PRACTICE TASK: What's in the Bag? (Flat or Solid)

Approximately 2 days

STANDARDS FOR MATHEMATICAL CONTENT

MCCK.G.2 Correctly name shapes regardless of their orientations or overall size.

MCCK.G.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

MCCK.G. 4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

MCCK.G. 5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

MCCK.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count

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.

BACKGROUND KNOWLEDGE

Students need to see many examples of shapes that correspond to the same geometrical concept as well as a variety of shapes that are non-examples of the concept. For example, teachers must ensure that students see collections of triangles in different positions and with different sizes of angles (see fig. 4.12) and shapes that have a resemblance to triangles (see fig. 4.13) but are not triangles. Through class discussions of such examples and non-examples, geometric concepts are developed and refined (NCTM Principles & Standards 2012).

ESSENTIAL QUESTIONS

- What is the difference between a 2-dimensional and 3-dimensional shape?
- What are some attributes of a flat shape? Solid shape?
- What is an attribute?

- How can we sort things?
- How can shapes be sorted?
- What are attributes or properties of a shape or shapes?
- How are shapes same and different?

MATERIALS

- Assorted shapes (2-dimensional and/or 3-Dimensional)
- Paper bags (same amount as shapes)

GROUPING

Whole group, small group or partner

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

Comment
The first time this task is introduced use only 2-D shapes. The second time the activity is used introduce 3-D shapes as well as 2-D. Be sure to include multiples of the same shapes but with different sizes and texture. Label 7 paper bags (A-G). Place (1) shape in each of the 7 bags and prepare 1 extra bag to model how to complete the task.

PART 1
Gather students to a meeting area and review what an attribute is and the attributes specific shapes have. After reviewing, pass the model bag around and give each student an opportunity to feel inside the bag and identify the shape without looking. Students must wait to share their prediction until all students have had a turn with the model bag. After the bag used for the demonstration has been shared with all the students, have them make a prediction as to what type of shape is inside the bag and justify why they think it is a specific shape. (Example: I think the shape in the bag is a square because I felt four corners). After all the students have made a prediction, remove the shape from inside the bag and review the attributes of the shape.

Divide the students equally into 7 groups. Each group of students starts at a different bag. Without looking, students feel the shape in the bag while trying to identify the shape's attributes. Once the students think they know what shape is inside the bag they record the attributes they felt and make a prediction by writing the name of the shape or drawing a picture of the shape. STUDENTS SHOULD NOT LOOK IN THE BAG. Once all the students have circulated through the 7 stations have them meet back at the carpet to share what they found and their prediction.
Although this is early in the year students can also be introduced to data and measurement. Example: If the square was in the bag, some students may say there are 3, 4, or 5 sides. Have students count and graph how many students predicted the same number.

FORMATIVE ASSESSMENT QUESTIONS

- What is the difference between a side and a face? Explain?
- How are you keeping track of the attributes when you can't see them?
- How many sides are there on the shape in the bag?

DIFFERENTIATION

Extension

- Place multiple shapes in the bag and have the student match attributes by touch.

Intervention

- Place multiple shapes next to the bag at each station so that as the students feel attributes inside the bag they can try and visually match a shape to what they are seeing.

What's in the Bag?

Bag	Sides or Faces	Vertices/Corners	draw a picture or write the name
A			
B			
C			
D			
E			
F			
G			