Eureka Math

4th Grade
Module 5
Lesson 7

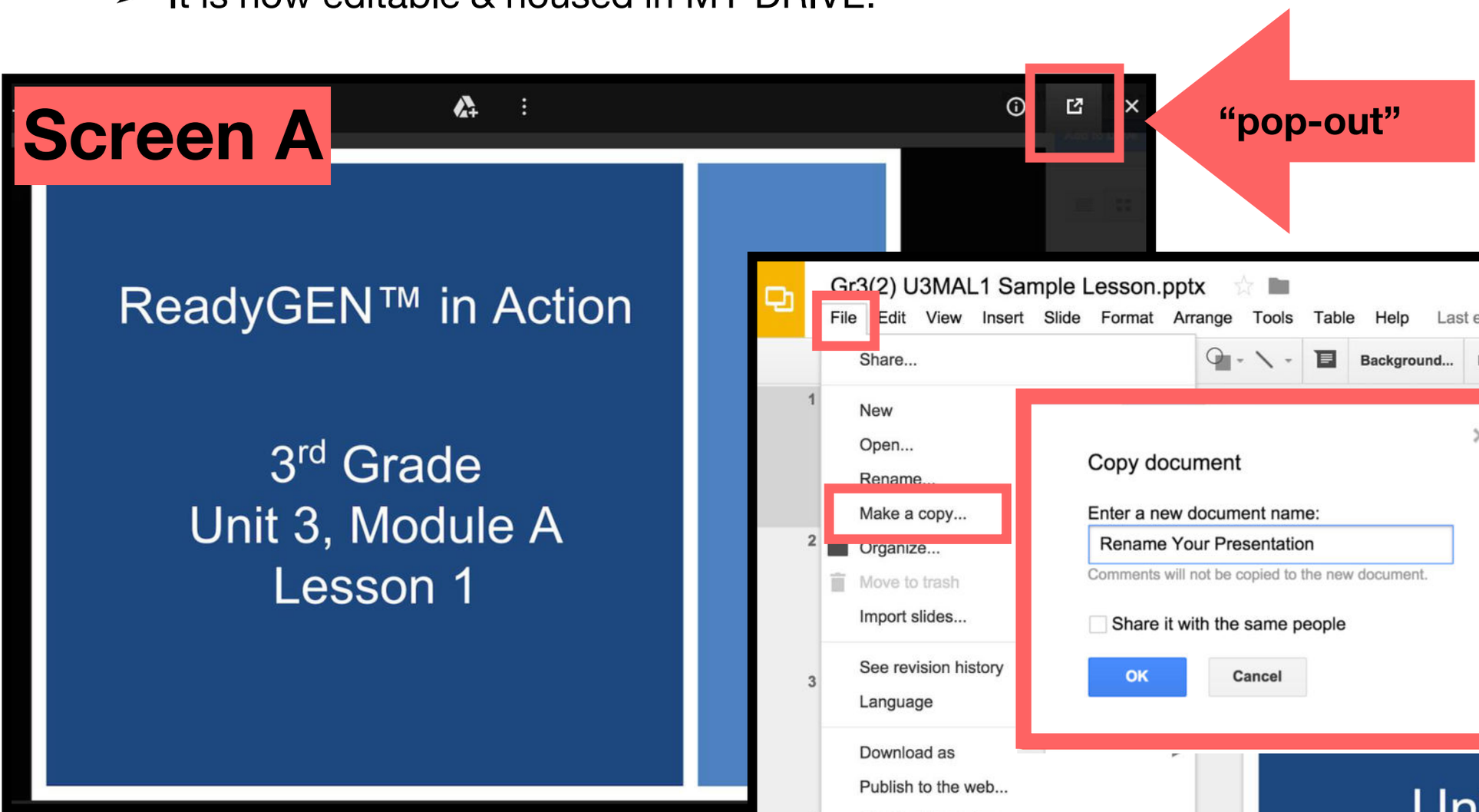
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

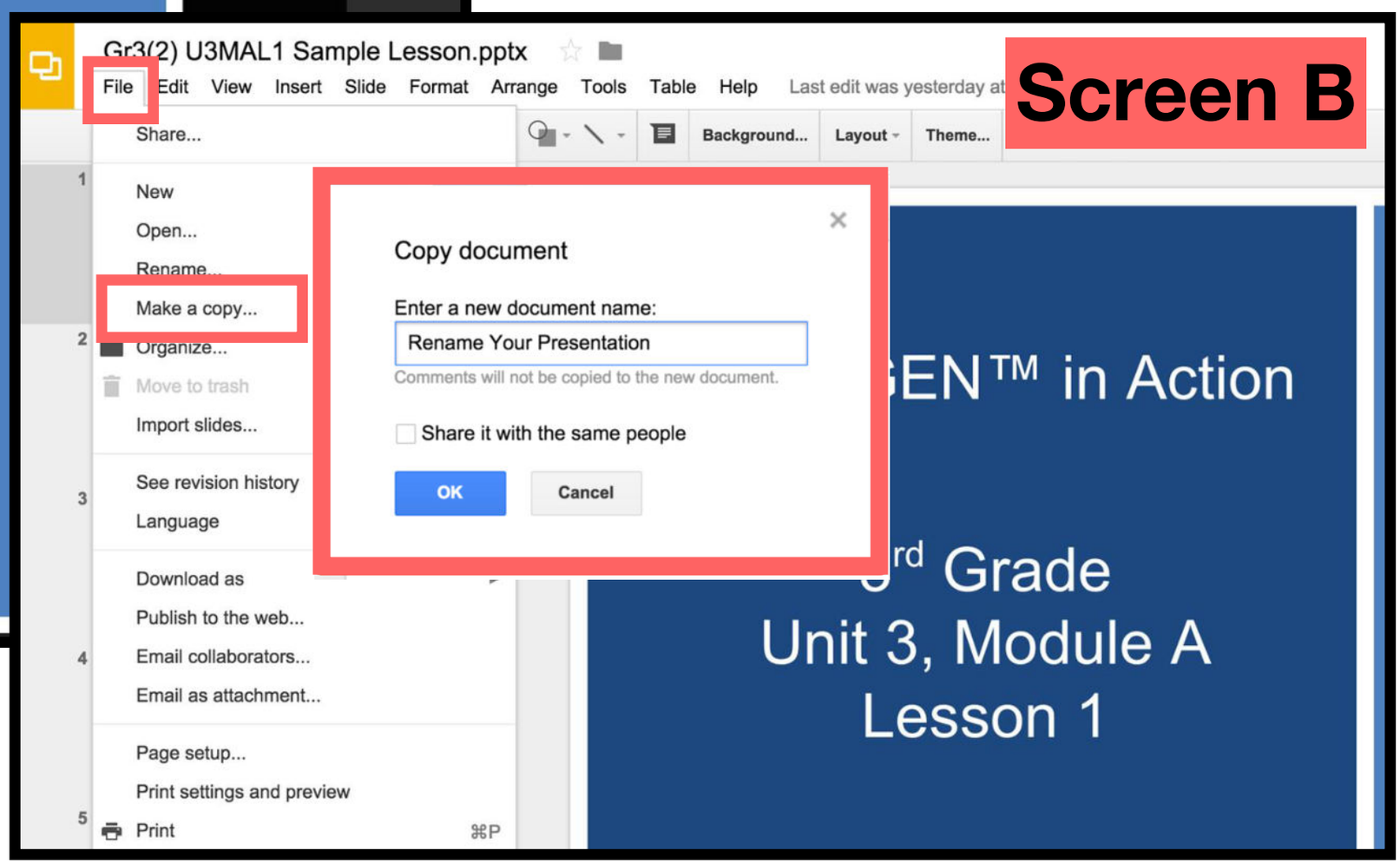
Directions for customizing presentations are available on the next slide.

