

## Lesson 2: Factor Pairs

### Standards Alignments

Building On 3.OA.C.7

Addressing 4.OA.B.4

### Teacher-facing Learning Goals

- Find side lengths of different rectangles with a given area.
- Understand that each side length of a rectangle is a factor of its area.

### Student-facing Learning Goals

- Let's learn about factor pairs.

### Lesson Purpose

The purpose of this lesson is for students to learn the meaning of factor pairs by building rectangles with a specified area.

In grade 3, students learned that a factor is a number being multiplied by another number. For instance, when we multiply 3 and 5 to find the total in 3 groups of 5, or to find the area of a rectangle that is 3 units by 5 units, the 3 and 5 are factors. In this lesson, students learn that a **factor pair of a number  $n$**  is a pair of whole numbers that multiply to result in  $n$ . For example, 3 and 5 a factor pair of 15.

Previously, students made sense of multiples of a number in the context of area: they built and drew rectangles with given a side length and reasoned about their area. Here, they use the same context to make sense of factor pairs. Students build and draw rectangles with a given area and reason about their side lengths. Students then analyze the rectangles that the class has drawn in a gallery walk. They make observations about the side lengths of the rectangles and consider whether all possible rectangles have been drawn for each area. In these activities, a rectangle with 3 rows and 2 columns is considered the same as a rectangle with 2 rows and 3 columns.

### Math Community

Tell students they will have an opportunity to revise their “Mathematical Community” ideas at the end of this lesson, so as they work today they should think about actions that may be missing from the current list.

### Access for:

#### Students with Disabilities

- Engagement (Activity 1)

## Instructional Routines

MLR7 Compare and Connect (Activity 1, Activity 2), Number Talk (Warm-up)

### Materials to Gather

- Glue or tape: Activity 1
- Inch tiles: Activity 1
- Scissors: Activity 1
- Tools for creating a visual display: Activity 1

### Materials to Copy

- Centimeter Grid Paper - Standard (groups of 2): Activity 1

### Lesson Timeline

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

### Teacher Reflection Question

Which question asked during the synthesis gave the most information about students' understanding of the learning goal for the lesson? What did you hear or see that made you feel this way?

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

 5 min

### The Side Lengths of Rectangles

#### Standards Alignments

Addressing 4.OA.B.4

#### Student-facing Task Statement

1. What are all of the possible side lengths of a rectangle with an area of 21 square units?
2. What are all of the possible side lengths of a rectangle with an area of 50 square units?

#### Student Responses

1. 1 and 21, 3 and 7
2. 1 and 50, 2 and 25, and 5 and 10