## Material List

(T) Meter stick, 12-inch ruler, pad of square sticky notes
(S) 1 set of square centimeter and square inch tiles per pair (from Lesson 2), personal white board, ruler, area model (Template)

# Eureka Math

## 3rd Grade
## Module 4
## Lesson 7

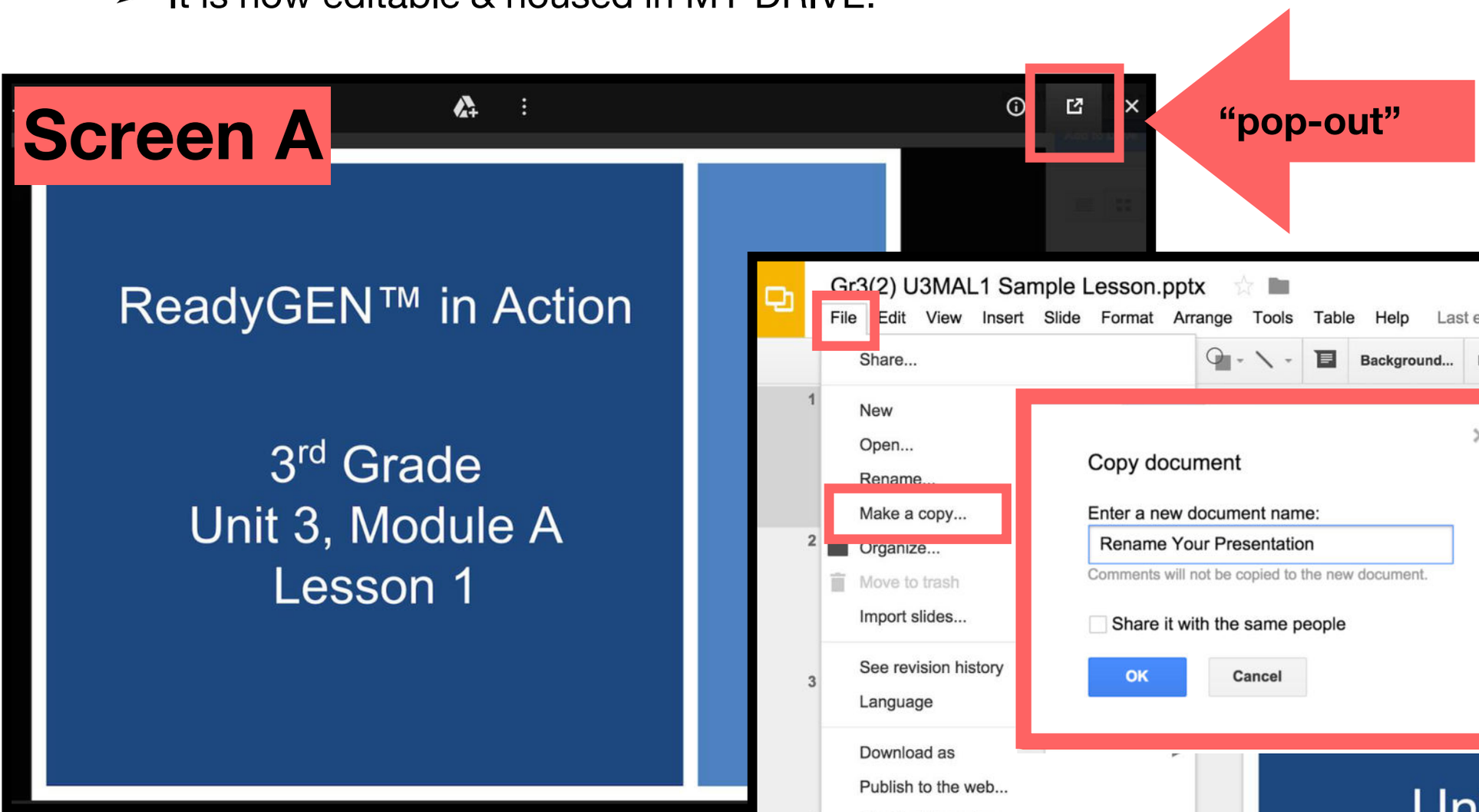
At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this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

