

Lesson 17: Mosaic Pictures (Optional)

Standards Alignments

Addressing 5.NF.B.4

Building Towards 5.NF.B.4

Teacher-facing Learning Goals

- Multiply fractions by whole numbers to find areas of rectangles.

Student-facing Learning Goals

- Let's make a mosaic.

Lesson Purpose

The purpose of this lesson is for students to use multiplication of fractions to create and analyze a mosaic of rectangles.

This lesson is optional because it does not address any new mathematical content standards. This lesson does provide students with an opportunity to apply precursor skills of mathematical modeling. In previous lessons, students found products of whole numbers and fractions, including fractions greater than 1. In this lesson, they apply what they learned about multiplying whole numbers and fractions to make mosaic art pieces out of rectangles and use area to determine how much it costs to recreate the mosaic with hard material like stone, tile, and glass. Throughout the activity, students make sense of problems and persevere in solving them (MP1).

In the first activity, students create rectangles from colored paper. Each rectangle has a side that is a fraction greater than 1 and a side that is a whole number. Students multiply whole numbers by fractions to find the area of one rectangle and then find the combined area of all of their rectangles. In the second activity, students exchange their different sized and colored rectangles and make a mosaic. They analyze and compare their mosaics by area. Finally in the synthesis, students sort selected mosaics from different groups. For example, they sort from smallest to largest area covered.

When students make decisions and choices, analyze contextual objects with mathematical ideas, and translate a mathematical answer back into the context of a situation, they model with mathematics (MP4).

This lesson is allocated more than 60 minutes, but it can be adjusted to meet the needs of the students. The activities can be modified or cut to fit within 1 day or extended to span over 2 days.

Access for:

Students with Disabilities

- Action and Expression (Activity 1)

Instructional Routines

MLR1 Stronger and Clearer Each Time (Activity 2), Notice and Wonder (Warm-up)

Materials to Gather

- Colored paper : Activity 1
- Glue: Activity 1
- Rulers: Activity 1
- Scissors: Activity 1

Lesson Timeline

Warm-up	10 min
Activity 1	40 min
Activity 2	30 min
Lesson Synthesis	10 min

Teacher Reflection Question

How does connecting rectangles to art help students to engage with the mathematics of the unit?