Eureka Math

4th Grade
Module 5
Lesson 8

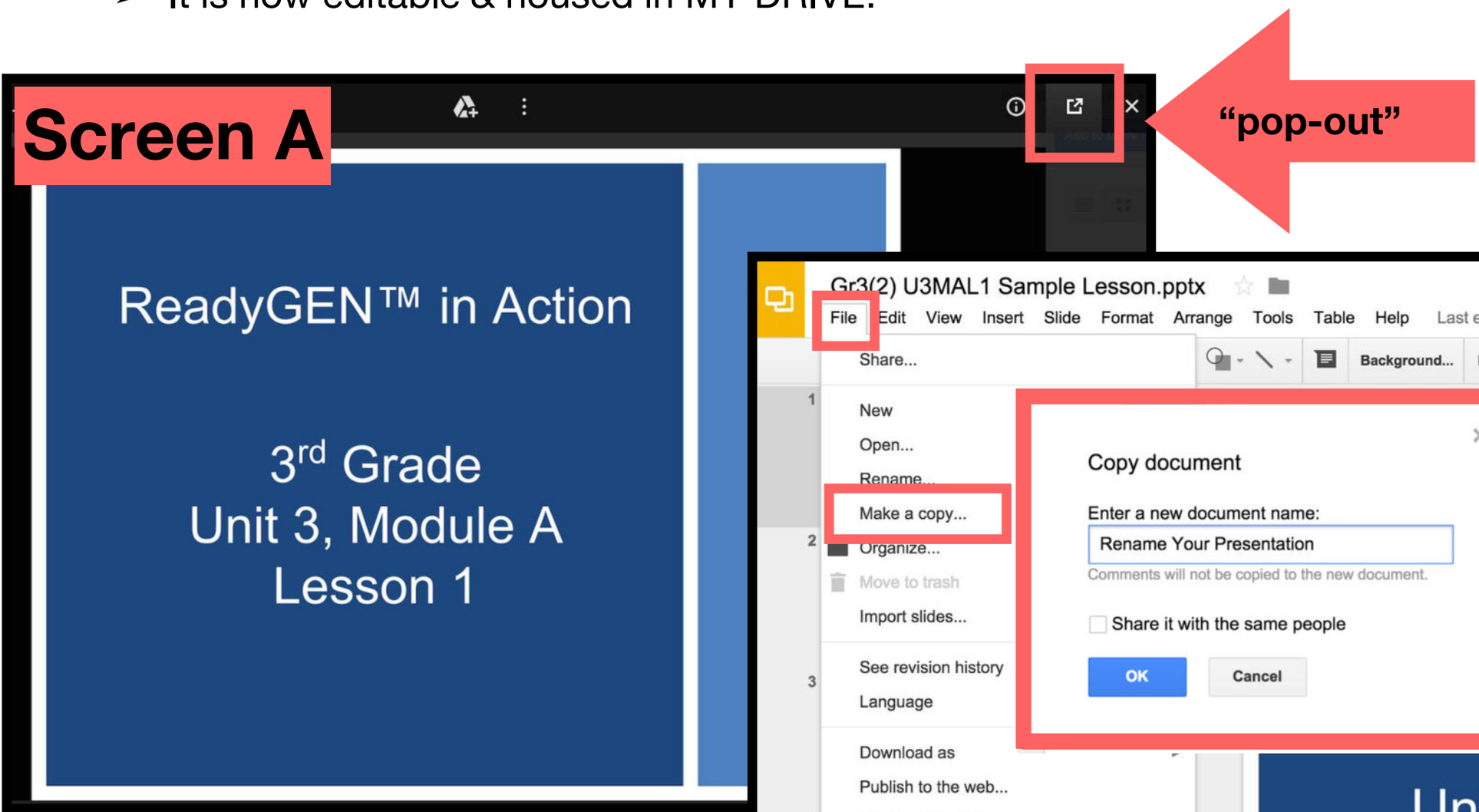
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this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

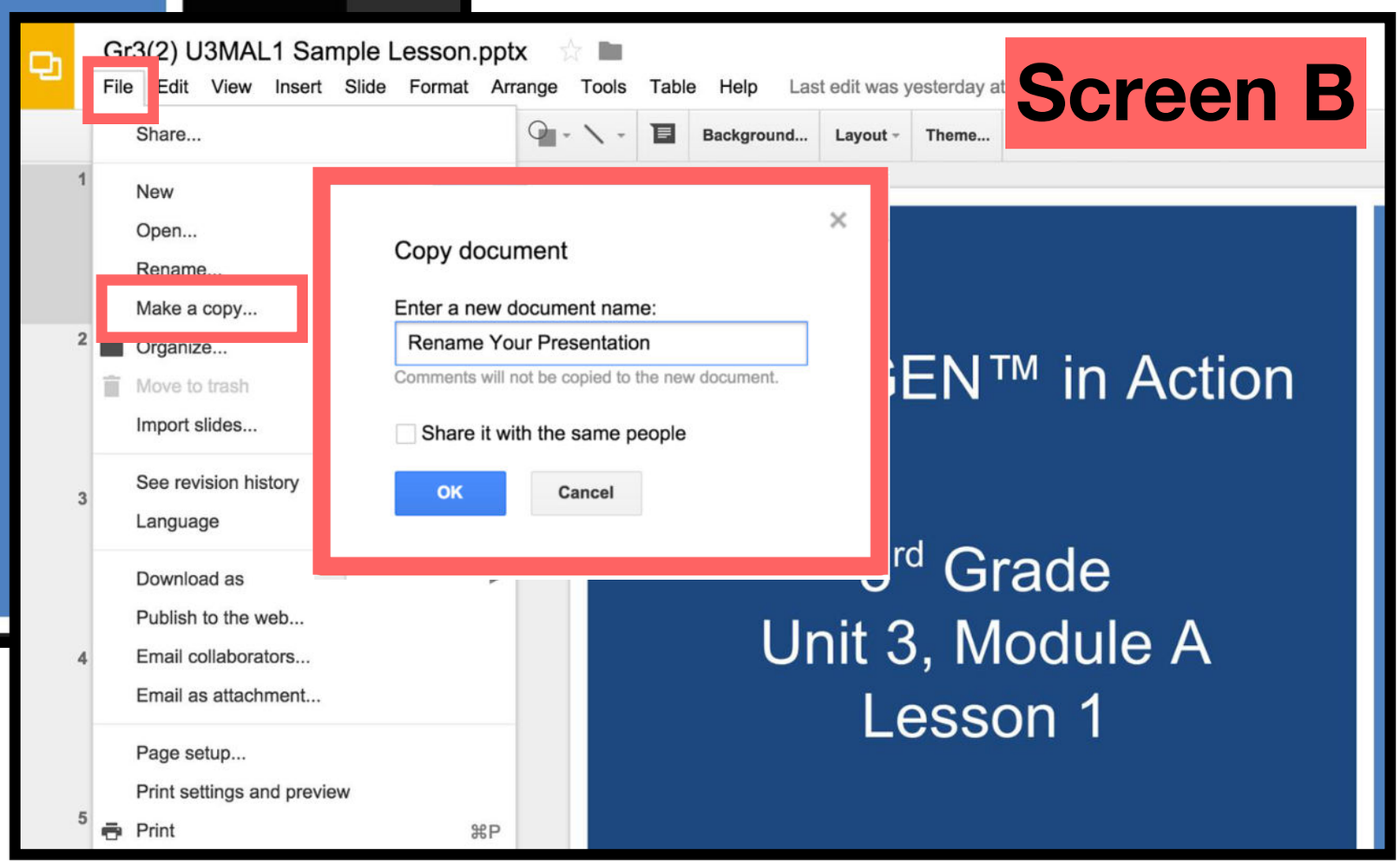
Directions for customizing presentations are available on the next slide.