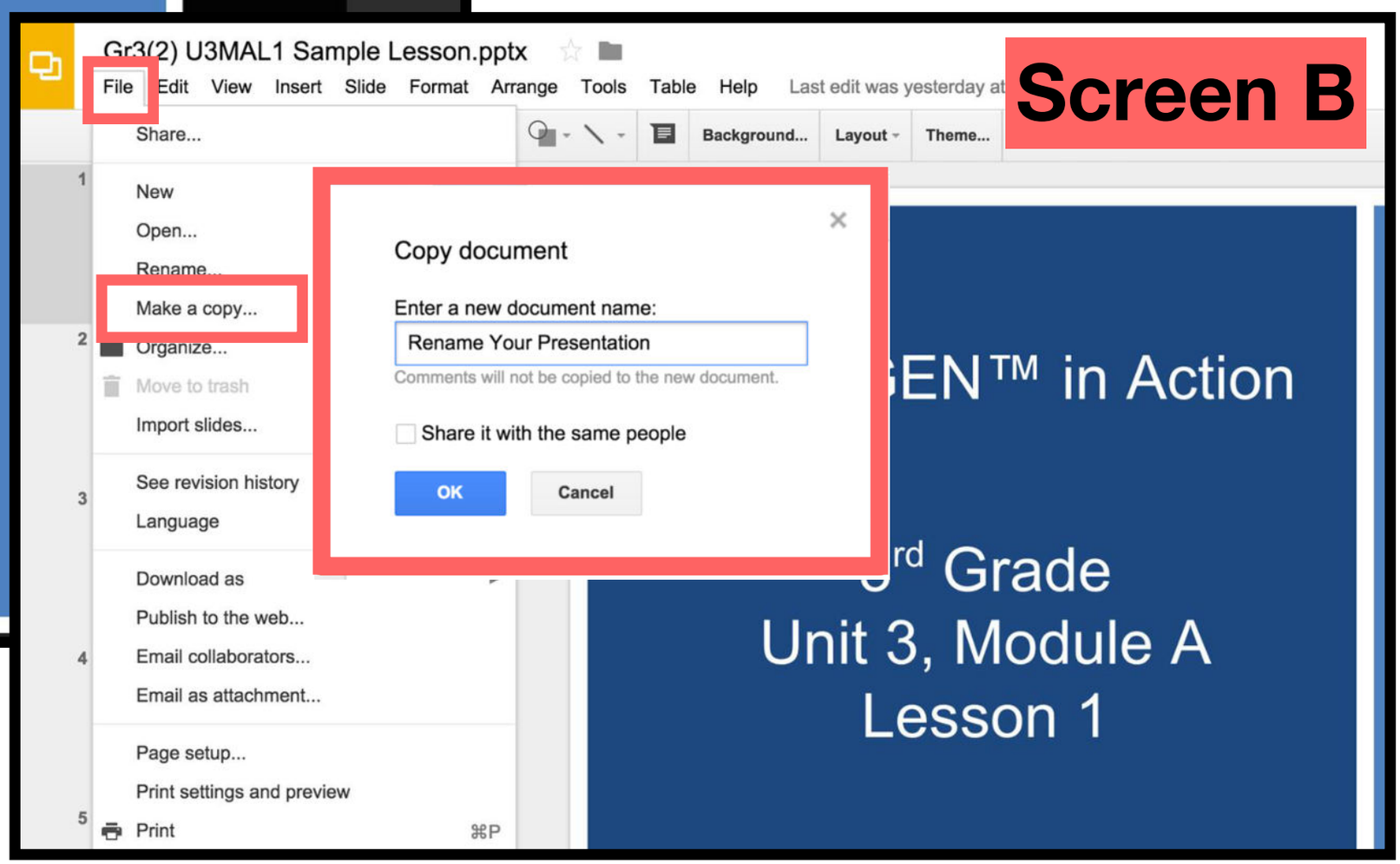
Directions for customizing presentations are available on the next slide.