Customize this Slideshow

Reflecting your Teaching Style and Learning Needs of Your Students

- When the Google Slides presentation is opened, it will look like Screen A.
- Click on the “pop-out” button in the upper right hand corner to change the view.
- The view now looks like Screen B.
- Within Google Slides (not Chrome), choose FILE.
- Choose MAKE A COPY and rename your presentation.
- Google Slides will open your renamed presentation.
- It is now editable & housed in MY DRIVE.





Icons

Read, Draw, Write

Learning Target

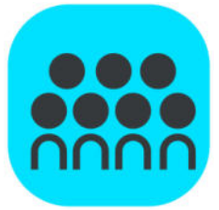
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

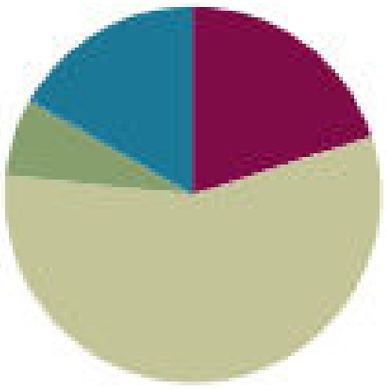
Small Group Time

Lesson 7

Objective: Use the area model and multiplication to show the equivalence of two fractions.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(4 minutes)
Concept Development	(34 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**

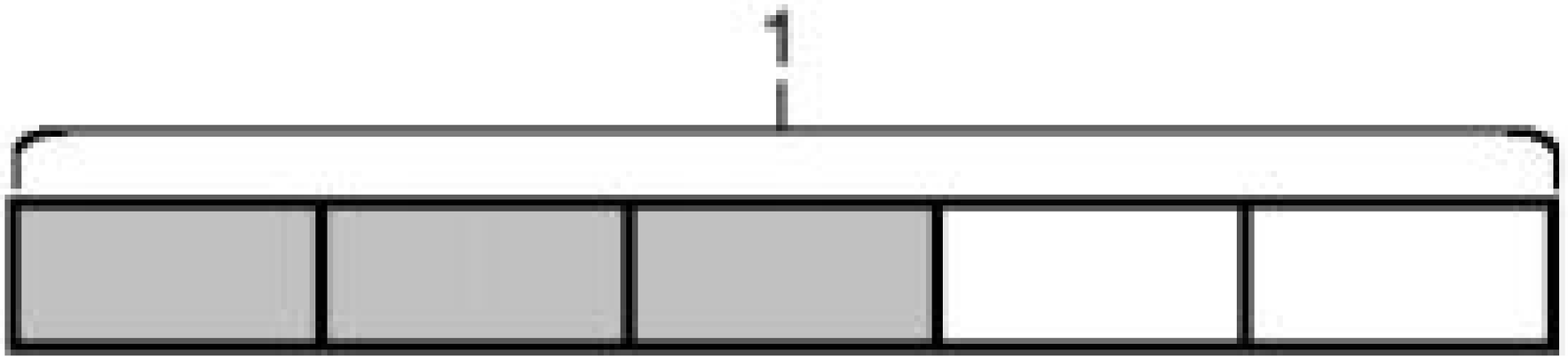


I can use the area model and multiplication to show the equivalence of two fractions.

