{1}{3} )</td>
<td>( \frac{1}{3} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{3}{3} )</td>
<td>( \frac{6}{3} )</td>
</tr>
</tbody>
</table>

**Step 2** Compare the fraction strips.
- Since the fraction strips for 2 and \( \frac{6}{3} \) are the same length, they are equal.

So, Jason and Tyra ran the same distance.

Use the number line to find whether the two numbers are equal. Write equal or not equal.

1. \( \frac{4}{4} \) and 1
2. 1 and \( \frac{3}{4} \)
3. \( \frac{1}{4} \) and \( \frac{4}{4} \)
Fraction and Whole Number Match

For each model, write a fraction greater than 1 for the parts that are shaded. Then, for 1–3, write the letter of the model below the dashed line that shows the same whole number.

1. 

2. 

3. 

A. 

B. 

C. 

---
Fractions of a Group

Adam has a collection of cars.
What fraction names the shaded part of the collection?

Step 1 Count how many cars are shaded. There are 3 shaded cars. This number will be the denominator, or the top number of the fraction.

Step 2 Count the total number of cars. 8 This number will be the denominator, or the bottom number of the fraction.

Step 3 Read the fraction: three eighths, or three out of eight. So, \(\frac{3}{8}\) of Adam’s cars are shaded.

Write a fraction to name the shaded part of each group.

1. 

2. 

Write a whole number and a fraction greater than 1 to name the part filled.

3. Think: 1 can = 1

4. Think: 1 pan = 1
Fruit Fractions

Use the bowl of fruit to answer the questions. The bowl has 3 strawberries, 2 bananas, and 1 apple.

1. What fraction of the fruit in the bowl is bananas?

2. What fraction of the fruit in the bowl is apples?

3. What fraction of the fruit in the bowl is strawberries?

4. What fraction of the fruit in the bowl is bananas and strawberries?

5. Stretch Your Thinking Suppose 2 oranges are hidden under the fruit you can see in the bowl. What fraction of the fruit is oranges?

6. Write your own problem about fractions of a group. Use the fruit in the bowl. Then write the answer.
Find Part of a Group Using Unit Fractions

Lauren bought 12 stamps for postcards. She gave Brianna $\frac{1}{6}$ of them. How many stamps did Lauren give to Brianna?

**Step 1** Find the total number of stamps. 12 stamps

**Step 2** Since you want to find $\frac{1}{6}$ of the group, there should be 6 equal groups. Circle one of the groups to show $\frac{1}{6}$.

**Step 3** Find $\frac{1}{6}$ of the stamps. How many stamps are in 1 group? 2 stamps

So, Lauren gave Brianna 2 stamps. $\frac{1}{6}$ of 12 = 2

Circle equal groups to solve. Count the number of shapes in 1 group.

1. $\frac{1}{4}$ of 8 = _________
   
   ![Stars](image)

2. $\frac{1}{3}$ of 9 = _________
   
   ![Stars](image)

3. $\frac{1}{4}$ of 16 = _________
   
   ![Diamonds](image)

4. $\frac{1}{6}$ of 18 = _________
   
   ![Diamonds](image)
Part of the Group

Evan and his friends go to a theme park. Each friend buys 24 tickets and rides only 1 ride. Solve the problem.

1. Evan uses $\frac{1}{3}$ of his tickets to ride the Loop-D-Loop. How many tickets does he use?

2. Omar uses $\frac{1}{6}$ of his tickets to ride the water slide. How many tickets does he use?

3. Kate uses $\frac{1}{2}$ of her tickets to ride the roller coaster. How many tickets does she use?

4. Jenny uses $\frac{1}{4}$ of her tickets to ride the merry-go-round. How many tickets does she use?

5. **Stretch Your Thinking** Use the information in 1–4 to find the number of tickets each friend has left.

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of Tickets Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evan</td>
<td></td>
</tr>
<tr>
<td>Omar</td>
<td></td>
</tr>
<tr>
<td>Kate</td>
<td></td>
</tr>
<tr>
<td>Jenny</td>
<td></td>
</tr>
</tbody>
</table>

6. **Write Math** The friends now want to go on the Loop-D-Loop and the roller coaster. Explain why only 1 of the friends can go on both of these rides.
Problem Solving • Find the Whole Group Using Unit Fractions

There are 3 apple juice boxes in the cooler. One fourth of the juice boxes in the cooler are apple juice. How many juice boxes are in the cooler?