# 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

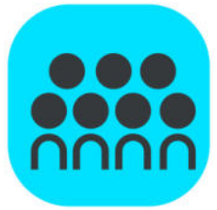
Personal White Board


Problem Set

Manipulatives Needed

Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

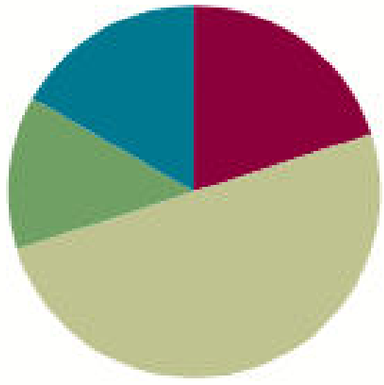
Small Group Time

# Lesson 7

Objective:  Interpret area models to form rectangular arrays.

**Suggested Lesson Structure**

| | |
|---|---|
| Fluency Practice | (12 minutes) |
| Application Problem | (8 minutes) |
| Concept Development | (30 minutes) |
| Student Debrief | (10 minutes) |
| **Total Time** | **(60 minutes)** |



Materials: (T) Meter stick, 12-inch ruler, pad of square sticky notes (S) 1 set of square centimeter and square inch tiles per pair (from Lesson 2), personal white board, ruler, area model (Template)

# I can interpret area models to make rectangular arrays.

# Fluency Practice

Group Counting (4 minutes)

**Count forward and backward as I indicate with pointing my finger, by…**

**Sixes to 60**

# Fluency Practice

## Group Counting

**Count forward and backward as I indicate with pointing my finger, by…**

**Sevens to 70**

# Fluency Practice

## Group Counting

**Count forward and backward as I indicate with pointing my finger, by…**

**Eights to 80**

# Fluency Practice

## Group Counting

**Count forward and backward as I indicate with pointing my finger, by…**

**Nines to 90**

# Fluency Practice

## Draw Rectangles (4 minutes)

Draw a rectangle that has an area of….

6 square units

10 square units

12 square units

16 square units

24 square units

35 square units

# Fluency Practice

Draw Rectangular Arrays (4 minutes)

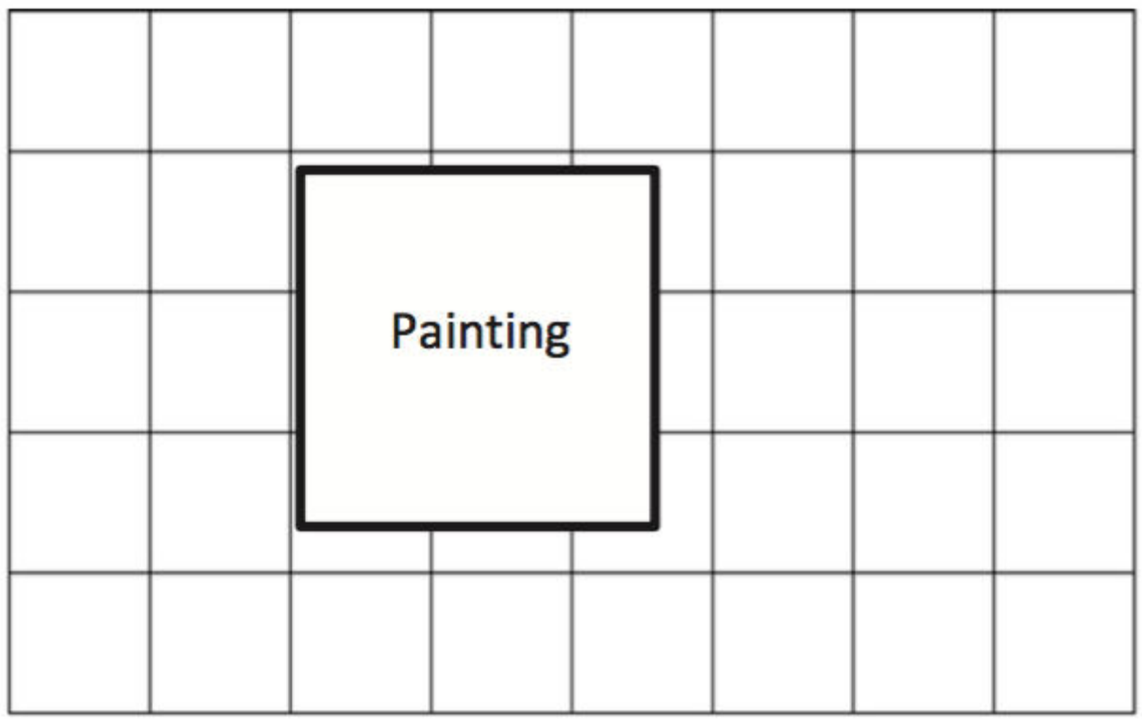
Draw a 4 × 2 rectangular array using the squares on your grid paper.