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

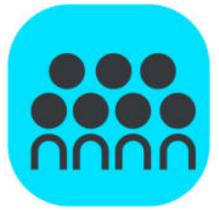
Personal White Board

Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

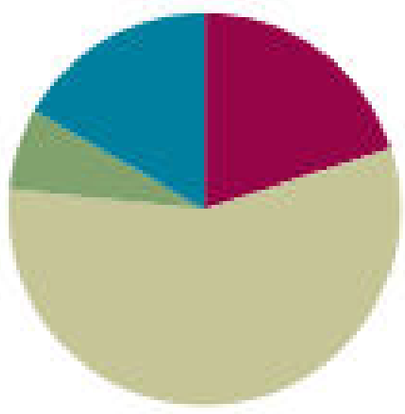
Small Group Time

Lesson 8

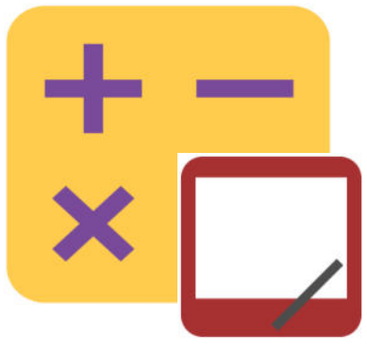
Objective: Use the area model and multiplication to show the equivalence of two fractions.

Suggested Lesson Structure

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



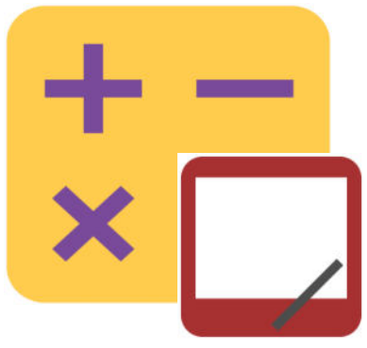
I can use the area model and multiplication to show the equivalence of two fractions.



Fluency Practice

Multiply Mentally

32 x 3 = ____



Fluency Practice

Multiply Mentally

32 x 3 = 96

32 x 20 =

Fluency Practice

Multiply Mentally

32 x 3 = 96

32 x 20 = 640

32 x 23 = _____

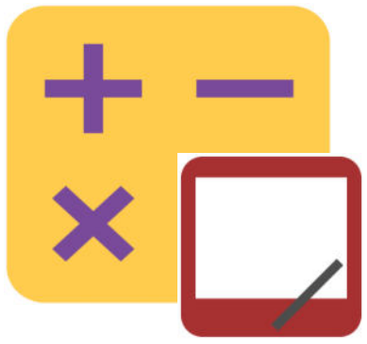
Fluency Practice

Multiply Mentally

32 x 3 = 96

32 x 20 = 640

32 x 23 = 736



Fluency Practice

Count by Equivalent Fractions

Count from 0 to 12 by twos.

Fluency Practice

Count by Equivalent Fractions

Count by 2 thirds to 12 thirds

Fluency Practice

Count by Equivalent Fractions

Count by 2 thirds to 12 thirds

$\frac{0}{3}$	$\frac{2}{3}$	$\frac{4}{3}$	$\frac{6}{3}$	$\frac{8}{3}$	$\frac{10}{3}$	$\frac{12}{3}$
0	$\frac{2}{3}$	$\frac{4}{3}$	2	$\frac{8}{3}$	$\frac{10}{3}$	4

1 is the same as how many thirds?

Fluency Practice

Count by Equivalent Fractions

Count by 2 thirds to 12 thirds

$\frac{0}{3}$	$\frac{2}{3}$	$\frac{4}{3}$	$\frac{6}{3}$	$\frac{8}{3}$	$\frac{10}{3}$	$\frac{12}{3}$
0	$\frac{2}{3}$	$\frac{4}{3}$	2	$\frac{8}{3}$	$\frac{10}{3}$	4

2 is the same as how many thirds?