Fluency Practice

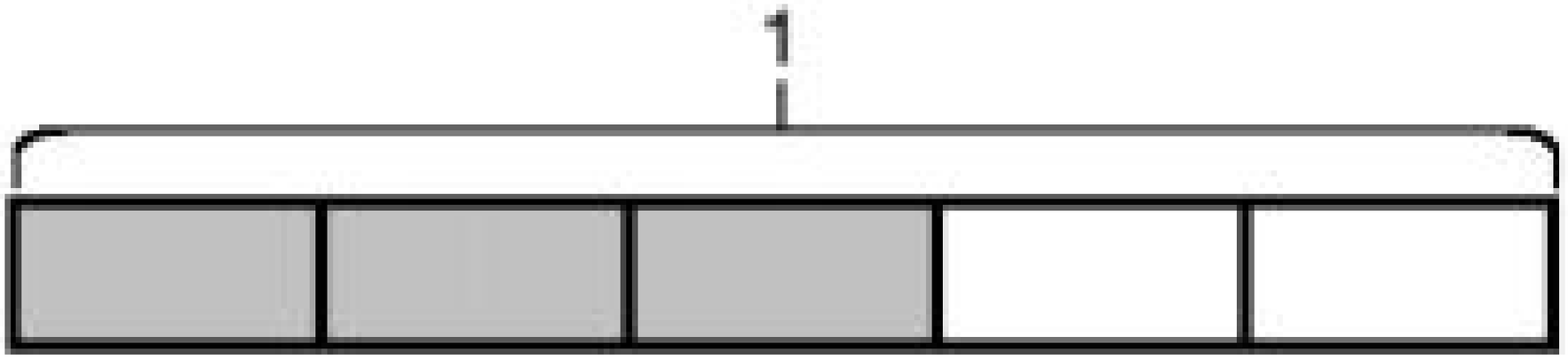
Break Apart Fractions

Name the fraction



Fluency Practice

Break Apart Fractions

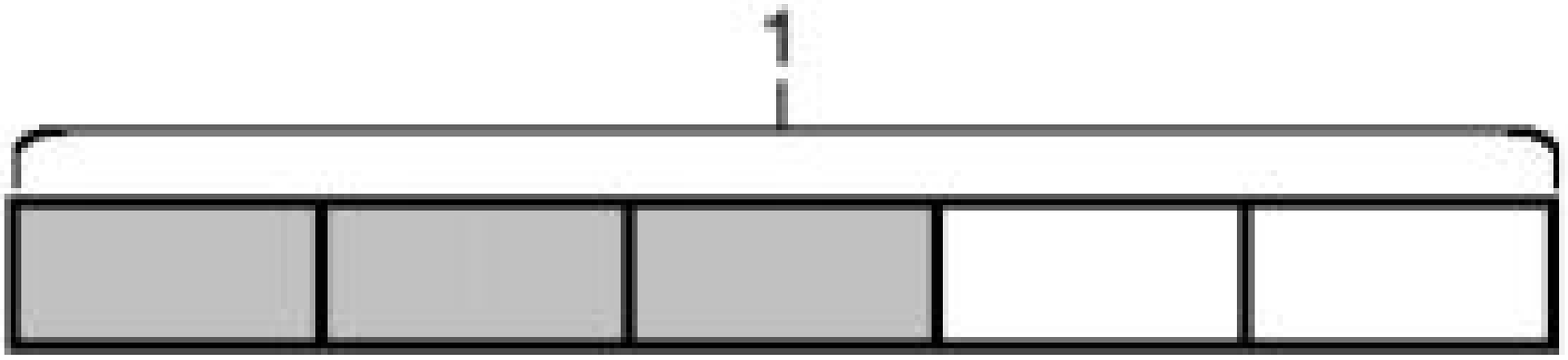


Say the fraction

On your personal white board, write 3 fifths as a repeated addition sentence using unit fractions.

Fluency Practice

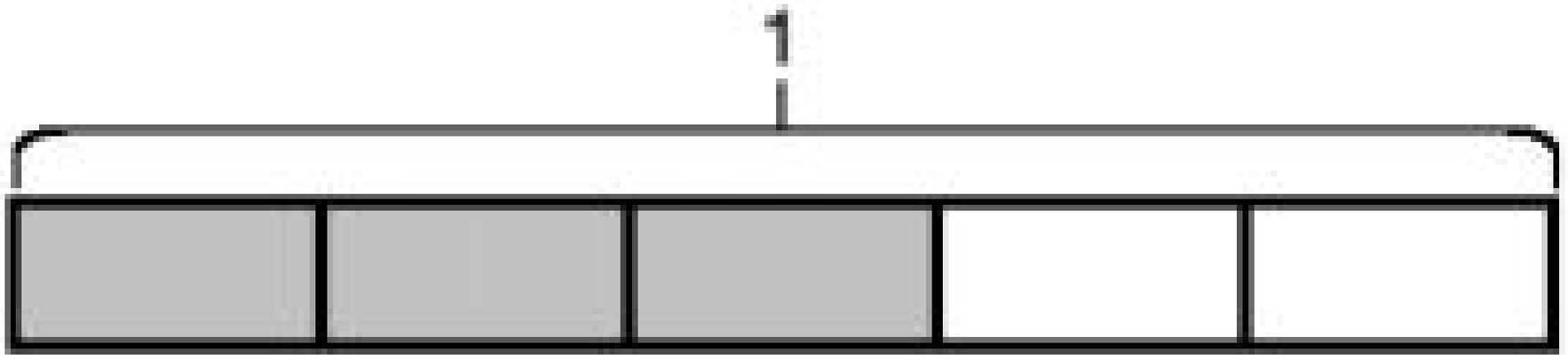
Break Apart Fractions



$$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \_\_\_ \times \frac{1}{5}$$

Fluency Practice

Break Apart Fractions



$$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 3 \times \frac{1}{5}$$

Fluency Practice

Break Apart Fractions

$\frac{5}{6} =$

Fluency Practice

Break Apart Fractions

$$\frac{5}{6} =$$

$$\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} =$$

Fluency Practice

Break Apart Fractions

$$\frac{5}{6} =$$

$$\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} =$$

$$\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 5 \times \frac{1}{6}$$

Fluency Practice

Count by Equivalent Fractions

Count from 0 to 10 by ones.

Fluency Practice

Count by Equivalent Fractions

Count by 1 fourths to 10 fourths. Start at 0 fourths.

$\frac{0}{4}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	$\frac{8}{4}$	$\frac{9}{4}$	$\frac{10}{4}$
0	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	2	$\frac{9}{4}$	$\frac{10}{4}$

4 fourths is the same as 1 of what unit

Fluency Practice

Count by Equivalent Fractions

Count by 1 fourths to 10 fourths. Start at 0 fourths.

$\frac{0}{4}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	$\frac{8}{4}$	$\frac{9}{4}$	$\frac{10}{4}$
0	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	1	$\frac{5}{4}$	$\frac{6}{4}$	$\frac{7}{4}$	2	$\frac{9}{4}$	$\frac{10}{4}$

Let's count to 10 fourths again, but this time, say the whole numbers when you come to a whole number.

