

What Am I?

Reporting Category Geometry

Topic Understanding plane and solid geometric figures

Primary SOL 3.14 The student will identify, describe, compare, and contrast characteristics of plane and solid geometric figures (circle, square, rectangle, triangle, cube, rectangular prism, square pyramid, sphere, cone, and cylinder) by identifying relevant characteristics, including the number of angles, vertices, and edges, and the number and shapes of faces, using concrete models.

Related SOL 3.15, 3.16

Materials

- Solid geometric figures for student investigation and classroom display
- What Am I? Chart (attached)
- What Am I? Matching Cards (attached)

Vocabulary

square, rectangle, triangle, circle, right angle, opposite, sphere, cube, rectangular prism, angle, vertices, edges, faces, solid geometric figure, square pyramid, cone, cylinder

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Distribute copies of the What Am I? Chart. Allow students to handle, examine, and discuss models of solid geometric figures (cube, rectangular prism, square pyramid, sphere, cone, and cylinder). As students examine the geometric solids, guide them in writing the names of the figures next to the pictures on the charts. Then, lead students in generating a list of characteristics of the geometric solids, reminding them to use appropriate mathematical vocabulary, such as *edges*, *faces*, and *vertices*. Ask students which of the solid figures would roll. (sphere, cylinder, cone) Ask why they roll.
2. Lead a discussion of the square pyramid, in which students describe the shapes of the faces (triangle and square), the number of faces (5), the number of edges (8), and the number of vertices (5).
3. Display students' descriptive comments about each solid figure. Discuss how the cube and the rectangular prism are alike and how they are different. Ask how a square and a rectangle are similar and different. Have students describe the difference between a square and a cube and between a rectangle and a rectangular prism.
4. Model for the students the edges, faces, vertices of a cube. Then, ask students to identify these features on a rectangular prism as you point to each of them.
5. Put students into five groups, and give each group one of the solid geometric figures. Instruct the groups to complete a large classroom chart of the five solid geometric figures by filling in the names, number of faces, shape(s) of faces, number of edges, and number of vertices for their solids. Allow time for classroom discussion.

Assessment

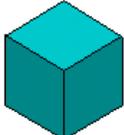
- **Questions**
 - How are a cube and rectangular prism similar? How are they different?
 - Is there a solid figure that has zero faces? What is the meaning of *face* when applied to a solid figure?
- **Journal/Writing Prompts**
 - You have a secret solid geometric figure. Write some clues about it to share with a classmate so he/she can guess what figure you have.
 - List some real-world objects that are shaped like a rectangular prism, and write statements justifying your thinking.

Extensions and Connections (for all students)

