CONSTRUCTING TASK: I Want Half!

Approximately 1 day

STANDARDS FOR MATHEMATICAL CONTENT

MCC1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

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

Students often think of half as any part of a whole, rather than one of two equal parts and they often refer to one half as being larger than another. It is important to build on student's previous experiences and clarify the ideas they have encountered. Provide many opportunities throughout the year for children to make sense of fractions, use fractional language, and represent fractions with standard symbols (Burns 2007). Sharing tasks should be presented in the form of a story problem. Over time, change the task difficulty by changing the numbers involved, the types of things to be shared, and with the presence or use of a model (Van de Walle & Lovin 2006).

ESSENTIAL QUESTIONS

- How can we divide shapes into equal parts?
- How can we be sure that we have equal parts?
- Why is it important to divide into equal parts?

MATERIALS

- *Give Me Half!* by Stuart J Murphy or similar book
- 5 brown rectangles, for teacher demonstration
- Bags filled with a set of pattern blocks for each pair of students
- Paper for drawing and writing
- Many sets of fractional parts (fraction strips, pattern blocks, etc.)

GROUPING

Large group, small group

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Part I
Have the students gather in a common area. Ask students if they have ever had to share something with someone and invite them to share their experiences with a buddy next to them. Allow a few students to share with the whole class. Next, share with the class the title of the book you are about to read, *Give Me Half!* by Stuart J Murphy or similar book. Have them make predictions about the story before reading.

At the conclusion of the story, review what it means to have half of something (that there are two equal parts*).* Discuss situations in which you would make half of something and give students a variety of examples.

Part II
Show students one brown rectangle and tell them that it represents a brownie that you made to share with another student. Invite one student to join you in front of the group. Ask students, *How can this brownie be shared equally between me and* _____ *?* Allow all students who want to share their solution to do so and discuss each. Divide the rectangle equally between you and the other student and ask, *Which two shapes can be used to create a whole rectangle? How do I know that these are fractional parts? What fraction did I create when I divided the rectangle (brownie)?*

Part III
Give each pair of students a bag full of pattern blocks. Tell them they are going to act like the children in the story and share their materials. Have students find the yellow hexagon and review its attributes. Next, ask students to find another shape in their bag that could be used to cover up only half of the hexagon. Facilitate the investigation with a discussion like, "Think about the two children in the story. If they have to share this hexagon, how much will each one get? (half) What shape represents half of the hexagon? (red trapezoid) How do you know? (It takes two to cover it up). Why didn't you say the triangle? (It takes 6 of triangles to cover it up.)

What if you only had triangles to use, could they still get half of the hexagon? Prove it: how many would each child get? (3) Would that be half of the hexagon? (yes) How do you know? (Each person gets the same amount. Is there another shape that covers the hexagon? (yes, blue rhombus) How many does it take? (3) Would one of those three pieces make half of the hexagon? (no) How do you know? (It can't be shared equally by two people).

Part IV
In small groups, have students play "More, Less, or Equal to One Whole" (Activity 9.3, page 258. Van de Walle). Give students a collection of fractional parts and have students decide if the set is less than a whole, equal to a whole, or less than a whole.

Part V
Have students describe and illustrate something being shared equally in their math journal. They can draw a picture of the story they told their partner, what their buddy told them at the beginning of the lesson, or they can draw a picture of something else. For students having difficulty thinking of an object that can be shared, show them picture prompts to get them started.

FORMATIVE ASSESSMENT QUESTIONS

- Are students able to show what "equal shares" look like?
- (see Part III)

DIFFERENTIATION

Extension
- "Finding Fair Shares" (Activity 9.2, page 257. Van de Walle) Give students models and have them find thirds, fourths, etc using the models.

Intervention
- Provide students with paper shapes (wholes and halves.) Have students glue a half on each whole to help build the relationship.