Fluency Practice

Drawing by Equivalent Fractions

Say this fraction

½

Fluency Practice

Drawing by Equivalent Fractions

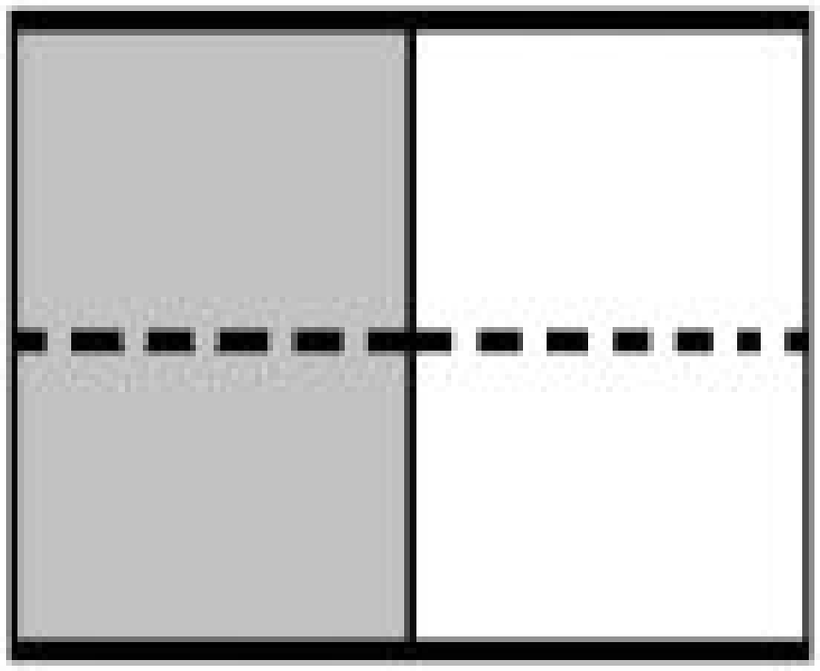
Say this fraction

½

Draw a model partitioned into 2 equal units.

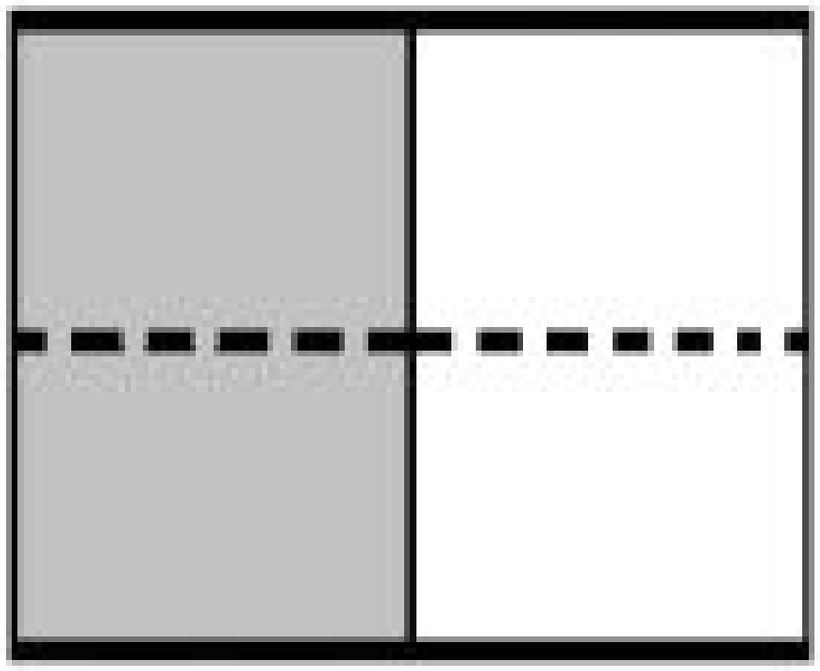
Fluency Practice

Draw Equivalent Fractions



Fluency Practice

Draw Equivalent Fractions



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

Fluency Practice

Draw Equivalent Fractions

Repeat as needed with any of the following:

$\frac{1}{2} = \frac{\quad}{8}$, $\frac{1}{3} = \frac{\quad}{9}$, $\frac{1}{4} = \frac{\quad}{8}$, $\frac{1}{5} = \frac{\quad}{15}$, and $\frac{1}{7} = \frac{\quad}{14}$

Application Problem

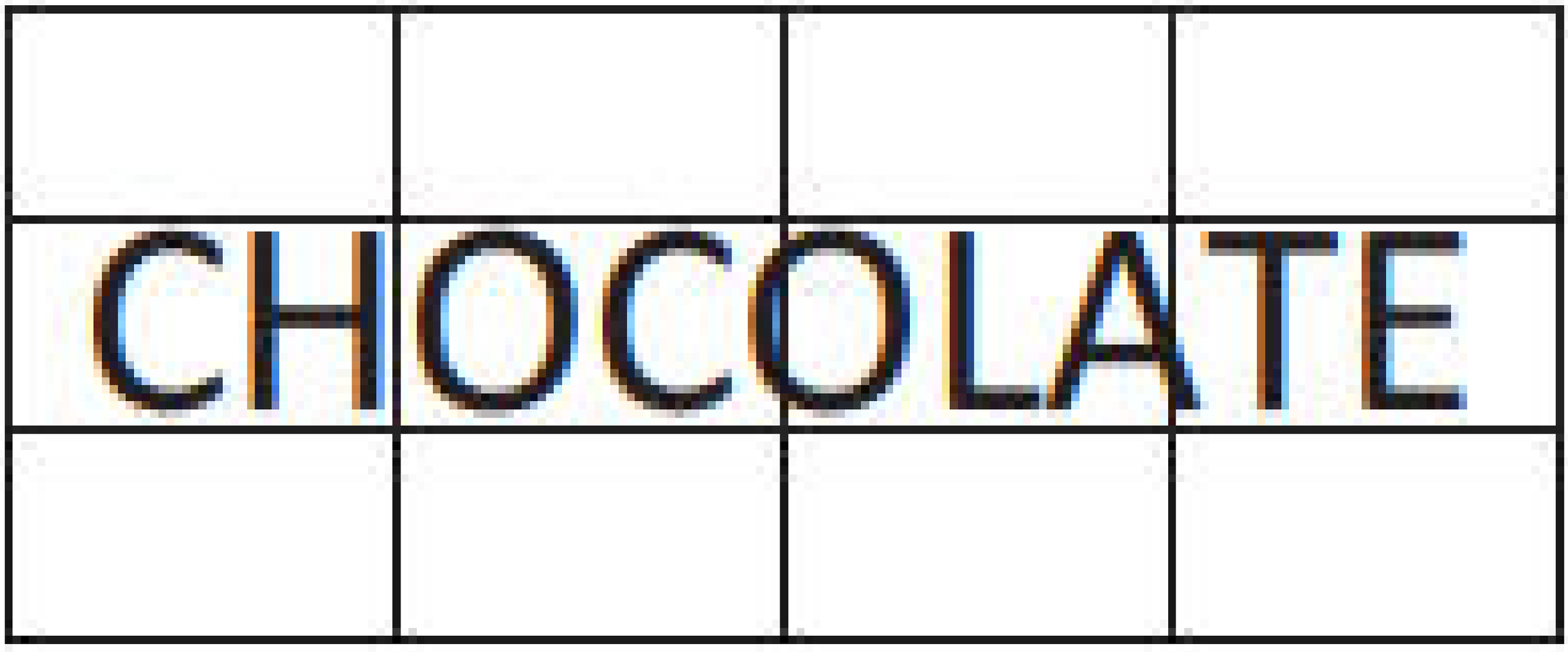
Saisha gives some of her chocolate bar to her younger brother Lucas.