<table>
<thead>
<tr>
<th>Read the Problem</th>
<th>Solve the Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What do I need to find?</strong></td>
<td>Describe how to draw a diagram to solve.</td>
</tr>
<tr>
<td>I need to find <strong>how many juice boxes</strong> are in the cooler.</td>
<td>The denominator in ( \frac{1}{4} ) tells you that there are 4 parts in the whole group. Draw 4 circles to show 4 parts.</td>
</tr>
<tr>
<td><strong>What information do I need to use?</strong></td>
<td>Since 3 juice boxes are ( \frac{1}{4} ) of the group, draw 3 counters in the first circle.</td>
</tr>
<tr>
<td>There are 3 apple juice boxes.</td>
<td>Since there are 3 counters in the first circle, draw 3 counters in each of the remaining circles. Then count all of the counters.</td>
</tr>
<tr>
<td><strong>One fourth</strong> of the juice boxes are apple juice.</td>
<td>So, there are 12 juice boxes in the cooler.</td>
</tr>
<tr>
<td><strong>How will I use the information?</strong></td>
<td></td>
</tr>
<tr>
<td>I will use the information in the problem to draw a diagram.</td>
<td></td>
</tr>
</tbody>
</table>

1. Max has 3 beta fish in his fish tank. One half of his fish are beta fish. How many fish does Max have in his tank?

2. Two boys are standing in line. One sixth of the students in line are boys. How many students are standing in line?
What Part of the Group?

Draw a quick picture to solve.

1. Lisa’s dog has 4 squeaky toys. Two thirds of the dog’s toys are squeaky toys. How many dog toys does Lisa’s dog have in all?

2. Sam has 9 yellow pencils in his desk. Three fourths of his pencils are yellow. How many pencils does Sam have in his desk?

3. Julia has 8 red barrettes. Two fourths of her barrettes are red. How many barrettes does Julia have?

4. Antonio has 15 pennies in his pocket. Five eighths of his coins are pennies. How many coins does Antonio have in his pocket?

5. Stretch Your Thinking One half of the birds at a pet store are yellow. Tara buys one of the yellow birds. Then one third of the birds at the store are yellow. How many yellow birds were at the pet store before Tara bought one? Explain how you know.
1. Each shape is divided into equal parts. Select the shapes that show fourths. Mark all that apply.

A   B   C   D

2. What fraction names the shaded part of the shape?

![Image of a square divided into eight parts, with three parts shaded]

A  3 eighths  
B  5 eighths  
C  6 eighths  
D  8 eighths

3. The shaded part of the model shows what part of a garden is planted with peas. What fraction names the shaded part? Explain how you know how to write the fraction.

![Image of a rectangle divided into five parts, with three parts shaded]
4. What fraction names point $A$ on the number line?

5. Kwan divided this circle into equal parts. Circle the word that makes the sentence true.

6. Sophie uses 16 beads to make a necklace. One fourth of the beads are purple. How many of the beads are purple?

7. Four brothers work together to mow 3 equal-sized fields. Each brother mows the same amount.

8. Bailey shaded this model.

Select one number from each column to show the part of the model Bailey shaded.

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ 1</td>
<td>○ 2</td>
</tr>
<tr>
<td>○ 2</td>
<td>○ 4</td>
</tr>
<tr>
<td>○ 4</td>
<td>○ 5</td>
</tr>
<tr>
<td>○ 6</td>
<td>○ 6</td>
</tr>
</tbody>
</table>

9. Jayson baked a pan of cornbread for a family dinner. He cut the cornbread into equal size pieces. At the end of the dinner, there were 2 pieces left. Explain how you find the number of pieces in the whole pan of cornbread if Jayson told you that \( \frac{1}{6} \) of the pan was left. Use a drawing to show your work.
10. The model shows one whole. What fraction of the model is NOT shaded?

![Fraction Model]

11. Michael replaced \( \frac{1}{3} \) of the buttons on his coat. If he replaced a total of 3 buttons, how many buttons are on his coat? Show your work.

____ buttons

12. Four teachers share 3 gallons of paint equally. How much paint does each teacher get?

![Equal Sharing Diagram]

13. Each shape is 1 whole.

![Shaded Shapes]

For numbers 13a–13e, choose Yes or No to show whether the number names the parts that are shaded.