How many square units are in your array?

6 × 2
4 × 3
6 × 3
9 × 2
6 × 4
3 × 8

# Application Problem

Lori wants to replace the square tiles on her wall. The square tiles are sold in boxes of 8 square tiles. Lori buys 6 boxes of tiles. Does she have enough to replace all of the tiles, including the tiles under the painting? Explain your answer.



# Application Problem

Lori wants to replace the square tiles on her wall. The square tiles are sold in boxes of 8 square tiles. Lori buys 6 boxes of tiles. Does she have enough to replace all of the tiles, including the tiles under the painting? Explain your answer.

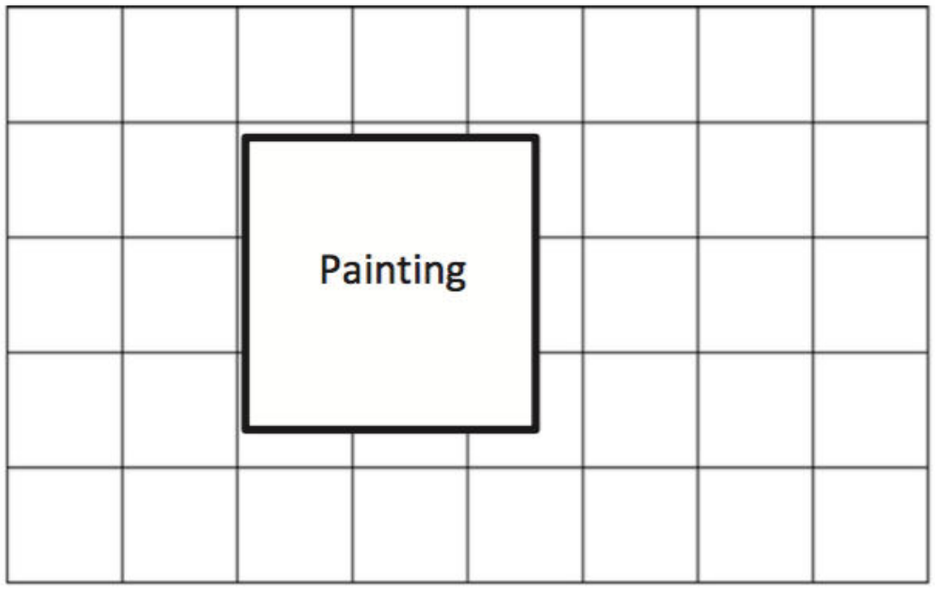
$8 \times 6 = 48$

She bought 48 square tiles.

$5 \times 8 = 40$

The area of the wall is 40 square tiles.

Yes, Lori will have enough tiles because she only needs 40 tiles, but she bought 48 tiles.



# Concept Development

One partner will use square inches, and the other will use square centimeters. Work together to decide how to arrange your tiles to make the same shape rectangle. Then, create that rectangle with your pieces.

