

# Lesson 15: Situations Involving Area

## Standards Alignments

Building On	3.MD.C.7, 4.NBT.B.5
Addressing	4.MD.A.3, 4.NBT.B.6, 4.OA.A.3
Building Towards	4.MD.A.3, 4.NBT.B.6

## Teacher-facing Learning Goals

- Reason about division of two- and three-digit numbers in situations involving area of rectangles.

## Student-facing Learning Goals

- Let's divide to find the side length of a rectangle.

## Lesson Purpose

The purpose of this lesson is for students to use partial quotients to solve division problems that involve tiling squares and finding a side length of a rectangle with a known area.

In this lesson, students encounter division as they find a side length of a rectangle whose area is a three-digit number and one side is a one-digit number.

The context involves tiling rectangles with square tiles. This enables students to connect the dividend to the number of tiles in the rectangle and the divisor to the number of rectangles along one side. The grid provided in the first activity encourages students to partition the area (the dividend) into smaller parts, which in turn facilitates finding the unknown length (the quotient).

## Access for:

### Students with Disabilities

- Representation (Activity 1)

### English Learners

- MLR7 (Activity 2)

## Instructional Routines

Estimation Exploration (Warm-up)

## Materials to Gather

- Grid paper: Activity 2
- Sticky notes: Activity 2

## Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

## Teacher Reflection Question

Which questions that you asked today would you rephrase to improve students' ability to make connections or to help them better consolidate what they did? How would you rephrase them?

## Cool-down (to be completed at the end of the lesson)

🕒 5 min

### Sticky Notes on the Door

#### Standards Alignments

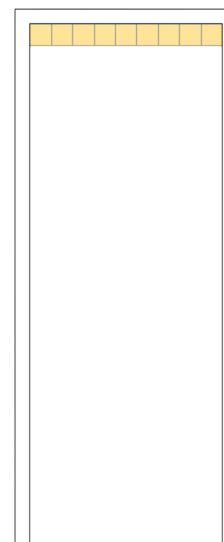
Addressing 4.MD.A.3, 4.NBT.B.6, 4.OA.A.3

#### Student-facing Task Statement

Jada's class is decorating their door with square sticky notes for their teacher. Each sticky note has a drawing or a message from a student.

The class used 234 square sticky notes to cover their classroom door completely, leaving no gaps or overlaps between the notes. It takes 9 square notes to cover the width of the door.

How many square notes does it take to cover the full height of the door?  
Show how you know.



#### Student Responses

26 square notes. Sample reasoning: I know that  $9 \times 20 = 180$  and  $9 \times 6 = 54$ .  $180 + 54 = 234$ , so it takes  $20 + 6$  or 26 notes to cover the height of the door.