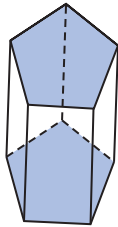


## Section Overview

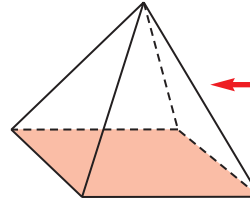
## Three-Dimensional Figures

Lesson 10-7

**Why?** Identifying and distinguishing among three-dimensional figures is a prerequisite for finding the volume and surface area of these figures.



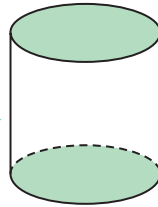
A **prism** has two parallel congruent bases; the remaining faces are rectangles. This figure is a **pentagonal prism**.



The base of a **pyramid** can be any polygon. The remaining faces are triangles. This figure is a **square pyramid**.

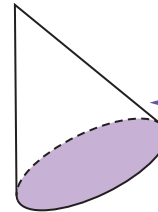
## Cylinder

A **cylinder** has two parallel congruent bases that are circles. The bases are connected by a curved surface.



## Cone

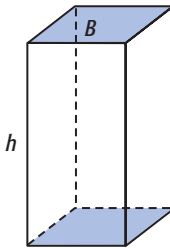
A **cone** has one base that is a circle and a curved surface that comes to a point called the vertex.



## Volume of Prisms and Cylinders

Lessons 10-8, 10-9

**Why?** Volume is an important real-world concept. You need to be able to calculate volume to determine the amount of water needed to fill a swimming pool or to determine the size of a heating system for a home.



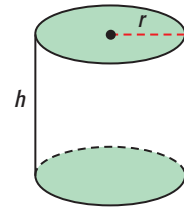
**Prism**  
 $V = Bh$

$B$  represents the area of the base of the prism, and  $h$  represents the height.

## Volume Formulas

**Cylinder**  
 $V = \pi r^2 h$

$r$  represents the radius of the base, and  $h$  represents the height of the cylinder.



## Surface Area

Lesson 10-10

**Why?** You need to be able to find the surface area of three-dimensional figures for many real-world applications, such as finding the amount of paint needed to cover a cylindrical tank. You can find surface area using both nets and formulas.

**Surface Area of a Rectangular Prism**

$$S = 2\ell w + 2\ell h + 2wh$$