Fluency Practice

Count by Equivalent Fractions

Repeat this process with thirds

Fluency Practice

Draw Equivalent Fractions

Say the fraction $\frac{2}{3}$

Fluency Practice

Draw Equivalent Fractions

Say the fraction $\frac{2}{3}$

Two-thirds

Fluency Practice

Draw Equivalent Fractions

Say the fraction $\frac{2}{3}$

Two-thirds

Draw an area model to show $\frac{2}{3}$

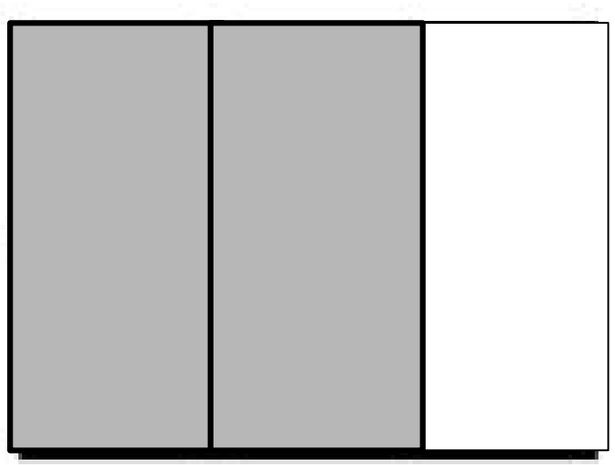
Fluency Practice

Draw Equivalent Fractions

Say the fraction $\frac{2}{3}$

Two-thirds

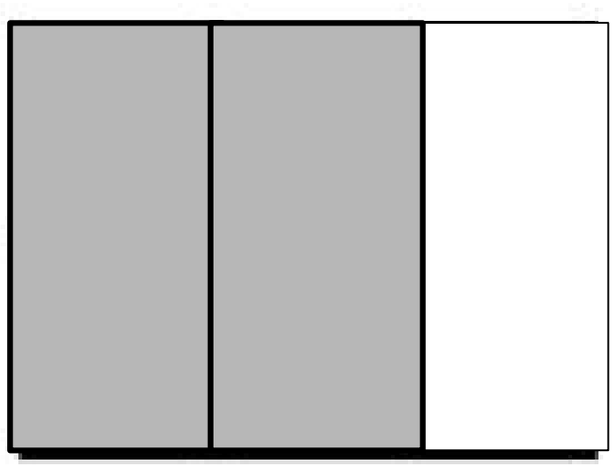
Draw an area model to show $\frac{2}{3}$



Fluency Practice

Draw Equivalent Fractions

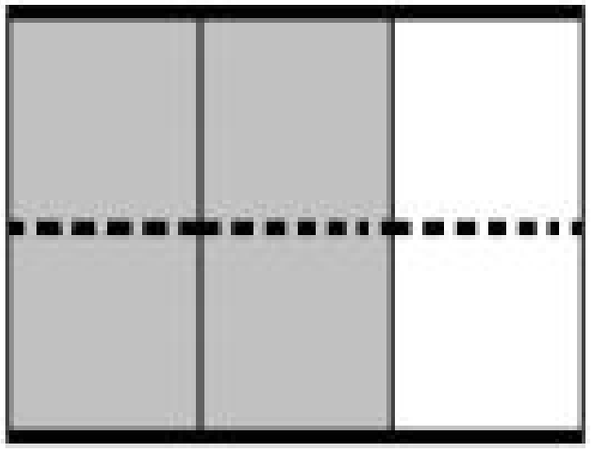
Draw a dotted horizontal line to find the equivalent fraction.



Fluency Practice

Draw Equivalent Fractions

$$\frac{2}{3} = \frac{4}{6}$$



Fluency Practice

Draw Equivalent Fractions

Continue this process with the following fractions.

$\frac{2}{3} = \frac{6}{\quad}$, $\frac{3}{4} = \frac{6}{\quad}$, $\frac{2}{5} = \frac{4}{\quad}$, and $\frac{4}{5} = \frac{12}{\quad}$

Application Problem

Model an equivalent fraction for 4 sevenths using an area model.

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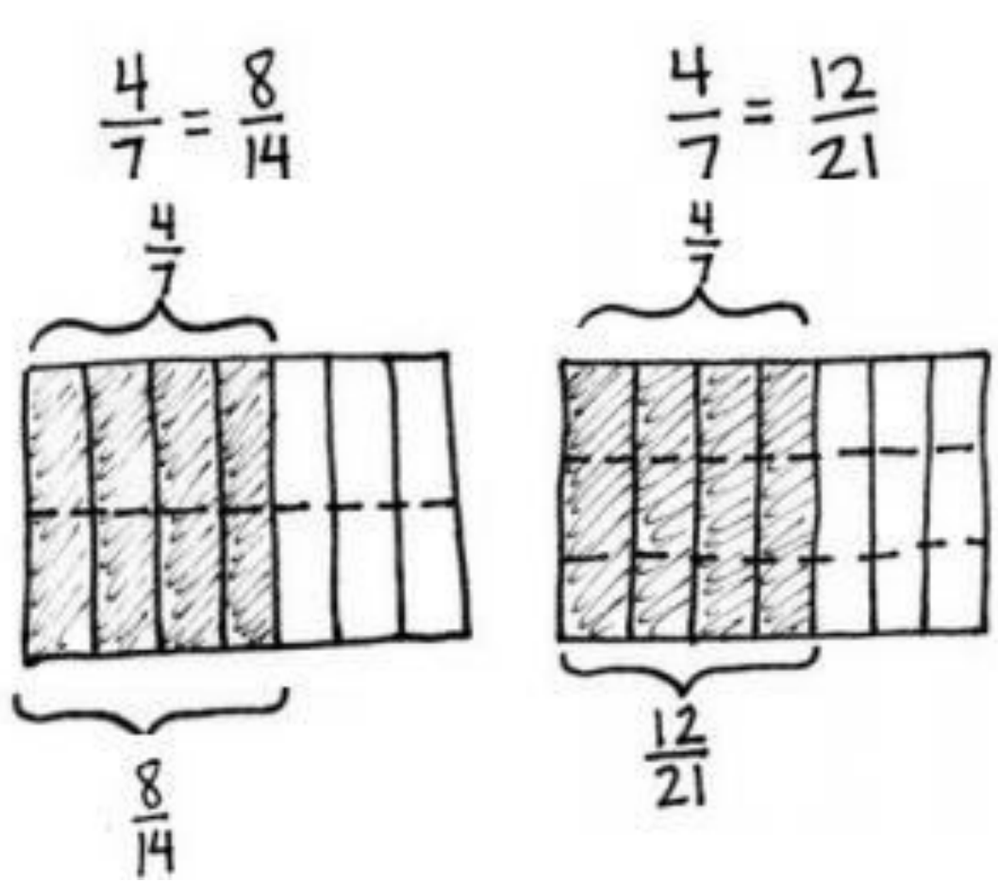
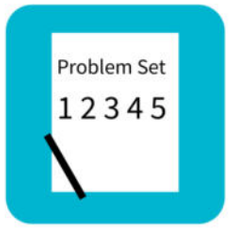




