



## **Performance Task: My Country's Flag**

In this task, students will create a flag using their knowledge of shapes and their attributes. They also explore partitioning and creating a flag that has more than one part.

### **STANDARDS FOR MATHEMATICAL CONTENT**

**MCC.2.G.1** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

**MCC.2.G.2** Partition a rectangle into rows and columns of same-size squares to find the total number of them.

**MCC.2.G.3** Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

### **STANDARDS FOR MATHEMATICAL PRACTICE**

- 1. Make sense of problems and persevere in solving them.**
- 2. Reason abstractly and quantitatively.**
- 3. Construct viable arguments and critique the reasoning of others.**
- 4. Model with mathematics.**
- 5. Use appropriate tools strategically.**
- 6. Attend to precision.**
- 7. Look for and make use of structure.**
- 8. Look for and express regularity in repeated reasoning.**

### **BACKGROUND KNOWLEDGE**

This task should help to conclude Unit 5. This unit serves to address fourth Critical Area of Focus. “Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.”

## **ESSENTIAL QUESTIONS**

- Why is it important to identify, label, and compare fractions (thirds, sixths, eighths, tenths) as representations of equal parts of a whole or of a set?
- What is a fraction and how can it be represented?
- What do the parts of a fraction tell us?
- If we have two fractions, how do we know which is greater or has more value?
- How do we know how many fractional parts make a whole?
- How are arrays and repeated addition related?
- How do we describe geometric figures?

## **MATERIALS**

- Flags from Various Countries
- 1 inch grid paper
- Colored tiles
- Pencils
- Centimeter or dot paper
- Tape or glue stick
- Colored Pencils, markers, or crayons

## **GROUPING**

Individual

## **TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION**



Afghanistan



Angola



Congo



Cuba



Singapore

### **Part I**

Show students flags from various countries. Discuss the fractions found within each of the flags. Discuss what happens when you add up each of the fractions. Tell students that today they will get to create their own flag for a make-believe country. They will have to:

- Use 24 square tiles to create the rectangular array for the measurements. The array does not have to result in the shape for a typical flag. Allow students to create a flag from anything 1 row of 24 to 24 rows of 1, as long as the students can explain the number of rows and columns and how many tiles they are using in all. Then trace the array to draw the boundary of the flag.

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- Students will use up to 4 colors to decorate their flag. Each color must be used for an equal share, allowing certain colors to have more than one share. (Example, you may have your flag colored one fourth red, one fourth black and two fourths white.)
- Draw figures with centimeter paper, dot paper, or using a ruler. Create at least one of the following plane shapes to be included on the flag: triangle, quadrilateral, pentagon, and hexagon.

### **Part II**

Give each student 2 pieces of 1-inch grid paper, centimeter or dot paper, glue, paper colored tiles, and colored pencils. Have students brainstorm ideas for flags on one sheet of grid paper to begin with. Then, allow students to create their fraction flags. Students could cut out their shapes and affix them to the flag. While students are working, ask questions such as:

- Can you tell me about your design?
- How did you decide the number of rows and columns?
- How can you use fractions to describe the colors in this flag?
- What will happen when you add all the fractions within your flag together?
- Which fractions within your flag are the largest? Smallest?
- What are the shapes of your fractions?
- Are any of your fractions equal?
- What are the properties of your geometric shapes?

### **Part III**

Students will create a written sample that responds to the prompts below.

- Identify the number of rows and columns in your flag.
- How did you decide the number of rows and columns?
- Explain the fractions that describe the colors in this flag?
- What geometric shapes did you use in your flag?
- What are the attributes of your geometric shapes?

### **Part IV**

After students have created their flags, have them share the flags and the writing sample with the class. Allow other students to ask questions and make comments about the flags their peers have created. Display the flags, their descriptions, and feedback for others to see.

### **Variation**

Students could make/use quilt squares instead of flags.

### **FORMATIVE ASSESSMENT QUESTIONS**

- Identify the number of rows and columns in your flag.
- How did you decide the number of rows and columns?
- Explain the fractions that describe the colors in this flag?
- What geometric shapes did you use in your flag?

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- What are the attributes of your geometric shapes?
- Can you tell me about your design?
- How did you decide the number of rows and columns?
- How can you use fractions to describe the colors in this flag?
- What will happen when you add all the fractions within your flag together?
- Which fractions within your flag are the largest? Smallest?
- What are the shapes of your fractions?
- Are any of your fractions equal?
- What are the properties of your geometric shapes?

## **DIFFERENTIATION**

### **Extension**

Students could be given 36 tiles to create array and asked to identify the number of tiles that make-up each fraction.

### **Intervention**

Students could have a choice of rectangles that have been divided into halves, thirds, or fourths.

Name \_\_\_\_\_ Date \_\_\_\_\_

## My Country's Flag



Identify the number of rows and columns in your flag.

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How did you decide the number of rows and columns?

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What other arrays did you consider?

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Explain the fractions that describe the colors in this flag?

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What geometric shapes did you use in your flag?

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What are the attributes of your geometric shapes?

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