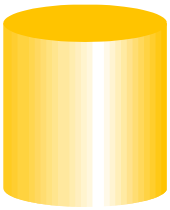


CONSTRUCTING TASK: Touch It, Count It, Chart It

(Approximately 1 day)

STANDARDS FOR MATHEMATICAL CONTENT

MCC.K.G.1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

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

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

MCC.K.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).

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

Prepare a chart/graphic organizer to record the characteristics of the three-dimensional figures as you read the story. One way to discuss how 3-D shapes are different from 2-D shapes is to refer to 3-D shapes as having a solid body. This is why it is easy hold them in our hand. 2-D shapes are flat, which is why it is easy to draw them on paper. If you use the term "solid" when talking about 3-D shapes, then discussing "face" on the 3-D shape is a little easier.

It is natural for students to initially talk about the faces as "sides" but as **you** talk about them use the word face, **not** side. Gradually the students will pick up on this and will start calling the "sides" faces.

ESSENTIAL QUESTIONS

- Where can we find shapes in the real world? How can a shape be described?
- How can shapes be sorted?

- What are attributes or properties of a shape or shapes?
- How are shapes same and different?

MATERIALS

- Geometric solid models for: cylinder, cone, cube, and sphere
- Graphic organizer chart
- Student copy of graphic organizer
- Names of geometric solids on index cards
- Index cards (for student labeling)
- Modeling clay or play dough
- Captain Invincible and the Space Shapes by Stuart J. Murphy, or similar text

GROUPING

Small Group

TASK DECRIPTION, DEVELOPMENT AND DISCUSSION

Part 1
Read *Captain Invincible and the Space Shapes* by Stuart J. Murphy, or other book about 3D shapes. Pass solids (cylinder, cone, sphere, and cube) around and ask students to describe how each one looks and feels and record these characteristics in the graphic organizer. Students will complete the *Touch It, Count It, Chart It* Task Sheet. Allow students to use solids to trace around with a pencil to determine the shape of its face.

Part 2
Give each student 2-3 index cards. Have students go on a geometric solid shape hunt in the classroom to fill in the last column of the *Touch It, Count it, Chart It,* chart. Students tell the name of the solid it represents, write its name on an index card, and attach it to the item. Shapes can then be displayed in a "Solid Shapes Museum."
As you circulate, observe the student's choices and listen to their conversations. Help students to understand they can learn to recognize the shapes even though they are not exactly the same as the model. During their shape hunt, and as students share their 3-D findings, ask the students questions such as:

- Is this object exactly like our model? How is it the same? How is it different?
- Which solid is the hardest to find in the classroom? Why?
- What do you notice about the faces of the objects?

FORMATIVE ASSESSMENT QUESTIONS

- Are students able to talk about where we find shapes in the real world?
- How are the students describing the shapes they are finding?

- Are they able to choose something easily from the classroom without referring back to the solid example?
- Do most students choose the solid they are most familiar with, such as a rectangular prism? Which ones are they not choosing?

DIFFERENTIATION

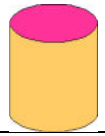
Extension

- Students could determine attributes and then use that information to graph objects from the "Shape Museum". Students could extend their search to the rest of the school and /or use cameras to take pictures of other items that represent 3-D solids. A home connection could be made by sending a parent letter asking for students to search for solids they could bring back to school to add to the "Shape Museum."
- Have students use modeling clay or play dough to create some of the solids the identified as the search the classroom. Students can use a model shape to replicate or compose the shape from memory.

Intervention

- Give students who struggle cards with examples of 3-D solids that can be used when they are looking for objects for the "Shape Museum."

Touch It, Count It, Chart It

	Numbers of Corners	Numbers of Faces	Draw one face of the solid shape	Everyday object
Cylinder 				
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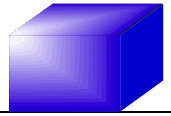
Cube 				
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