Three-Dimensional Figures

**Why?** Buildings are examples of three-dimensional figures.

- **Rectangular prism**
- **Hexagonal prism**
- **Triangular pyramid**
- **Square pyramid**

A **prism** is a polyhedron with two congruent, parallel bases and other faces that are all parallelograms.

A **pyramid** has one polygon-shaped base, and the other faces are triangles that come to a point.

A **cylinder** has two congruent, parallel circular bases. A cylinder is not a polyhedron because not all of its surfaces are polygons.

A **cone** has a circular base and a curved surface that comes to a point.

**Volume**

**Why?** Volume is an important real-world concept.

**Volume Formulas**

- **Prism** \( V = Bh \)
- **Cylinder** \( V = \pi r^2h \)

- \( B \) represents the area of the base of the prism, and \( h \) represents the height.
- \( r \) represents the radius of the base, and \( h \) represents the height of the cylinder.

**Surface Area**

**Why?** You need to be able to determine surface area to solve real-world problems, such as finding the amount of paint needed to cover a three-dimensional surface.

**Surface Area Formulas**

- **Prism**
  \[ S = 2B + F = 2B + PH \]

- **Cylinder**
  \[ S = 2B + L = 2B + PH \]

- **Pyramid**
  \[ S = B + F = B + \frac{1}{2}pl \]