

PRACTICE TASK: HOW MANY DIFFERENT WAYS CAN YOU FIND?

STANDARDS FOR MATHEMATICAL CONTENT:

MCC3.G.1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

MCC3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.*

STANDARDS FOR MATHEMATICAL PRACTICES

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

Students should continue to develop their understanding of shapes by being given ample opportunities to explore with shapes and how they can be combined (composed) or (decomposed.)

ESSENTIAL QUESTIONS

- Is it possible to find more than 1 way for shapes to fit together to make another shape?
- What does it mean to partition a shape into parts?
- What do you know about pattern blocks that would help me understand how to fill an area?

MATERIALS

- How Many Ways Can You Find? Sheet
- Isometric Grid Paper (see the following pages or print from http://wps.ablongman.com/wps/media/objects/3464/3547873/blackline_masters/BLM_38.pdf) or Math Journal
- Pattern Blocks

GROUPING

Individual or Partner

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

In this task, students will discover different ways a plot of land can be divided to share equally among Uncle John’s nieces and nephews. Students have the option of dividing it between 2, 3, 4, 6, or 8 people. They may circle the number they are using for the task.

FORMATIVE ASSESSMENT QUESTIONS

- Have you shown all of the different ways you could divide the parcel of land? How do you know?
- How would we do this task with other shapes?
- Looking at your different solutions, how are they alike? How are they different?
- .Why did you decide to divide the land this way?

DIFFERENTIATION

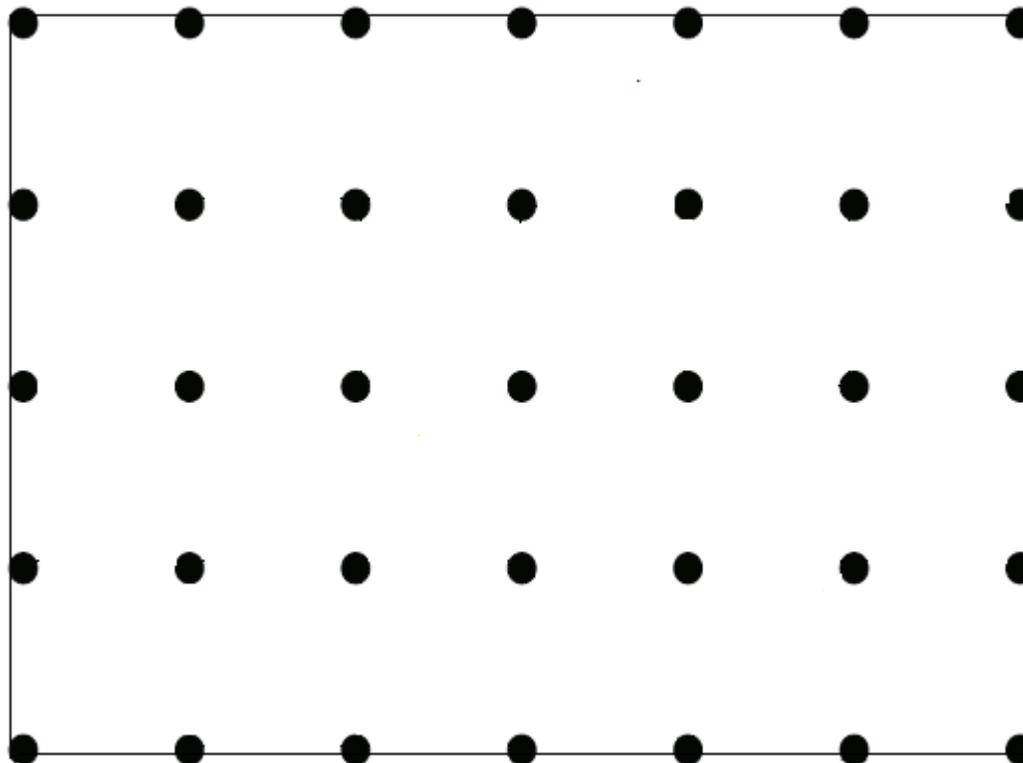
Extension

- Students can determine how to divide the parcel of land between five people.

Intervention

- Students may only divide the parcel of land between 4 students.

Great Uncle John has a parcel of land that measures 6 miles by 4 miles. In his will, he left the land to be divided equally among his (2, 3, 4, 6, or 8) nieces and nephews. However, he forgot to partition the land. Please help the nieces and nephews determine which parcel of land is theirs. Be sure to give everyone an equal amount of land. Use the blueprint below to help you.



How much land did Great Uncle John leave his nieces and nephews?

What does each person's share look like?

How do you know that each person's share is equal?

How did you determine the amount of land each person will get?

Is there another way that the land could have been divided?