He says, "Thanks for 3 twelfths of the bar."

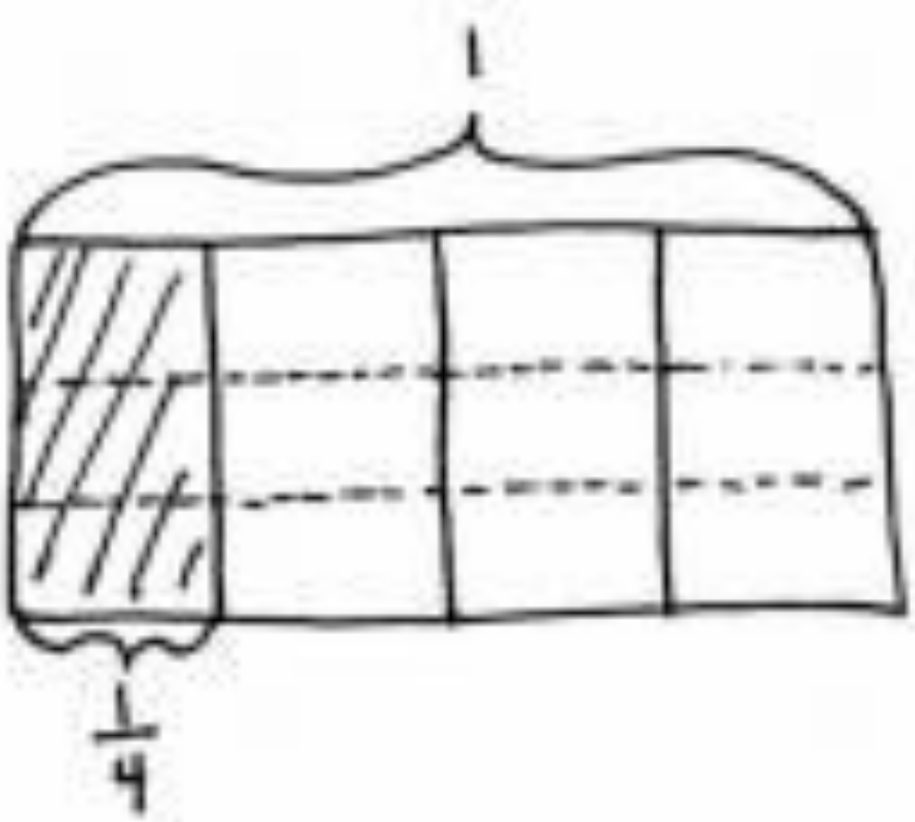
Saisha responds, "No. I gave you ¼ of the bar."

Explain why both Lucas and Saisha are correct.

Application Problem



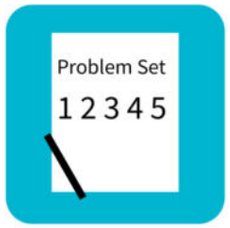
Application Problem



The smaller unit is twelfths. 3 twelfths is the same as 1 fourth.

Both Lucas and Saisha are correct because $\frac{3}{12} = \frac{1}{4}$.

$$\frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$$



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 to represent 2 thirds.

Draw three horizontal lines across the area model.

Concept Development

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

Draw an area model to represent 2 thirds.

Draw three horizontal lines across the area model.

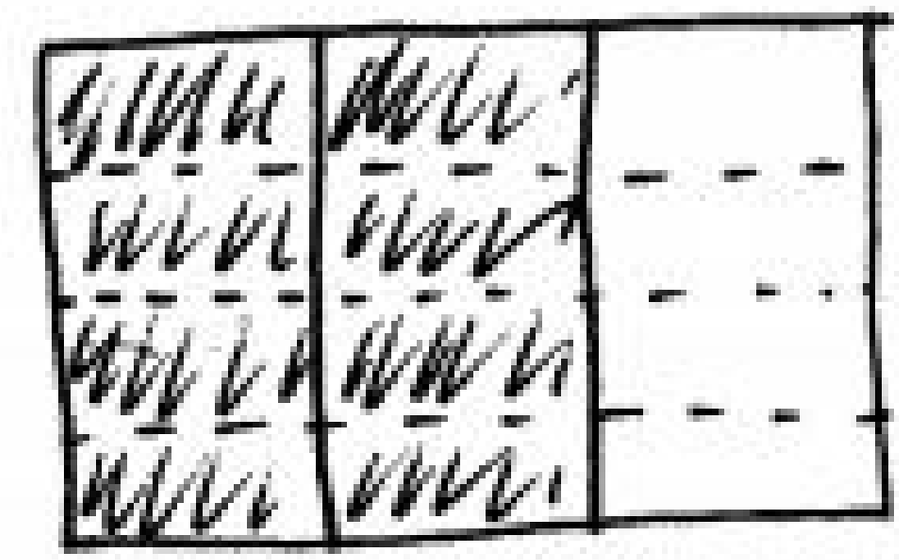
What happened to the size of the fractional units?

What happened to the number of units?

