Student Guide

Sorting 3-D Shapes (SG pp. 321–322)
Questions 1–3

1. Refer to the chart below for shapes that fit each property:

Properties of Shapes	Sample Shapes
At least one triangle face	hexagonal pyramid square pyramid triangular prism triangular pyramid
At least 12 edges	cube hexagonal prism hexagonal pyramid square prism rectangular prism
Opposite faces are parallel and congruent	cube cylinder hexagonal prism square prism rectangular prism triangular prism
At least one right angle	cube square prism
No vertices	sphere cylinder
At least one pair of edges are parallel	cube hexagonal prism rectangular prism square prism square pyramid triangular prism
At least one rectangular face	cube hexagonal prism rectangular prism square prism square pyramid triangular prism

2.* Riddles will vary. See the lesson for examples.

Homework (SG p. 322)

No, they are not both prisms. Answers will vary. Possible answers include: One has a top vertex, so it can't be a prism. A prism has to have 2 congruent faces and the cone has only 1 face.

Sorting 3-D Shapes

Shape Finder Chart

Mrs. Hunter's class is making a Shape Finder Chart that lists properties of shapes and possible shapes that fit each property. A **property** is an attribute or characteristic of a shape that helps identify it.

1. Make your own Shape Finder Chart. Find at least one 3-D shape for each property. Make a list and be ready to explain how you made your choice.
   A. At least one triangle face
   B. At least 12 edges
   C. Opposite faces are parallel and congruent
   D. At least one right angle
   E. No vertices
   F. At least one pair of parallel edges
   G. At least one rectangular face

Writing Geometry Riddles

Mrs. Hunter's students wrote riddles about the 3-D shapes.

Here is a riddle that Romesh wrote:

> My shape has a top vertex. It has no right angles. All the faces are triangles. What is it?

Romesh

After the first clue, Nisha guessed that it could be the cone, square pyramid, triangular pyramid, or hexagonal pyramid. After the second clue, she eliminated the square pyramid because it has right angles. Finally, after the reading the last clue, she knew the answer.

> I think it is a triangular pyramid because it is the only shape that has a top vertex, no right angles, and triangle faces.

Nisha

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✓ **Check-In: Questions 2-3**

2. Write your riddle. Keep the shape in mind as you write clues that will help someone guess the shape. Your first clue can have several 3-D shapes as answers. With each additional clue, the reader should be able to narrow down the choices until there is only one correct answer. Use the following questions to help you think of clues.
   • How many edges, faces, and vertices does the shape have?
   • What shapes are the faces?
   • Are the faces parallel?
   • Are the faces congruent?
   • Does the shape have right angles?
3. After writing your riddle, read it to your partner to see if there are sufficient clues to guess the answer.

Homework

Professor Peabody looked at the cone and the square prism and said, "These shapes are both prisms." Write why you agree or disagree with his statement.

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*Answers and/or discussion are included in the lesson.