Partner A: Square inches

Partner B: Square centimeters

# Concept Development

You and your partner each made the same shape rectangle. Is the area also the same?

Turn your personal white board horizontally and write the area of your rectangle.

# Concept Development

Suppose you used 12 square meter tiles to make your rectangle instead. Would this rectangle have a bigger area or a smaller area compared to your original rectangle? Why?

# Concept Development

How would your rectangle compare if you made it from 12 square feet? Why?

# Concept Development

How about if you had used 12 sticky notes? Why?

# Concept Development

Why is it important to label the unit when you are talking about area?

# Concept Development

Let us draw a rectangular array with an area of 18 square centimeters.

How might we find the side lengths?

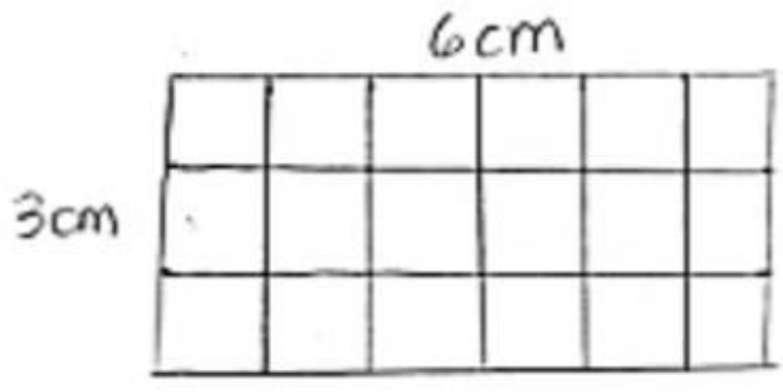
Work with your partner to make a list of multiplication facts that equal 18.

# Concept Development

Let us draw a 3 cm by 6 cm rectangular array.

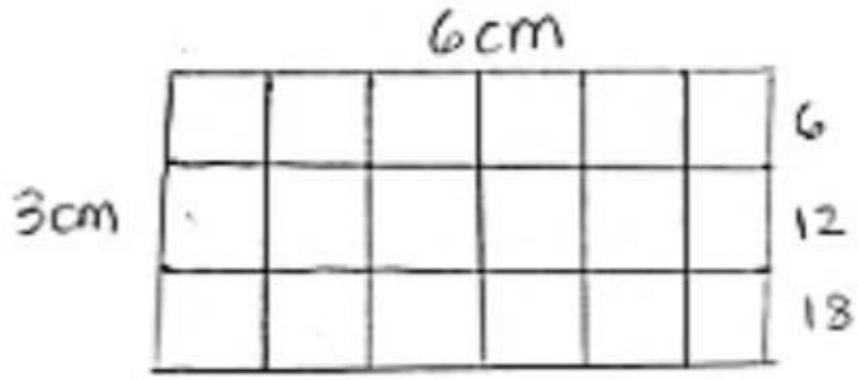
Use a ruler to measure the side lengths on your personal white board.

Mark each centimeter with a point and connect the points to draw the square centimeters.



# Concept Development

Check your work by skip-counting the rows to find the total number of tiles you drew.



# Concept Development

Turn your personal white board so that it is vertical.

Does the rectangle still have the same area?

However, the side lengths switched places.

Tell your partner how you know the area is the same.

# Concept Development

The grid you drew inside of your 3 cm by 6 cm rectangle shows a picture of all the tiles that make up the area.

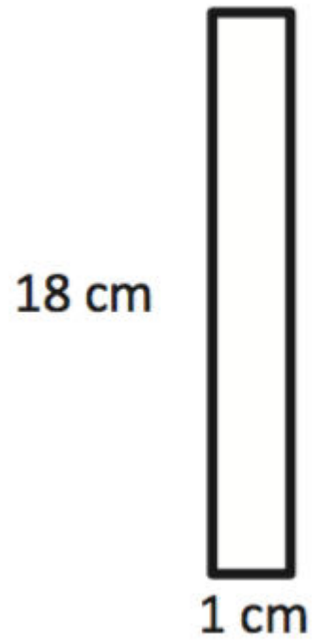
Carefully erase the grid lines in your rectangle.