13a. 3  
13b. 4  
13c. \( \frac{12}{3} \)  
13d. \( \frac{12}{4} \)  
13e. \( \frac{3}{12} \)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{12}{3} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{12}{4} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \frac{3}{12} )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GO ON
14. A store sold 6 fruit trees. Five of the trees were apple trees. What fraction of the trees were apple trees?

_____ 

15. Christina and Erin made vegetable trays for a neighborhood picnic.

Part A

Christina put 15 vegetables on her tray. If $\frac{1}{5}$ of the vegetables were carrots, how many carrots were on the tray? Make a drawing to show your work.

_____ carrots 

Part B

Erin put 20 vegetables on her tray. If $\frac{1}{4}$ of them were carrots, how many carrots were on Christina's and Erin's trays? Explain how you found your answer.

_____

16. Maria has 8 tulip bulbs. She gives 5 of the tulip bulbs to her neighbor. What fraction of her tulip bulbs does she give to her neighbor?

_____
17. Lucy rode her bike around the block 4 times for a total of 1 mile yesterday. Today she wants to ride her bike \( \frac{3}{4} \) of a mile. How many times will she need to ride her bike around the block?

\[ \square \text{times} \]

18. Jackson colored some shapes.

Select one number from each column to show a fraction greater than 1 that names the parts Jackson colored.

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ 1</td>
<td>○ 1</td>
</tr>
<tr>
<td>○ 2</td>
<td>○ 2</td>
</tr>
<tr>
<td>○ 3</td>
<td>○ 3</td>
</tr>
<tr>
<td>○ 6</td>
<td>○ 6</td>
</tr>
</tbody>
</table>

19. Samira ran around a park loop that was \( \frac{1}{3} \) mile long. She ran around the loop 9 times. Samira says she ran \( \frac{9}{3} \) miles. Her brother Amal says she ran 3 miles. Who is correct? Use words and drawings to explain how you know.
In the Kitchen

Rana and Yoshi are cooking food for a party. They need to cut up the food so people can share.

1. Yoshi makes 3 small pepperoni pizzas. There are 4 people who will share the pizzas. Draw a picture to show how much each person will get. Explain your answer.

2. Rana makes a large vegetable pizza. She cuts the pie into 8 equal parts. Three people each eat a slice of the pie.
   a. Draw a picture to show the pie. Shade the missing parts.
   b. Write a fraction to show how much of the pie is left.
3. Yoshi makes a large sandwich. He cuts the sandwich into 8 equal parts. He wants to put \( \frac{5}{8} \) of the sandwich on a plate. How many pieces of the sandwich does he need? Draw a number line to solve the problem. Then write your answer.

4. Rana puts 12 pieces of fruit in a bowl. \( \frac{1}{4} \) of the fruit pieces are apples.
   a. Draw a fraction strip to show how many apple pieces are in the bowl.

   b. Write a fraction to show how many pieces are apples.

5. Yoshi and Rana serve muffins. There are 3 muffins with nuts. \( \frac{1}{6} \) of the muffins have nuts.
   a. How many muffins do they serve in all? Draw a number line to solve. Explain how you solved the problem.

   b. Write a fraction to show how many muffins do not have nuts.
Understanding Fractions

In the Kitchen

COMMON CORE STANDARDS

3.NF.A.1 Understand a fraction \( \frac{1}{b} \) as the quantity formed by 1 part when a whole is partitioned into \( b \) equal parts; understand a fraction \( \frac{a}{b} \) as the quantity formed by \( a \) parts of size \( \frac{1}{b} \).

3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction \( \frac{1}{b} \) on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into \( b \) equal parts. Recognize that each part has size \( \frac{1}{b} \) and that the endpoint of the part based at 0 locates the number \( \frac{1}{b} \) on the number line.

b. Represent a fraction \( \frac{a}{b} \) on a number line diagram by marking off \( a \) lengths \( \frac{1}{b} \) from 0. Recognize that the resulting interval has size \( \frac{a}{b} \) and that its endpoint locates the number \( \frac{a}{b} \) on the number line.

PURPOSE

To assess the ability to use fractions to describe how much or how many

TIME

25–30 minutes

GROUPING

Individuals

MATERIALS

• Performance Task, paper, pencil
• Fraction bars (optional)

PREPARATION HINTS

• Review dividing an object into equal parts by folding paper into halves, then into halves again, before assigning the task.
• Review showing parts of a group using counters before assigning the task.