Concept Development

Materials

(S) Personal White board

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

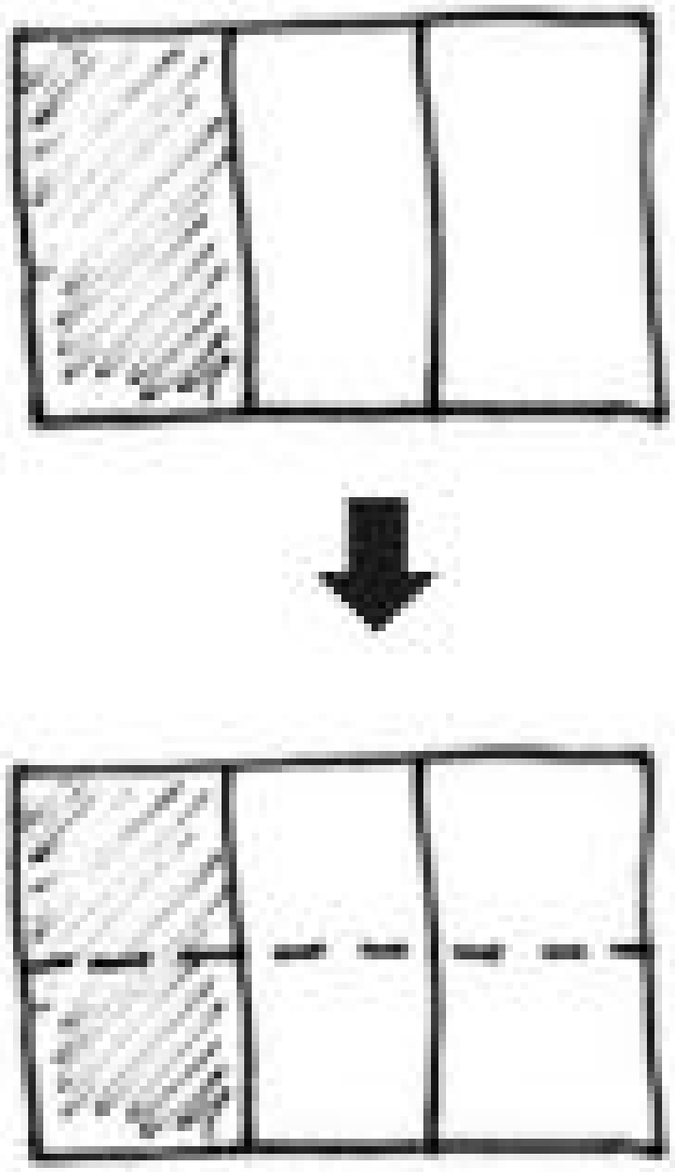
Draw an area model representing 1 whole partitioned into thirds.

Shade and record ⅓ below the area model.

Draw 1 horizontal line across the area model.

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.



Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

What happened to the size of the fractional units?

What happened to the number of units in the whole?

What happened to the number of selected units when we drew the dotted line?

$$\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}.$$

They are equivalent fractions.

Why didn't doubling the number of selected units make the fraction larger?

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Draw an area model representing 1 whole partitioned with a vertical line into 2 halves.

Shade and record ½ below the area model.

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Draw an area model representing 1 whole partitioned with a vertical line into 2 halves.

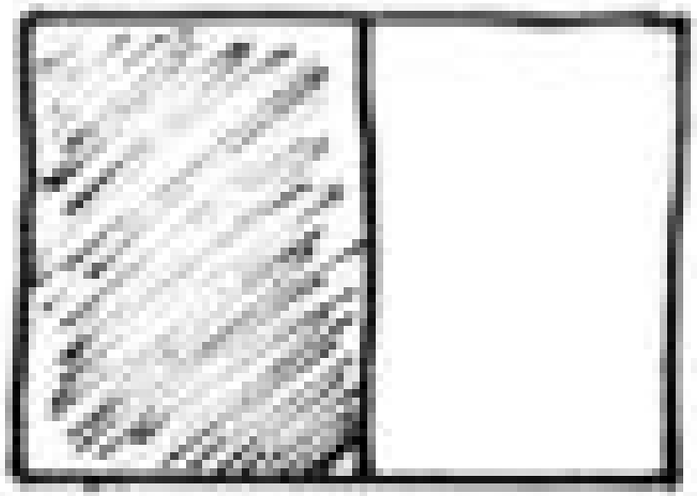
Shade and record ½ below the area model.

If we want to rewrite ½ using 4 times as many units, what should we do?