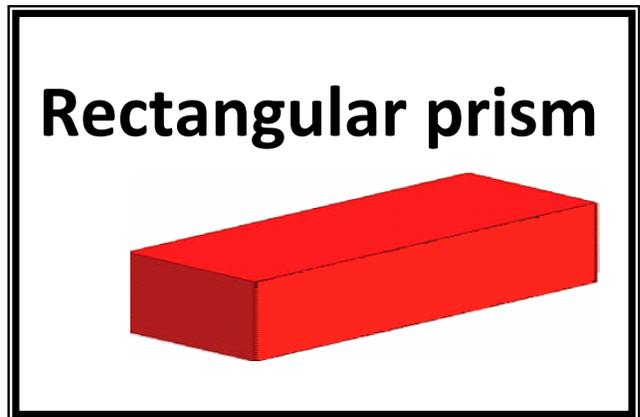
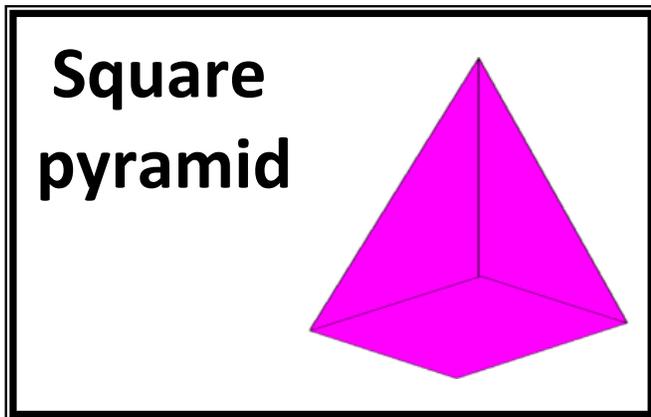
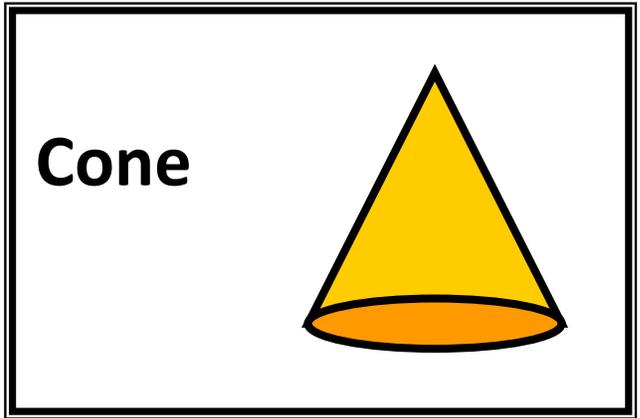
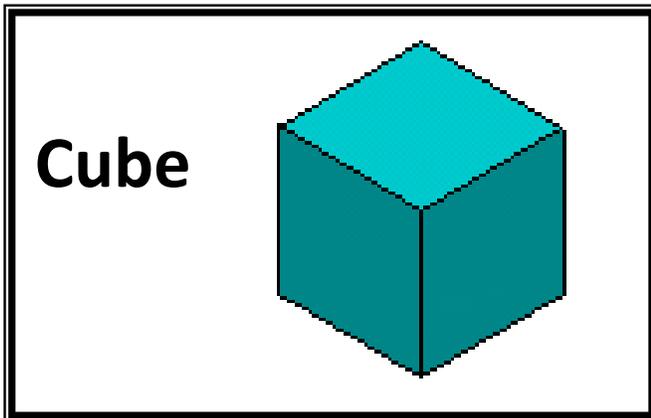
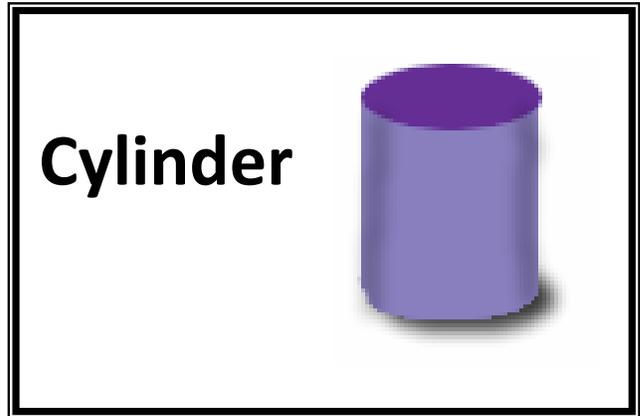
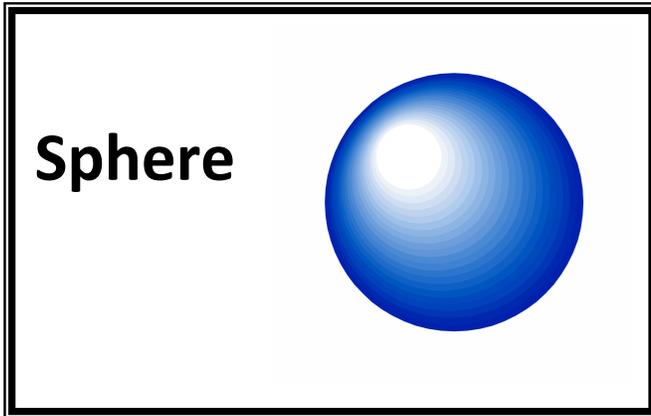
- Have student pairs or groups participate in a “real-world” solid geometric figure scavenger hunt. Have students record their finds in a chart with five columns in which to list the examples of the five solid geometric figures that they find.
- Guide students in constructing models of the solid geometric figures, using different options for materials. One idea is to use toothpicks as the edges and gumdrops as the vertices; another possibility is drinking straws and marshmallows. Students could also create a chart that would help them calculate how many toothpicks or straws and gum drops or marshmallows they would need for each figure.

What Am I? Chart

Name: _____ Date: _____

Geometric solid	Name	Number of faces	Shape(s) of faces	Number of edges	Number of vertices
					
					
					
					
					
					

What Am I? Matching Cards



I have 1 circle and 1 curved surface. My curved surface bends to make a sharp point. I don't have edges.

What am I?

I have 2 congruent circles that are joined by a curved surface. I don't have any edges or vertices. I can roll.

What am I?

I am a solid figure that is perfectly round. I don't have flat faces and I don't have edges.

What am I?

I have 6 flat faces, 12 edges, and 8 vertices. All my edges are NOT the same length.

What am I?

I have 6 square faces, 12 edges, and 8 vertices. All my edges are the same length.

What am I?

I have 5 faces. One of my faces is square. The other 4 faces are triangular and come together at a vertex.

What am I?