The empty rectangle with labeled side lengths left is called an **area model**.

How can you find the total area just using the labeled side lengths?

# Concept Development

What is the total area of my pictured rectangle?



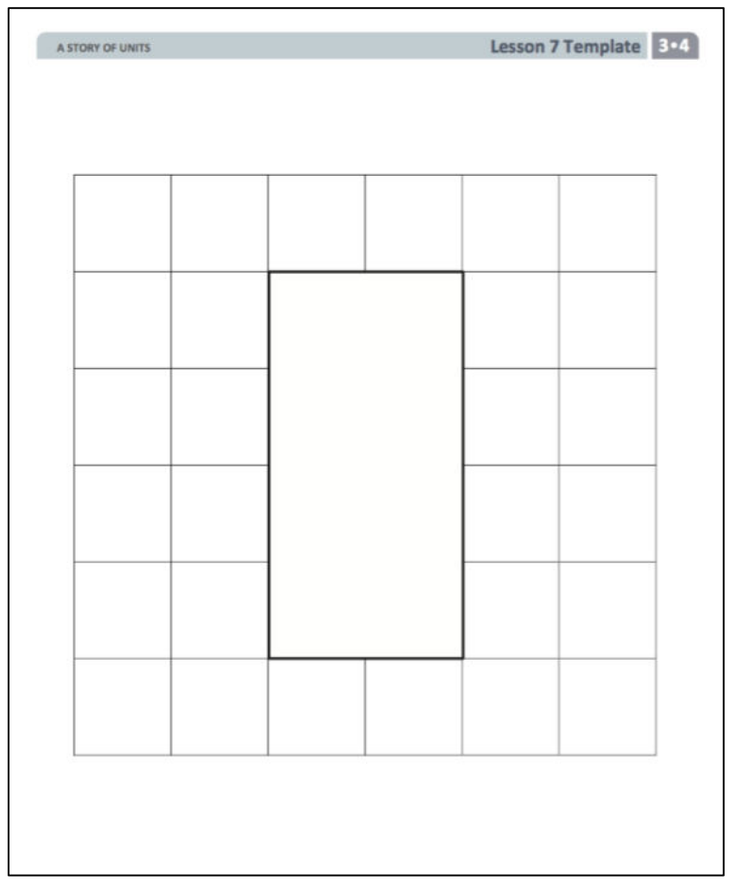

Tell your partner how you figured out the area.

# Concept Development

Slip the area model into your personal white board.

Use your ruler to measure the side lengths of one of the squares on the grid.

What unit makes up this grid?

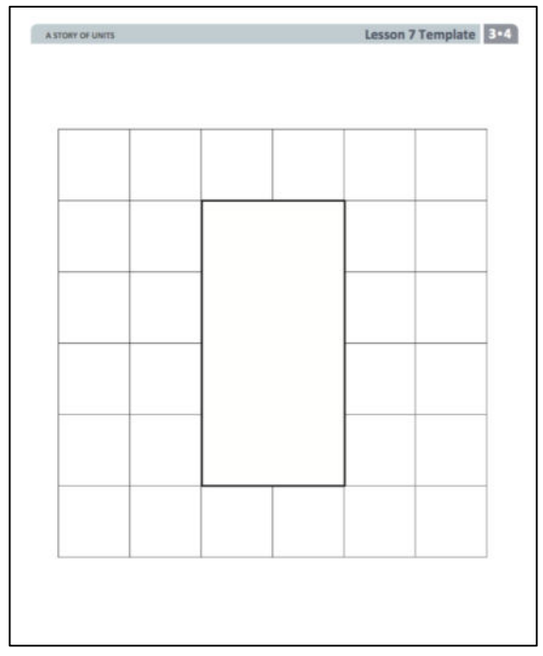


# Concept Development

The side lengths of this area model are not labeled.