Problem Set
1 2 3 4 5

Concept Development

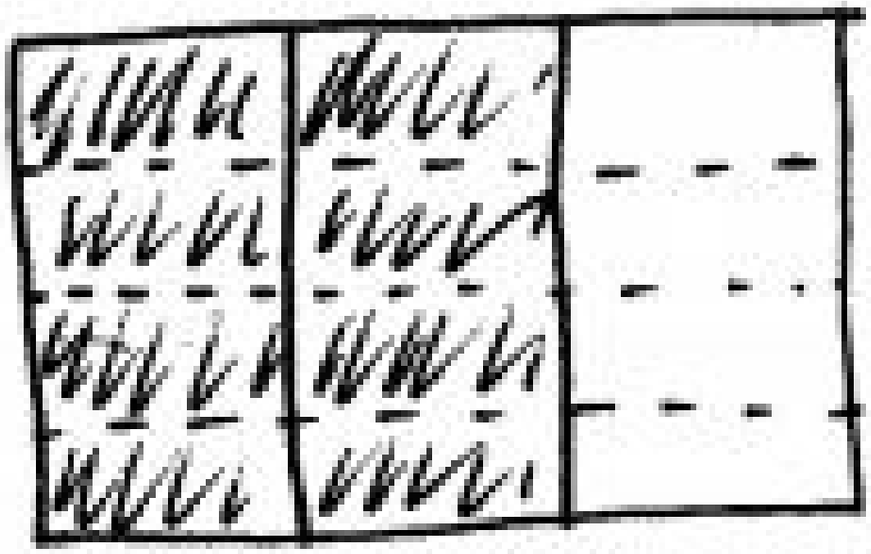
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.



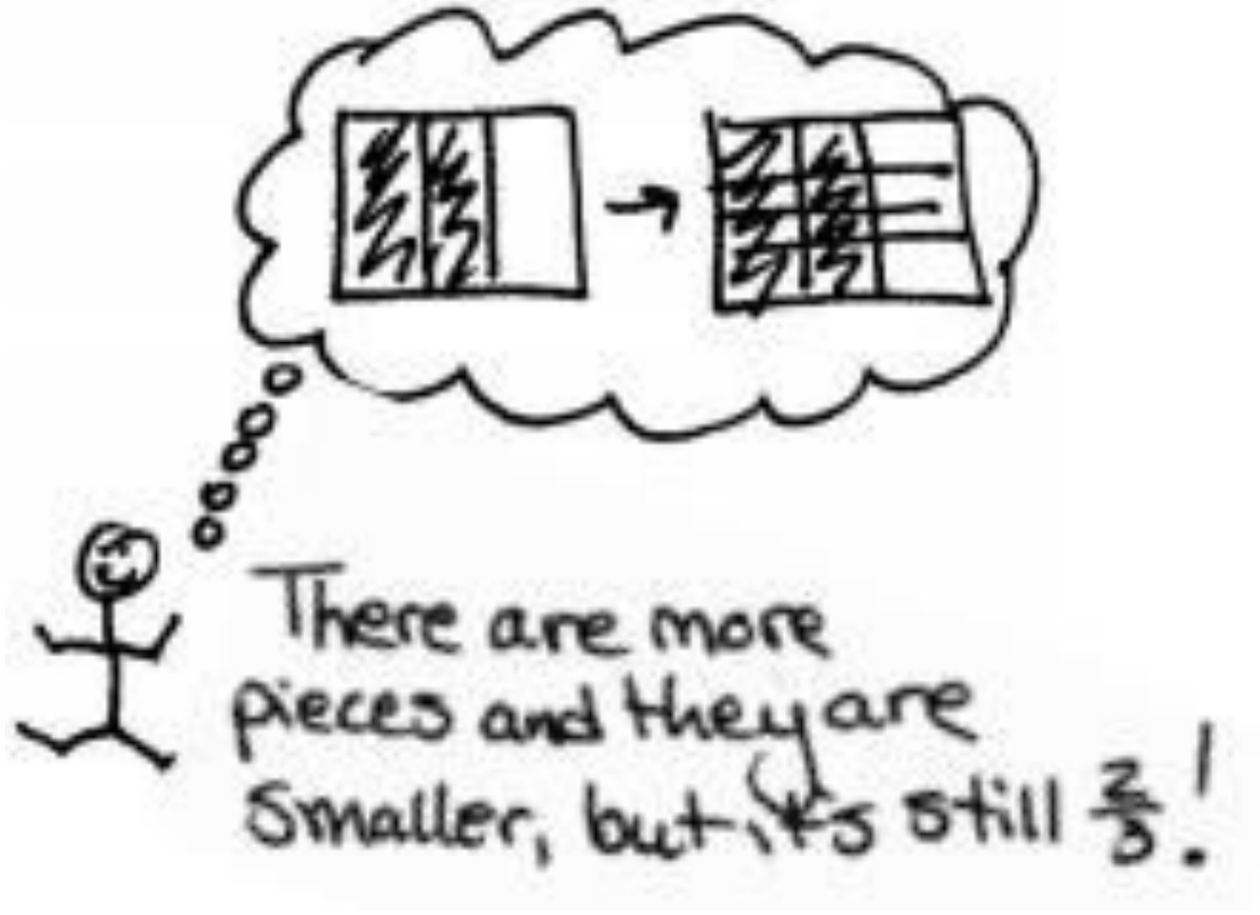
$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