IMPLEMENTATION NOTES

• Read the task aloud to students and make sure that all students have a clear understanding of the task.
• Students may use manipulatives to complete the task.
• Allow students as much paper as they need to complete the task.
• Allow as much time as students need to complete the task.
• Students must complete the task individually, without collaboration.
• Collect all student work when the task is complete.
TASK SUMMARY
Students draw pictures to show fraction concepts including parts of a whole, equal shares, fractions of a whole, fractions on a number line, and finding unit fractions.

REPRESENTATION
In this task, teachers can…
• Provide options for comprehension by pre-teaching critical prerequisite concepts through models such as fraction strips.
• Provide options for comprehension by using cues and prompts to draw attention to big ideas and critical fraction concepts.

ACTION and EXPRESSION
In this task, teachers can…
• Provide options for physical action by offering fraction strips for students to use as they draw fractional parts.
• Provide options for monitoring progress by asking students questions to guide self-monitoring.

ENGAGEMENT
In this task, teachers can…
• Help students meet goals and objectives by helping them organize long-term goals into short-term objectives.
• Optimize relevance by asking students to give examples of fractions at home, in school and in their personal lives.

EXPECTED STUDENT OUTCOMES
• Complete the task within the time allowed
• Reflect engagement in a productive struggle
• Solve problems using fractions

SCORING
Use the associated Rubric to evaluate each student’s work.
**Performance Task Rubric**

**IN THE KITCHEN**

| A level 3 response | Indicates that the student has made sense of the task, modeled accurately, and persevered  
|                    | Shows the ability to accurately solve fraction problems by using parts of a whole, equal shares, fractions of a whole, fractions on a number line, and finding unit fractions  
|                    | Demonstrates an understanding of a fraction as part of a whole  
|                    | Addresses all aspects of the task including representing fractions with drawings and explaining mathematical reasoning |

| A level 2 response | Indicates that the student has made sense of the task, modeled accurately, and persevered  
|                    | Shows the ability to accurately solve fraction problems by using parts of a whole, equal shares, fractions of a whole, fractions on a number line, and finding unit fractions  
|                    | Demonstrates an understanding of a fraction as part of a whole  
|                    | Addresses all or most elements of the task including representing fractions with drawings and explaining mathematical reasoning  
|                    | May include minor errors of omission |

| A level 1 response | Shows that the student has made sense of at least some elements of the task  
|                    | Shows evidence of understanding some basic concepts of fractions  
|                    | May not include accurately drawn fractions or explanations of mathematical reasoning |

| A level 0 response | Shows little evidence that the student has made sense of the task  
|                    | Reflects a lack of understanding of fractions as part of a whole or unit  
|                    | Shows little evidence of addressing the elements of the task  
|                    | May include incorrectly or inappropriately applied mathematical reasoning |
1. Each shape is divided into equal parts. Select the shapes that show fourths. Mark all that apply.

![Shapes](image)

2. What fraction names the shaded part of the shape?

![Shaded Shape](image)

A 3 eighths  
B 5 eighths  
C 6 eighths  
D 8 eighths

3. The shaded part of the model shows what part of a garden is planted with peas. What fraction names the shaded part? Explain how you know how to write the fraction.

![Garden Model](image)

\[ \frac{1}{6} \]; Possible explanation: There are 6 equal parts and 1 part is shaded, so I write 1 on the top and 6 on the bottom.

4. What fraction names point A on the number line?

![Number Line](image)

\[ \frac{7}{8} \]

5. Kwan divided this circle into equal parts. Circle the word that makes the sentence true.

![Circle](image)

The circle is divided into eight parts.

6. Sophie uses 16 beads to make a necklace. One fourth of the beads are purple. How many of the beads are purple?

\[ 4 \] beads

7. Four brothers work together to mow 3 equal-sized fields. Each brother mows the same amount.

![Fields](image)

How much does each brother mow? Mark all that apply.

A 4 thirds of a field  
B 1 whole and 1 third of a field  
C 3 fourths of a field  
D 2 thirds of a field  
E 1 fourth of a field
10. The model shows one whole. What fraction of the model is **NOT** shaded?