Draw a grid inside the area model to help find the side lengths.

Do we need to draw points on the area model to draw a grid inside of it?



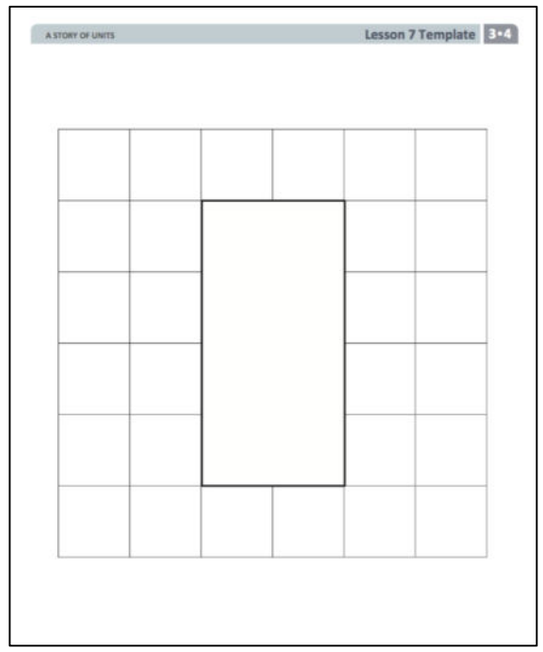
# Concept Development

Use your ruler and the lines on the grid to draw squares inside of the area model.

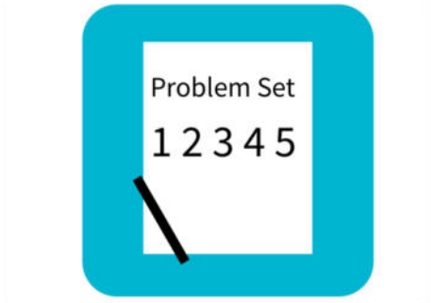
What size are the units inside the area model?

Find and label the side lengths, and then write an equation to find the area.

What is the area?