Concept Development

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

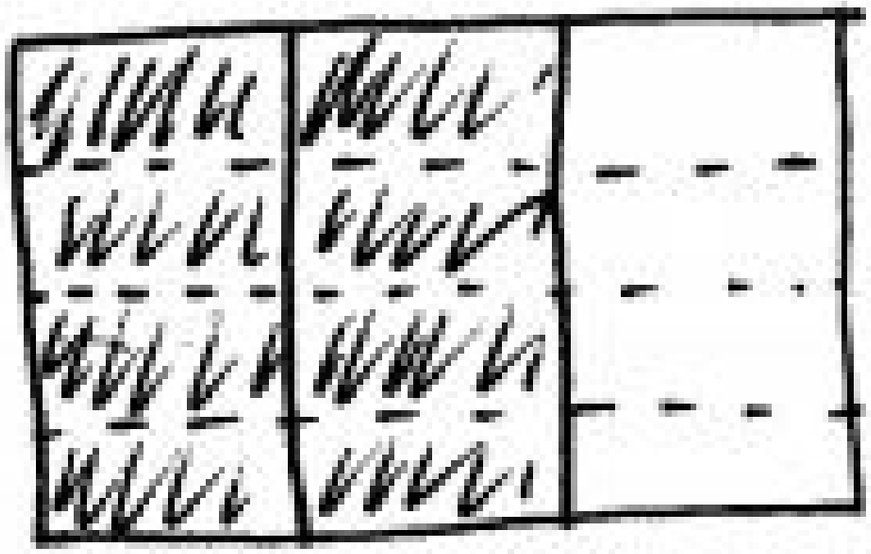


$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

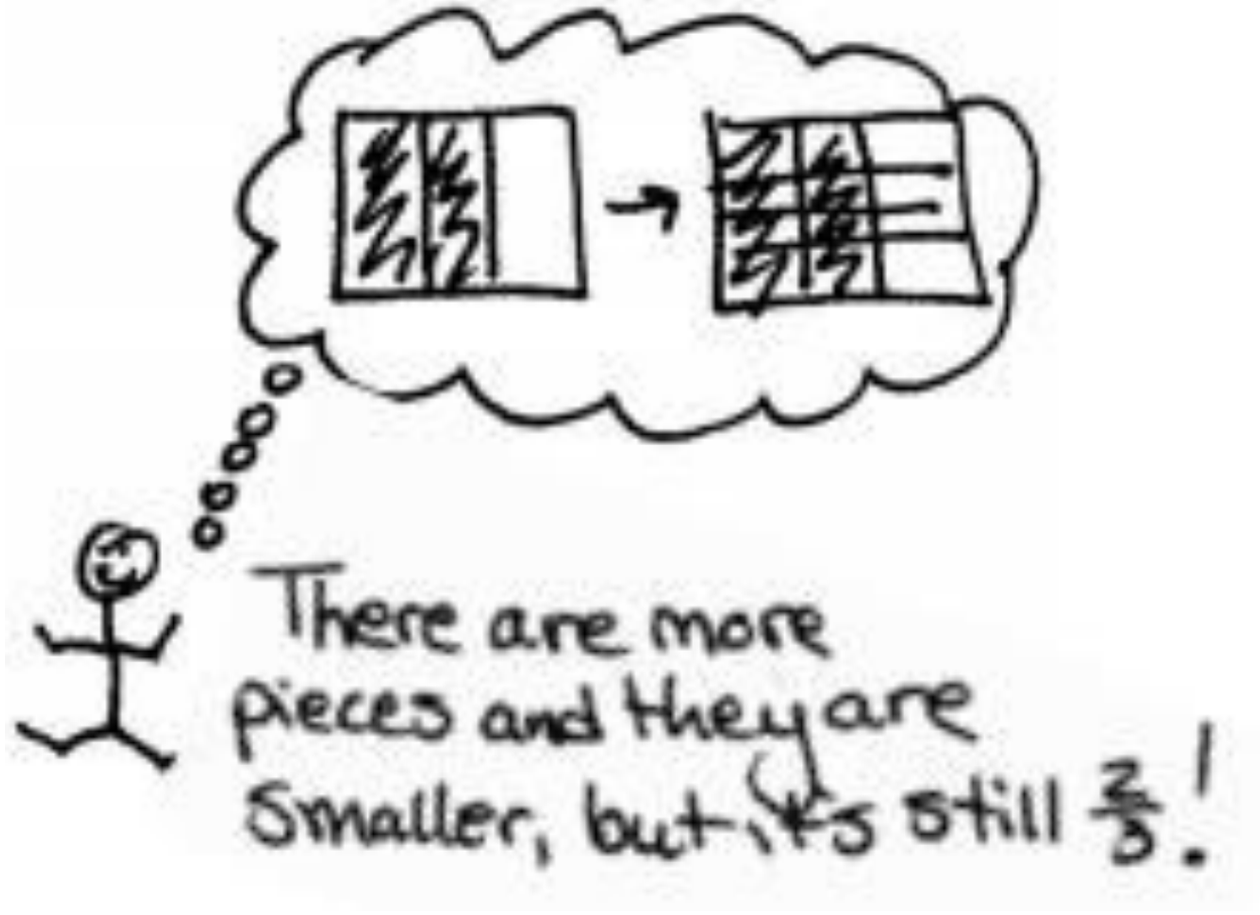


Concept Development

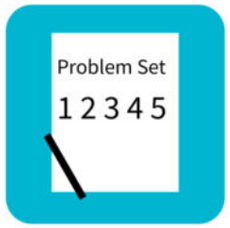
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.



$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$



How do you know the fraction is still representing the same amount?



