



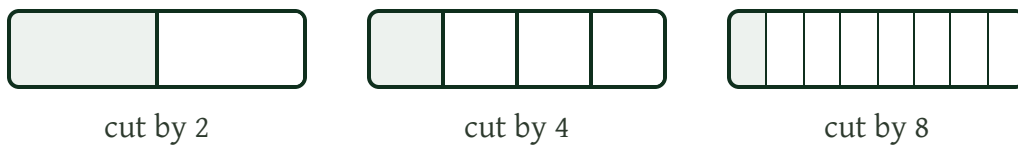
*Stuck? Scan  
for the anchor  
chart*

## FRACTION FOUNDATIONS • SET 2 OF 4 • GRADE 3

# What a Fraction Says

A fraction is not two numbers. It is **one number** that tells a tiny story:  
the bottom cuts, the top counts.

### 1 The bottom number cuts



Same whole every time. More cuts means smaller pieces.

### 2 The top number counts



The cuts never change. Only the counting changes.

### 3 Write it: top over bottom

$$\text{circle with 3/4 shaded} = \frac{3}{4} \quad \text{count 3 on top, cut by 4 on the bottom, one line in between. One number.}$$

# Roots of Reason

What a Fraction Says · The bottom number

Name \_\_\_\_\_ Date \_\_\_\_\_

## The Bottom Number Cuts



2 big pieces

The bottom number tells how many equal  
pieces  
the whole is cut into.



8 small pieces

1. Three chocolate bars, all the same size. Color **one piece** of each bar. Then circle the bar where your piece is biggest.

cut 2



cut 4



cut 8



The biggest piece came from the bar cut into  pieces.

2. **Think about it.** If you cut the same bar into more and more pieces, what happens to the size of each piece? Circle one, then say why to a partner.

each piece gets bigger

each piece gets smaller

each piece stays the same

## Roots of Reason

What a Fraction Says · The bottom number, part two

Name \_\_\_\_\_ Date \_\_\_\_\_

## Bigger Bottom, Smaller Piece



one piece of 3

A bigger bottom number does not mean  
more.

It means the whole was cut into **smaller**  
**pieces**.



one piece of 10

1. Two granola bars, same size. One is shared by 3 hikers, one by 10 hikers. Color **one hiker's piece** in each bar. Then answer.

3 hikers



10 hikers



Who gets the bigger piece: a group of  hikers.

2. **A true burger story.** A restaurant sold a third-pound burger. Customers thought it was less meat than a quarter-pound burger, because 4 is bigger than 3. Draw two same-size burgers: cut one into 3 equal parts, one into 4 equal parts. Color one part of each. Who was right?

The bigger piece is one part of

# Roots of Reason

What a Fraction Says · The top number

Name \_\_\_\_\_ Date \_\_\_\_\_

## The Top Number Counts



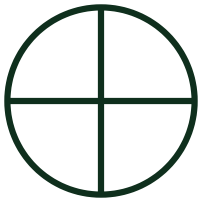
count 1

The top number counts pieces, just like counting apples.  
It only makes sense once you know the size of the piece.

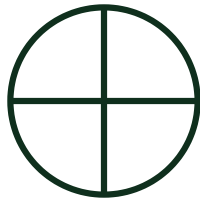


count 3

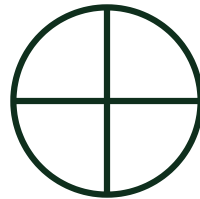
1. Every pie is cut into 4 equal parts. Color exactly the number of pieces written under each pie.



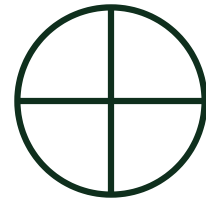
color 1



color 2



color 3



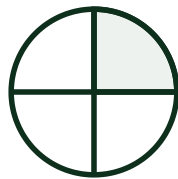
color 4

*When you color all 4, you have the whole pie again.*

2. Now read the pictures. Write how many pieces are colored, out of how many pieces in all.



out of



out of



out of

# Roots of Reason

What a Fraction Says · Putting it together

Name \_\_\_\_\_ Date \_\_\_\_\_

## Writing It Down

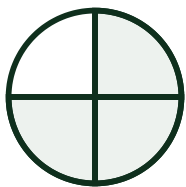


Top counts, bottom cuts, one line in between.

Together they make **one number**.

$$\frac{3}{4}$$

1. Read each picture. Write its fraction: colored pieces on top, total pieces on the bottom.



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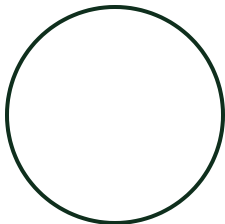
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2. Now go the other way. Cut and color each shape to match its fraction.

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



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



Real-life photo: a fraction out in the world

*Recipes, road signs, and gas pumps all speak fraction.*



FRACTION FOUNDATIONS · SET 2 OF 4 · GRADE 3

## Answer Key and Teacher Notes

### The bottom number cuts (page 2)

1. The biggest piece comes from the bar cut into 2 pieces 2. Each piece gets *smaller*

### Bigger bottom, smaller piece (page 3)

1. The group of 3 hikers gets the bigger piece 2. The bigger piece is one part of 3. The customers were wrong: a third of a pound is more than a quarter of a pound.

### The top number counts (page 4)

1. Any 1, 2, 3, then all 4 quarters colored 2. 2 out of 3 · 1 out of 4 · 5 out of 6

### Writing it down (page 5)

1.  $\frac{3}{4}$  ·  $\frac{1}{3}$  ·  $\frac{5}{6}$  2. Circle: 2 equal parts, 1 colored. Bar: 3 equal parts, 2 colored.

*Concepts before tricks: this set never mentions a comparison rule, and that is deliberate. Pages 2 and 3 let students discover that a bigger bottom number makes smaller pieces by coloring same-size wholes, so nobody needs "bigger denominator means smaller fraction" as a memorized fact. Notation waits until page 5, after both numbers mean something. If a student writes  $\frac{4}{3}$  for three colored quarters, they are counting the whole, not the pieces: go back to page 4, task 2, and ask "how many are colored?" before "how many in all?"*