![Diagram of a shaded model](image)

**3/4**

11. Michael replaced \(\frac{1}{3}\) of the buttons on his coat. If he replaced a total of 3 buttons, how many buttons are on his coat? Show your work.

**9** buttons

Check students' work.

12. Four teachers share 3 gallons of paint equally. How much paint does each teacher get?

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

Possible answers: 3 fourths, or 1 half and 1 fourth of a box

13. Each shape is 1 whole.

For numbers 13a–13e, choose Yes or No to show whether the number names the parts that are shaded.

- 13a. 3
  - Yes
  - No

- 13b. 4
  - Yes
  - No

- 13c. \(\frac{12}{3}\)
  - Yes
  - No

- 13d. \(\frac{12}{4}\)
  - Yes
  - No

- 13e. \(\frac{3}{12}\)
  - Yes
  - No
14. A store sold 6 fruit trees. Five of the trees were apple trees. What fraction of the trees were apple trees?

\[
\frac{5}{6}
\]

15. Christina and Erin made vegetable trays for a neighborhood picnic.

**Part A**

Christina put 15 vegetables on her tray. If \( \frac{1}{5} \) of the vegetables were carrots, how many carrots were on the tray? Make a drawing to show your work.

\[3\] carrots

**Part B**

Erin put 20 vegetables on her tray. If \( \frac{1}{4} \) of them were carrots, how many carrots were on Christina’s and Erin’s trays? Explain how you found your answer.

Possible work: \( \frac{1}{5} \) of 15 is 3. \( \frac{1}{4} \) of 20 is 5. \( 3 + 5 = 8 \), so there were a total of 8 carrots on both trays.

16. Maria has 8 tulip bulbs. She gives 5 of the tulip bulbs to her neighbor. What fraction of her tulip bulbs does she give to her neighbor?

\[
\frac{5}{8}
\]

17. Lucy rode her bike around the block 4 times for a total of 1 mile yesterday. Today she wants to ride her bike \( \frac{3}{4} \) of a mile. How many times will she need to ride her bike around the block?

\[
\text{times}
\]

18. Jackson colored some shapes.

Select one number from each column to show a fraction greater than 1 that names the parts Jackson colored.

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
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</tr>
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<td>6</td>
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</table>

19. Samira ran around a park loop that was \( \frac{1}{2} \) mile long. She ran around the loop 9 times. Samira says she ran \( \frac{9}{2} \) miles. Her brother Amal says she ran 3 miles. Who is correct? Use words and drawings to explain how you know.

Both are correct. Possible explanation: The distance around the loop is \( \frac{1}{2} \) mile, so if she ran around it 9 times, that is nine thirds of \( \frac{1}{2} \). I drew a circle, divided it in thirds and shaded \( \frac{3}{2} \). I then drew two more circles and shaded each the same to show \( \frac{3}{2} \). My drawing shows that \( \frac{3}{2} = 3 \), so both are correct.
3. Yoshi makes a large sandwich. He cuts the sandwich into 8 equal parts. He wants to put 2 pieces of the sandwich on a plate. How many pieces of the sandwich does he need? Draw a number line to solve the problem. Then write your answer.

4. Rina cuts 12 pieces of fruit into a bowl. 1 of the fruit pieces are apples. a. Draw a fraction to show how many pieces are apples.

      4
     ——
  12

b. Write a fraction to show how many pieces are in the bowl.

5. Yoshi and Rina serve muffins. There are 3 muffins with nuts. 6 muffins have nuts. How many muffins do they serve in all? Draw a number line to solve the problem.

   6
   ——
  12

b. Write a fraction to show how many muffins do not have nuts.

   6
   ——
  12
In the Kitchen

Rana and Yoshi are cooking food for a party. They need to cut up the food so people can share.

1. Yoshi makes 3 small pepperoni pizzas. There are 4 people who will share the pizzas. Draw a picture to show how much each person will get. Explain your answer.
   
   Each person will get
   3 pieces of pizza. I drew a picture and split the pizzas in 4.

2. Rana makes a large vegetable pizza. She cuts the pie into 8 equal parts. Three people each eat a slice of the pie.
   
   a. Draw a picture to show the pie. Shade the missing parts.

   b. Write a fraction to show how much of the pie is left.