Concept Development

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

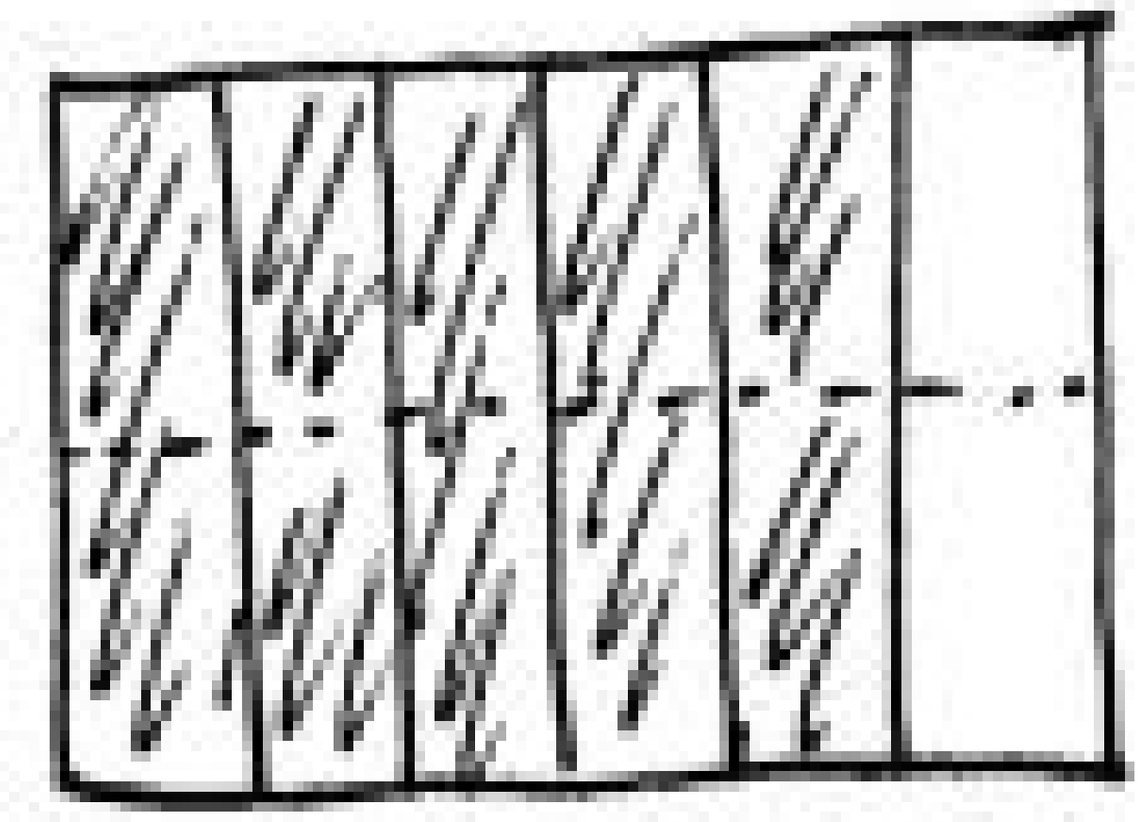
Draw an area model to represent $\frac{5}{6}$

Find an equivalent fraction with the denominator of 12.

Explain to a partner how this is done.

Concept Development

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



$$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$$

Concept Development

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

$$\frac{3}{4} = \frac{6}{8}$$

If the whole is the same, is this statement true or false?

Concept Development

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

$$\frac{3}{4} = \frac{6}{8}$$

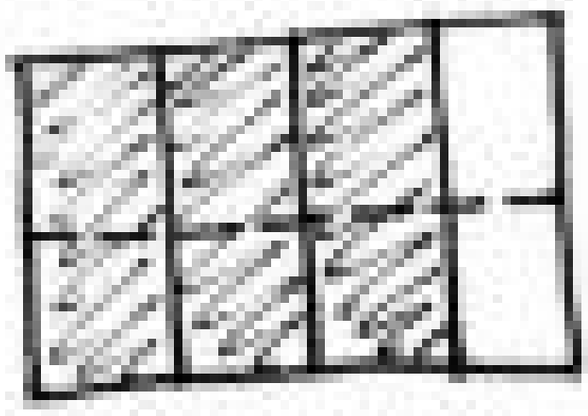
Represent the equivalence in a number sentence using multiplication, and draw an area model to show the equivalence.

Concept Development

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

$$\frac{3}{4} = \frac{6}{8}$$

$$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$$



Concept Development

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

$$\frac{3}{4} = \frac{6}{12}$$

If the whole is the same, is this statement true or false?

Concept Development

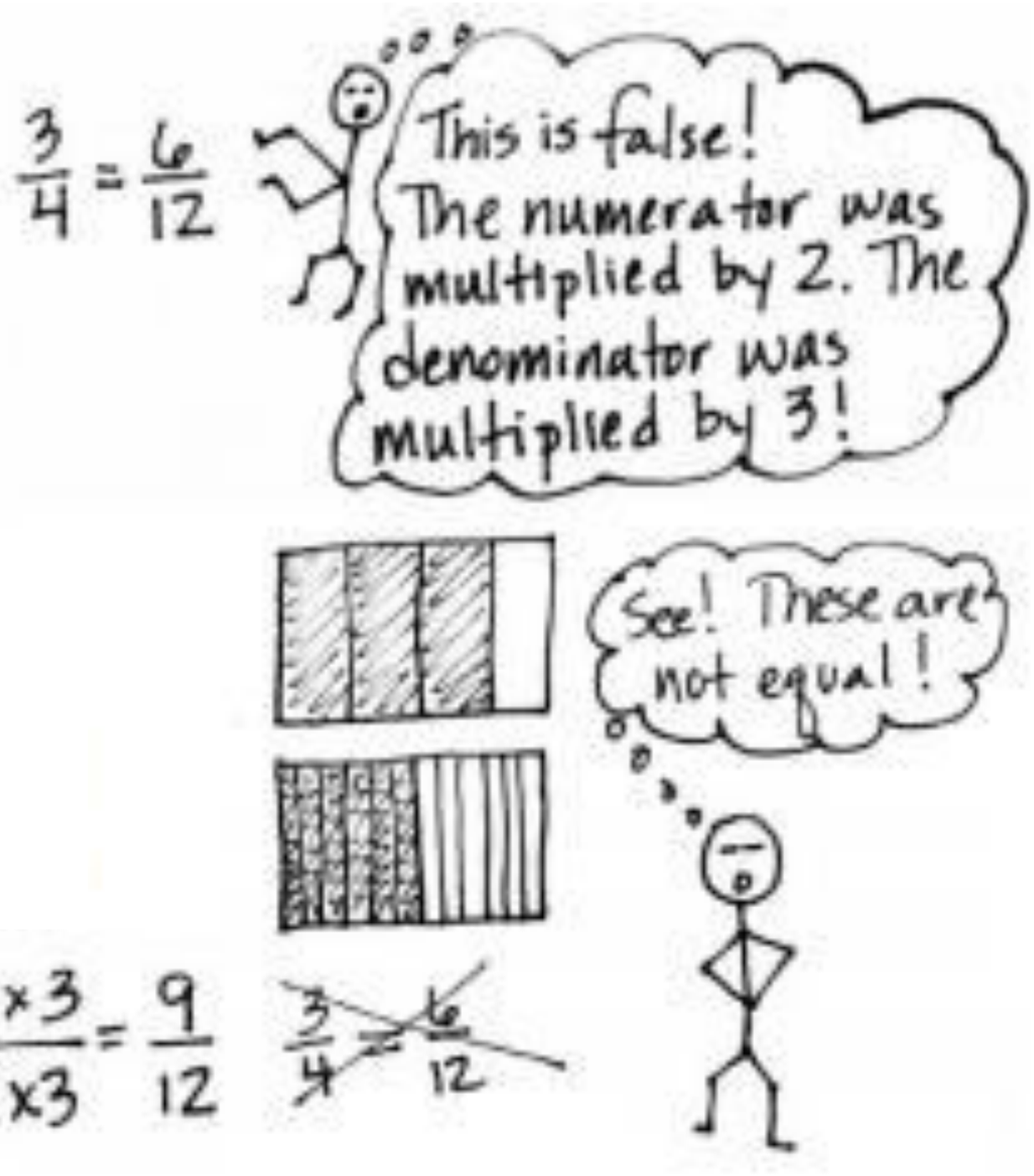
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

