Name _____

CHAPTER 15
Lesson 1

Unit Cubes and Three-Dimensional Figures

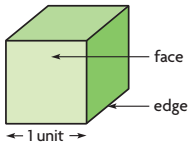
Florida's B.E.S.T.
- **Geometric Reasoning** 5.GR.3.1, 5.GR.3.2, 5.GR.3.3
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.71

I Can recognize a unit cube and how to use it to build a three-dimensional figure.

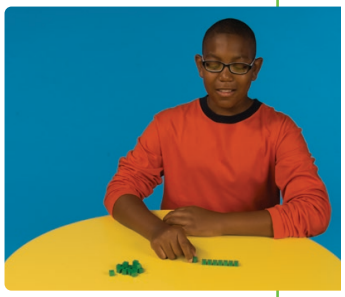
Investigate

You can build rectangular prisms using unit cubes. How many different rectangular prisms can you build with a given number of unit cubes?

Materials ■ centimeter cubes



A **unit cube** is a cube that has a length, width, and height of 1 unit. A cube has _____ square faces. All of its faces are congruent. It has _____ edges. The lengths of all its edges are equal.



A. Build a rectangular prism with 2 unit cubes.

Think: When the 2 cubes are pushed together, the faces and edges that are pushed together make 1 face and 1 edge.

- How many faces does the rectangular prism have? _____
- How many edges does the rectangular prism have? _____

B. Build as many different rectangular prisms as you can with 8 unit cubes.

C. Record in units the dimensions of each rectangular prism you built with 8 cubes.

Dimensions		

So, with 8 unit cubes, I can build _____ different rectangular prisms.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Describe the different rectangular prisms that you can make with 4 unit cubes.

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Draw Conclusions

1. Explain why a rectangular prism composed of 2 unit cubes has 6 faces. How do its dimensions compare to a unit cube?

2. **MTR** Explain how the number of edges for the rectangular prism composed of 2 unit cubes compares to the number of edges for the unit cube.

3. **MTR** Describe what all of the rectangular prisms you made in Step B have in common.

Make Connections

You can build other three-dimensional figures and compare the three-dimensional figures by counting the number of unit cubes.

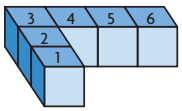

Figure 1

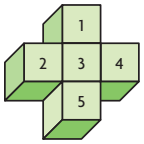

Figure 2

Figure 1 is made up of _____ unit cubes.

Figure 2 is made up of _____ unit cubes.

So, Figure _____ has more unit cubes than Figure _____.

- Use 12 unit cubes to build a three-dimensional figure that is not a rectangular prism. Share your model with a partner. Describe how your model is the same and how it is different from your partner's model.

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