Concept Development

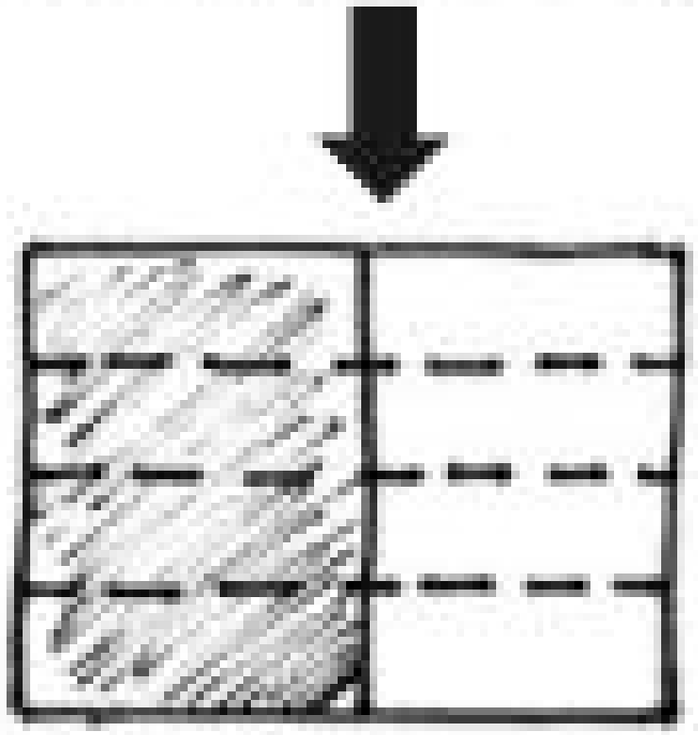
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

½



What happened to the number of units in the whole?

4/8



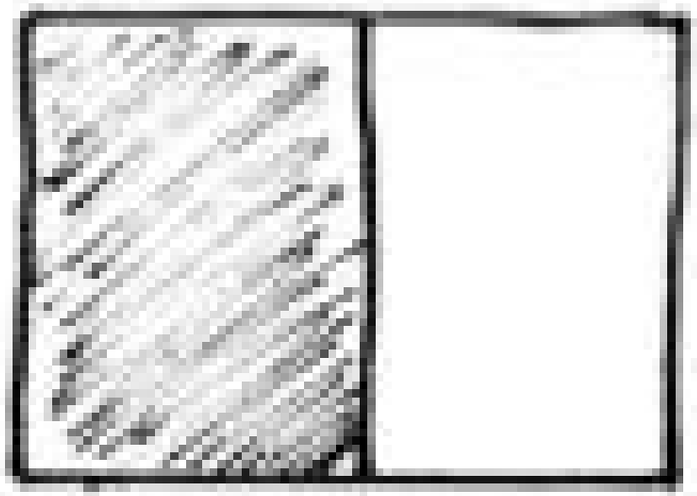
What happened to the number of units selected?

Has the size changed??

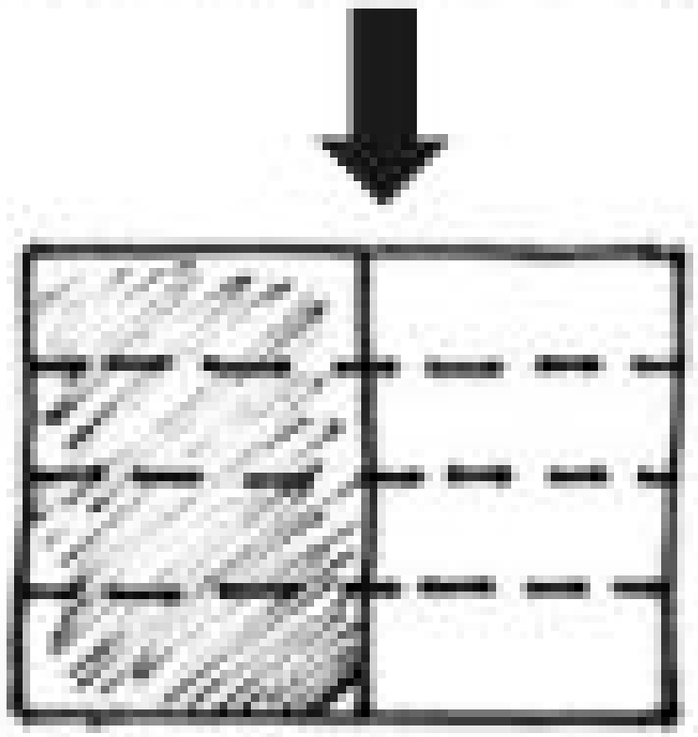
Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

½



4/8

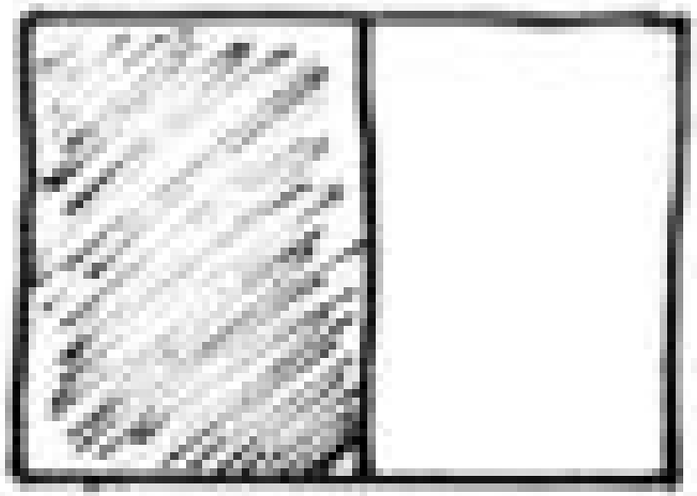


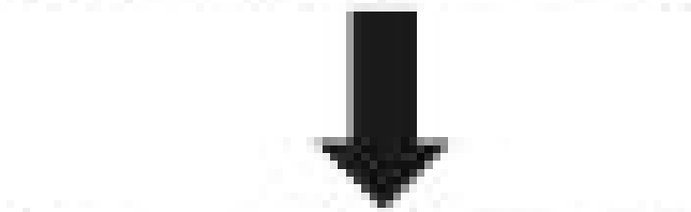
What can you conclude about ½ and 4/8?