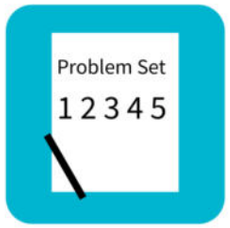
$$\frac{3}{4} = \frac{6}{12}$$

Represent the equivalence in a number sentence using multiplication, and draw an area model to show the equivalence.

Concept Development

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





Concept Development

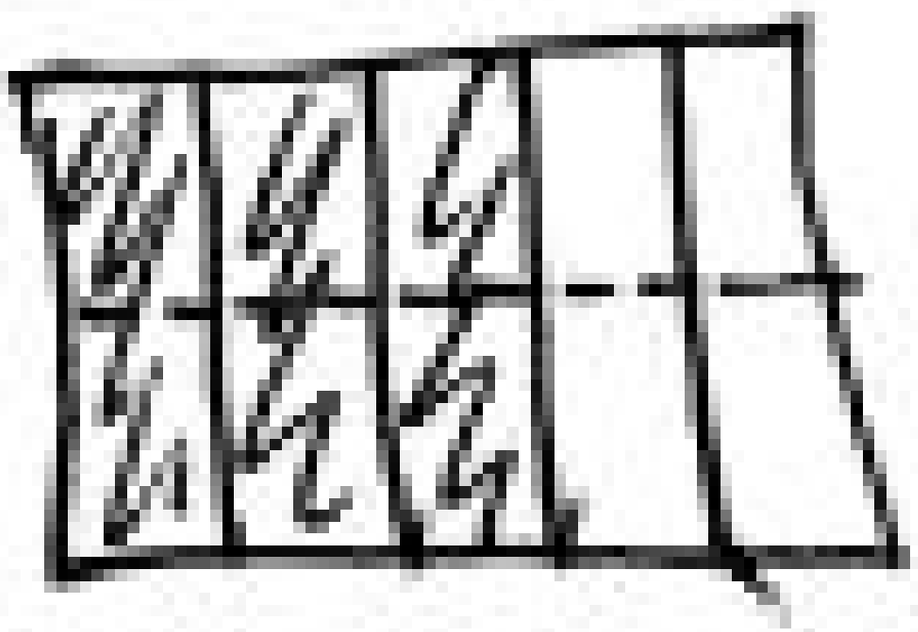
Determine that multiplying the numerator and denominator by ***n*** results in an equivalent fraction.

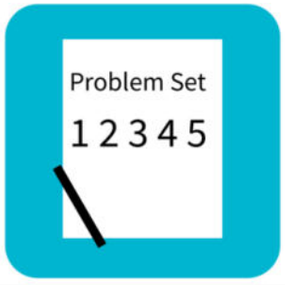
Find an equivalent fraction for $\frac{3}{5}$ without drawing an area model first.

Concept Development

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

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$





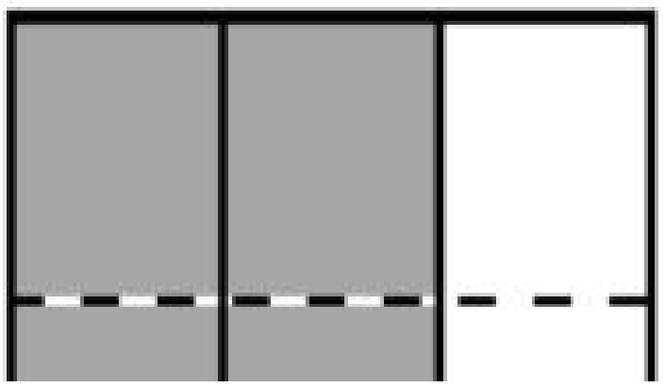
Problem Set

Name _____ Date _____

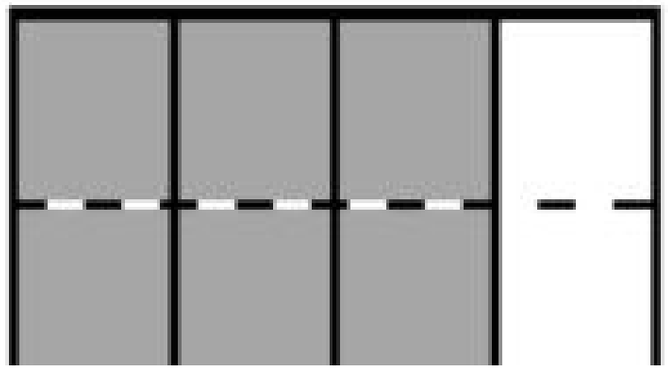
Each rectangle represents 1.

1. The shaded 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.



b.



Debrief

For Problem 3(a–d), how did you determine the number of horizontal lines to draw in each area model?

For Problem 5(c), did you and your partner have the same answer? Explain why you might have different answers.

Explain when someone might need to use equivalent fractions in daily life.

How are we able to show equivalence without having to draw an area model?

Think back to the Application Problem. What fraction of the bar did Saisha receive?

Exit Ticket

Name _____ Date _____

1. Use multiplication to create an equivalent fraction for the fraction below.

$$\frac{2}{5}$$