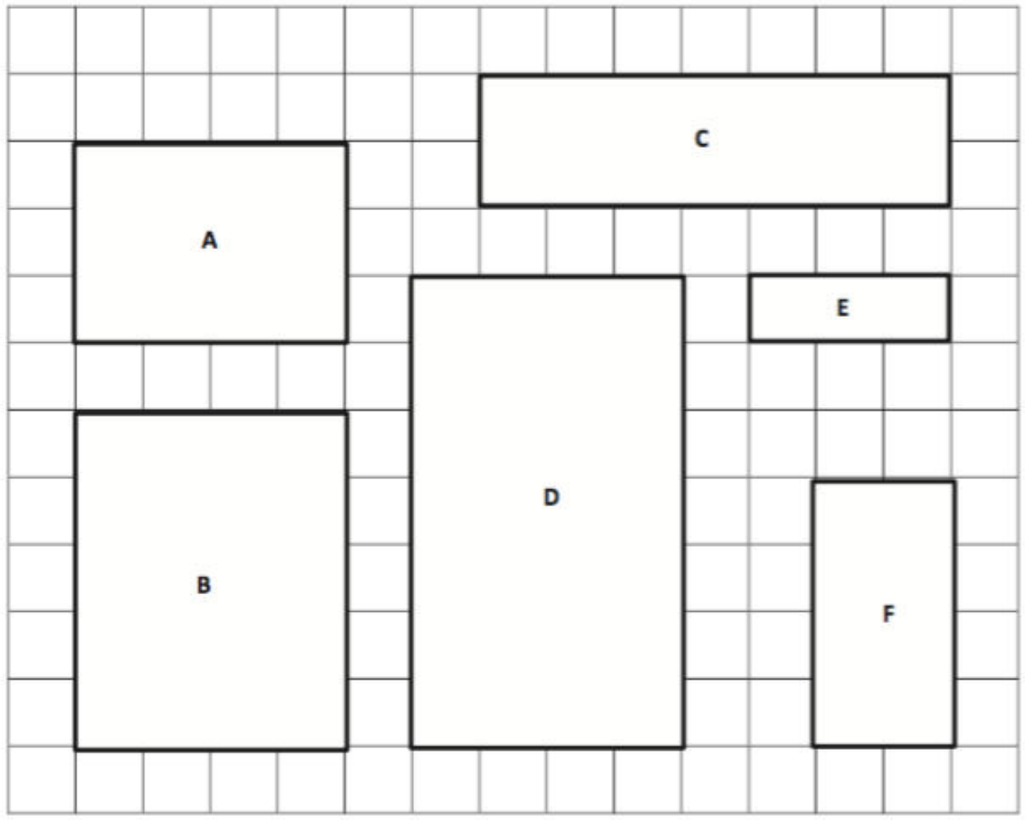
# Problem Set






Name _____ Date _____

1. Use a straight edge to draw a grid of equal size squares within the rectangle. Find and label the side lengths. Then, multiply the side lengths to find the area.




a. Area A:

____ units × ____ units = ____ square units

d. Area D:

____ units × ____ units = ____ square units

# Debrief

What was your strategy for finding the total number of squares in Problem 2(c)?

Invite students who drew arrays that demonstrate commutativity for Problem 4(a) (possibly 4 × 6 and 6 × 4) to share their work. Guide students to articulate understanding that commutativity still applies in the context of area.

For Problem4(b),most students answered that Mrs. Barnes' array probably had 24 squares. Is there another answer that makes sense?

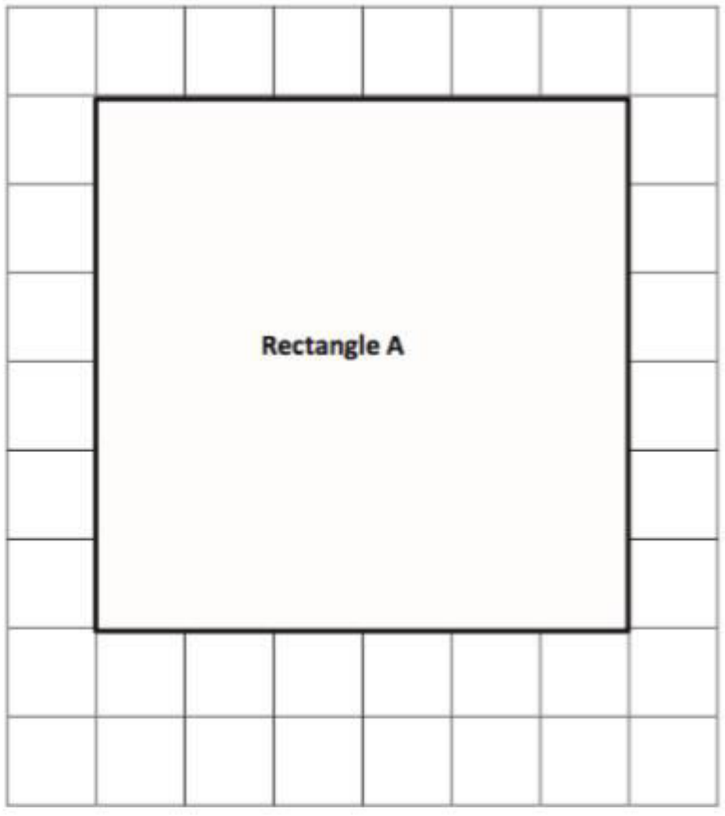
Compare the area model to the array. How are they the same and different?

# Exit Ticket



Name _____ Date _____

1. Label the side lengths of Rectangle A on the grid below. Use a straight edge to draw a grid of equal size squares within Rectangle A. Find the total area of Rectangle A.




Area: _____ square units

2. Mark makes a rectangle with 36 square centimeter tiles. Gia makes a rectangle with 36 square inch tiles. Whose rectangle has a bigger area? Explain your answer.