

Solid Shape Detectives

Name solids and describe their parts.

GRADE 2 • 2.MG.4.c

2.MG.4.c "Given a concrete or pictorial model, name and describe the solid figure (sphere, cube, and rectangular prism) by its characteristics (e.g., number of edges, number of vertices, shapes of faces)."

NAME _____

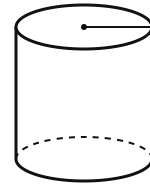
DATE _____

Materials and setup

Bring a cube, a rectangular-prism box with no square faces and a ball. An adult reads aloud and helps count hidden parts. Write short answers; explain aloud.

TRY THE IDEA

A solid takes up space. A face is flat. An edge joins faces; a vertex is a corner. Dashed lines show hidden edges. A cube is a special rectangular prism.



WORKED EXAMPLE

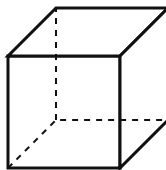
Look at the cylinder. Point to one flat surface.

1. Its top and bottom are flat.
2. A flat surface on a solid is called a face.

Answer: Either flat end is a face.

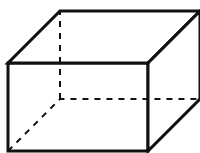
PRACTICE 4 problems

- 1** Name this solid. Hold the matching real model. Count its flat faces and name their shape.



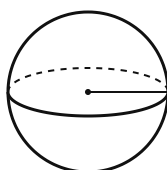
ANSWER _____

- 2 Name this solid. Hold the matching real box. Count its flat faces. Are they rectangles?



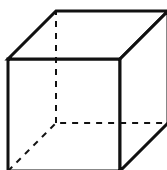
ANSWER _____

- 3 Name this solid. Check the ball. How many flat faces, edges and vertices does it have?



ANSWER _____

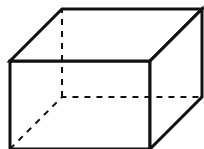
- 4 Hold the cube. Touch each corner once, then trace each edge with a finger. Write the number of vertices and edges.



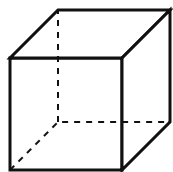
ANSWER _____

APPLY IT Show your work

- 1** Hold the real rectangular box. Count all its edges and vertices. Write both counts. Tell how you avoided counting a part twice.

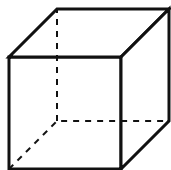


- 2** This solid has 6 equal square faces. Name it. Is it also a rectangular prism? Tell why.



CHALLENGE One step up

The cube picture shows 3 faces. A student says the cube has only 3 faces. Use the real cube to explain the mistake.



WORK SPACE AND ANSWER

PRACTICE 1

Cube; 6 square faces. Squares are also rectangles.

PRACTICE 2

Rectangular prism; 6 rectangular faces.

PRACTICE 3

Sphere; 0 flat faces, 0 edges and 0 vertices.

PRACTICE 4

8 vertices and 12 edges. Count hidden parts on the model too.

APPLY IT 1

12 edges and 8 vertices. Accept a systematic count on the model.
Count four edges around each of two opposite faces and four joining them. Count four vertices on each opposite face.

APPLY IT 2

Cube; yes. Each square face is also a rectangle.
A cube is a special rectangular prism. Do not treat the two names as mutually exclusive.

CHALLENGE

The picture hides 3 faces. The real cube has 6 faces in all.

Read aloud. Assess names and characteristics, not drawing skill. Let children turn the real models and mark counted parts with removable notes. A sphere has a curved surface and no flat faces. A cube has 6 faces, 12 edges and 8 vertices, as does every rectangular prism.