3. Yoshi makes a large sandwich. He cuts the sandwich into 8 equal parts. He wants to put \( \frac{3}{8} \) of the sandwich on a plate. How many pieces of the sandwich does he need? Draw a number line to solve the problem. Then write your answer.

   \[ 5 \text{ pieces} \]
   \[ \frac{3}{8} \text{ are left} \]

4. Rana puts 12 pieces of fruit in a bowl. \( \frac{2}{3} \) of the fruit pieces are apples.
   
   a. Draw a fraction strip to show how many apple pieces are in the bowl.

   b. Write a fraction to show how many pieces are apples.

   \[ \frac{8}{12} \]

5. Yoshi and Rana serve muffins. There are 3 muffins with nuts. \( \frac{1}{3} \) of the muffins have nuts.
   
   a. How many muffins do they serve in all? Draw a number line to solve. Explain how you solved the problem.

   They serve 15 muffins.

   b. Write a fraction to show how many muffins do not have nuts.

   \[ \frac{12}{18} \]
In the Kitchen

Rana and Yoshi are cooking food for a party. They need to cut up the food so people can share.

1. Yoshi makes 3 small pepperoni pizzas. There are 4 people who will share the pizzas. Draw a picture to show how much each person will get. Explain your answer.

   ![Pizza Diagram]

   everybody gets \( \frac{1}{4} \) of each pizza

2. Rana makes a large vegetable pizza. She cuts the pie into 8 equal parts. Three people each eat a slice of the pie.
   a. Draw a picture to show the pie. Shade the missing parts.
   b. Write a fraction to show how much of the pie is left.

   \( \frac{3}{8} \)

3. Yoshi makes a large sandwich. He cuts the sandwich into 8 equal parts. He wants to put \( \frac{3}{4} \) of the sandwich on a plate. How many pieces of the sandwich does he need? Draw a number line to solve the problem. Then write your answer.

   \( \frac{3}{4} \) of 8

4. Rana puts 12 pieces of fruit in a bowl. \( \frac{1}{4} \) of the fruit pieces are apples.
   a. Draw a fraction strip to show how many apple pieces are in the bowl.

   ![Fraction Strip]

   4 apples

   b. Write a fraction to show how many pieces are apples.

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

5. Yoshi and Rana serve muffins. There are 3 muffins with nuts. \( \frac{1}{3} \) of the muffins have nuts.
   a. How many muffins do they serve in all? Draw a number line to solve. Explain how you solved the problem.

   ![Number Line]

   Try Serve 15 muffins

   b. Write a fraction to show how many muffins do not have nuts.

   \( \frac{2}{3} \)
In the Kitchen

Rana and Yoshi are cooking food for a party. They need to cut up the food so people can share.

1. Yoshi makes 3 small pepperoni pizzas. There are 4 people who will share the pizzas. Draw a picture to show how much each person will get. Explain your answer.

   each person will get \( \frac{1}{4} \) of a piece of pizza because \( \frac{3+1}{4} = \frac{4}{4} \) people

2. Rana makes a large vegetable pizza. She cuts the pie into 8 equal parts. Three people each eat a slice of the pie.
   a. Draw a picture to show the pie. Shade the missing parts.

   b. Write a fraction to show how much of the pie is left.

   \( \frac{5}{8} \)

3. Yoshi makes a large sandwich. He cuts the sandwich into 8 equal parts. He wants to put \( \frac{3}{4} \) of the sandwich on a plate. How many pieces of the sandwich does he need? Draw a number line to solve the problem. Then write your answer.

4. Rana puts 12 pieces of fruit in a bowl. \( \frac{3}{4} \) of the fruit pieces are apples.
   a. Draw a fraction strip to show how many apple pieces are in the bowl.

   b. Write a fraction to show how many pieces are apples.

   \( \frac{9}{12} \)

5. Yoshi and Rana serve muffins. There are 3 muffins with nuts. \( \frac{2}{3} \) of the muffins have nuts.
   a. How many muffins do they serve in all? Draw a number line to solve. Explain how you solved the problem.

   They serve 3 muffins.

   b. Write a fraction to show how many muffins do not have nuts.

   \( \frac{3}{18} \)
## Chapter 8 Test

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<th>Personal Math Trainer</th>
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<td>3.NF.A.1</td>
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<td>8.6</td>
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<td>R—8.7</td>
<td>3.NF.1</td>
</tr>
</tbody>
</table>

**Key:** R—Reteach