Concept Development

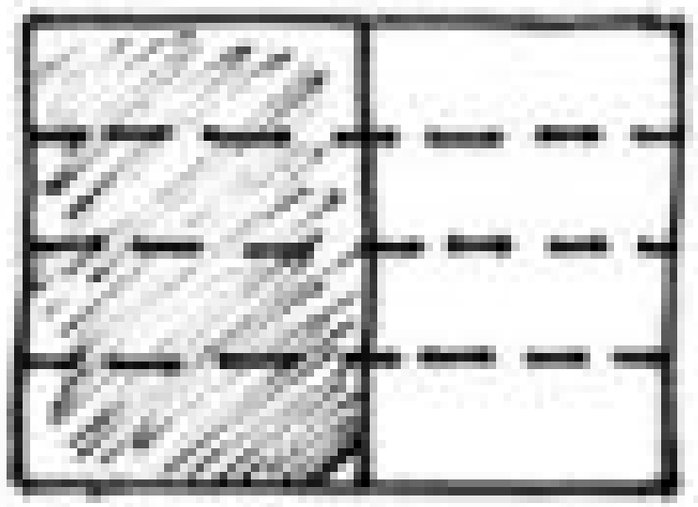
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

½





4/8



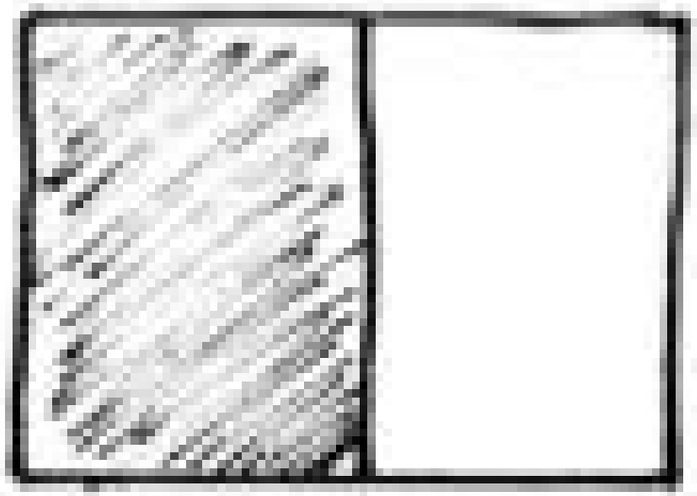
What can you conclude about ½ and 4/8?

They are EQUIVALENT!

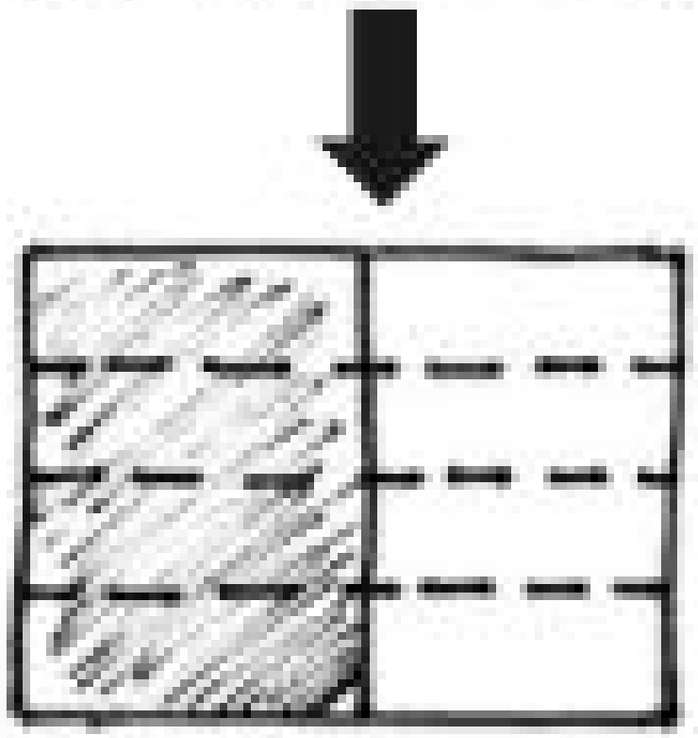
Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

½



4/8



What can you conclude about ½ and 4/8?

They are EQUIVALENT!

$$\frac{1}{2} = \frac{1 \times 4}{2 \times 4} = \frac{4}{8}.$$

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Work with your partner to determine an equivalent fraction to ¼

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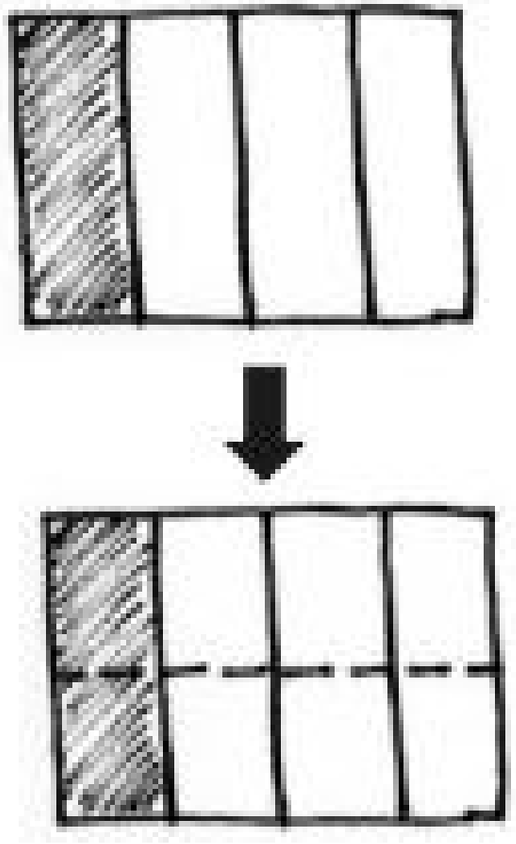

