Essential Question How can you find the area of the entire

surface of a prism?

1 ACTIVITY: Identifying Prisms

Work with a partner. Label one of the faces as a "base" and the other as a "lateral face." Use the shape of the base to identify the prism.



ACTIVITY: Using Grid Paper to Construct a Prism

Work with a partner.

2

COMMON CORE

Geometry

6.G.4

In this lesson, you will
use nets to represent prisms.
find the surface area of prisms.

• solve real-life problems. Learning Standard

- **a.** Copy the figure shown below onto grid paper.
- **b.** Cut out the figure and fold it to form a prism. What type of prism does it form?



3 ACTIVITY: Finding the Area of the Entire Surface of a Prism

Work with a partner. Label each face in the two-dimensional representation of the prism as a "base" or a "lateral face." Then find the area of the entire surface of each prism.



-What Is Your Answer?

5. IN YOUR OWN WORDS How can you find the area of the entire surface of a prism?

Practice

Use what you learned about the area of the entire surface of a prism to complete Exercises 3–5 on page 364.

8.2 Lesson



Key Vocabulary () surface area, p. 362 net, p. 362 The **surface area** of a solid is the sum of the areas of all of its faces. You can use a two-dimensional representation of a solid, called a **net**, to find the surface area of the solid. Surface area is measured in *square units*.

BO Key Idea

Net of a Rectangular Prism

A rectangular prism is a prism with rectangular bases.



EXAMPLE

1

Finding the Surface Area of a Rectangular Prism

Find the surface area of the rectangular prism.

Use a net to find the area of each face.





Find the sum of the areas of the faces.

Area of + Area of + Area of +Surface = $\frac{\text{Area of}}{+}$ Area of Area of back Area bottom front a side a side top S 28 +28 +21 +21 +12 +12 = = 122

So, the surface area is 122 square inches.



Net of a Triangular Prism





EXAMPLE 2 Finding the Surface Area of a Triangular Prism

Find the surface area of the triangular prism.



Use a net to find the area of each face.





Find the sum of the areas of the faces.



So, the surface area is 300 square centimeters.

On Your Own



8.2 Exercises



Vocabulary and Concept Check

- 1. VOCABULARY Explain how to find the surface area of a prism.
- 2. DIFFERENT WORDS, SAME QUESTION Which is different? Find "both" answers.

What is the sum of the areas of the faces of the prism?

What is the area of the entire surface of the prism?

What is the area of the triangular faces of the prism?





Practice and Problem Solving

Draw a two-dimensional representation of the prism. Then find the area of the entire surface of the prism.



- **12. GIFT BOX** A gift box in the shape of a rectangular prism measures 8 inches by 8 inches by 10 inches. What is the least amount of wrapping paper needed to wrap the gift box? Explain.
- **13. TENT** What is the least amount of fabric needed to make the tent?





- **14. AQUARIUM** A public library has an aquarium in the shape of a rectangular prism. The base is 6 feet by 2.5 feet. The height is 4 feet. How many square feet of glass were used to build the aquarium? (The top of the aquarium is open.)
- **15. STORAGE BOX** The material used to make a storage box costs \$1.25 per square foot. The boxes have the same volume. How much does a company save by choosing to make 50 of Box 2 instead of 50 of Box 1?

	Length	Width	Height
Box 1	20 in.	6 in.	4 in.
Box 2	15 in.	4 in.	8 in.



- **16. RAMP** A quart of stain covers 100 square feet. How many quarts should you buy to stain the wheelchair ramp? (Assume you do not have to stain the bottom of the ramp.)
- **17. Thinking** A cube is removed from a rectangular prism. Find the surface area of the figure after removing the cube.