Concept Development

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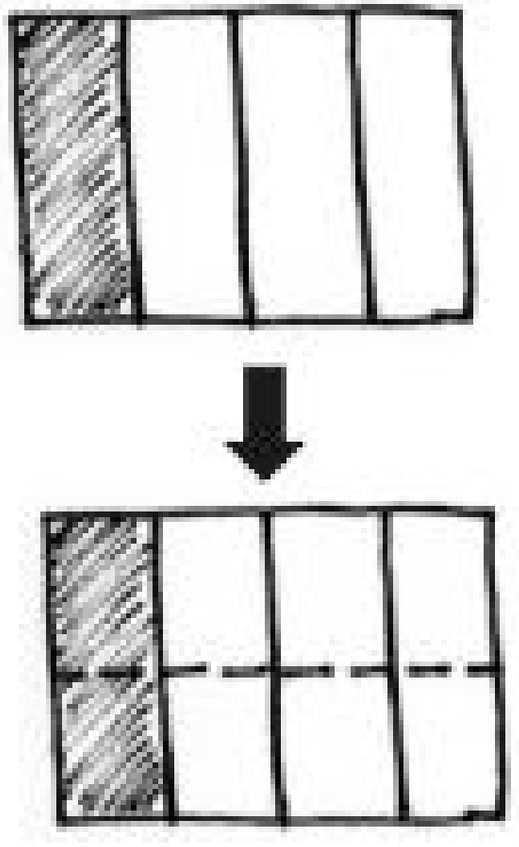
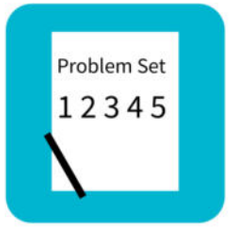


$$\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$$



Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Work with your partner to determine an equivalent fraction to $\frac{1}{3}$ WITHOUT drawing an area model first.

Concept Development

Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Work with your partner to determine an equivalent fraction to $\frac{1}{3}$ WITHOUT drawing an area model first.

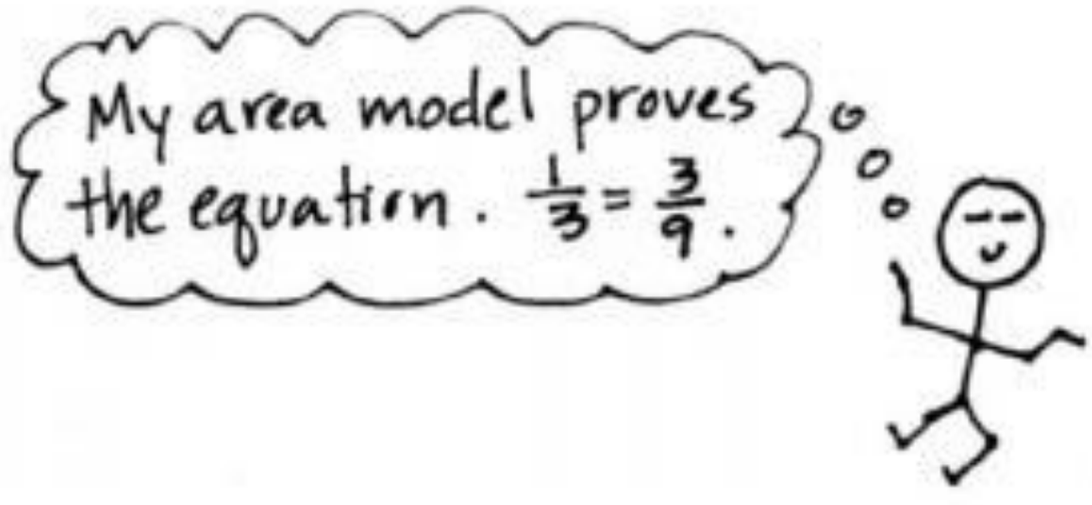
$$\frac{1}{3} = \frac{1 \times 3}{3 \times 3} = \frac{3}{9}$$

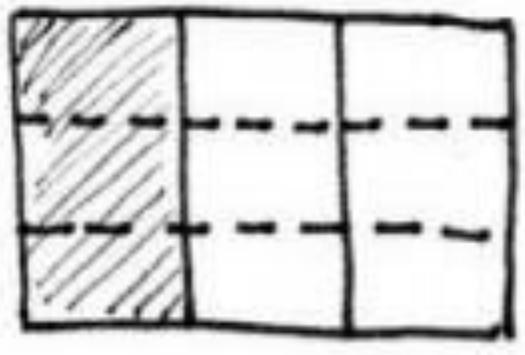
Concept Development

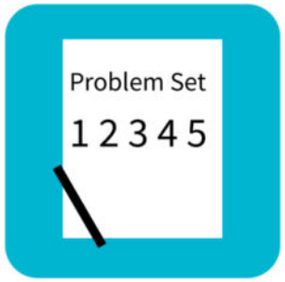
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

Work with your partner to determine an equivalent fraction to $\frac{1}{3}$ WITHOUT drawing an area model first.

$\frac{1}{3} = \frac{1 \times 3}{3 \times 3} = \frac{3}{9}$







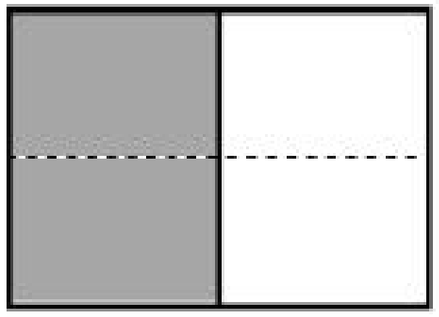
Problem Set

Name _____ Date _____

Each rectangle represents 1.

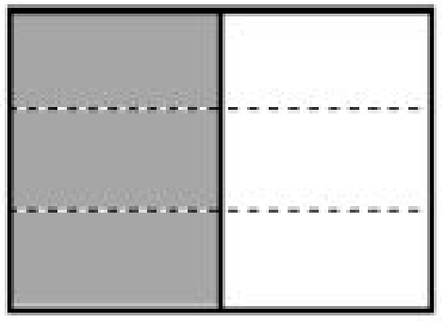
1. The shaded unit fractions have been decomposed into smaller units. Express the equivalent fractions in a number sentence using multiplication. The first one has been done for you.

a.



$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$

b.



Debrief

What pattern did you notice for Problem 1(a–d)?

Discuss and compare with your partner your answers to Problems 2(e) and 2(f).

In Problem 2, the unit fractions have different denominators. Discuss with your partner how the size of a unit fraction is related to the denominator.

The numerator identifies the number of units selected. Can the numerator be larger than the denominator?

Exit Ticket

Name _____ Date _____

Draw two different area models to represent 1 fourth by shading.
Decompose the shaded fraction into (a) eighths and (b) twelfths.
Use multiplication to show how each fraction is equivalent to 1 fourth.

a.