

In seventh grade, students reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions. They gain familiarity with the relationships between angles formed by intersecting lines and understand the characteristics of angles that create triangles. They think about questions such as, "What segment lengths will form a triangle?"

Additionally, students work with three-dimensional figures, relating them to twodimensional figures by examining cross-sections. Students describe a face shape resulting from cuts made parallel and from cuts made perpendicular to the bases of right rectangular prisms and pyramids.

Students at this level also solve problems involving area and circumference of a circle. **Area** is the measure of a two-dimensional space enclosed by a shape–the region inside a shape. **Circumference** is the distance around a circle–the "perimeter" of a circle.

Students also solve problems involving area, volume, and surface area of two- and threedimensional objects. **Surface area** is the total area that can be measured on an entire three-dimensional **surface**—for example, the sum of the areas of a polyhedron's faces. **Volume** is the space filled, or occupied, by a three-dimensional object.

The Grade 7 Common Core State Standards for Geometry specify that students should–

- Draw, construct, and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

The following hands-on activities in geometry enable teachers to help students realize that memorizing a formula does not mean comprehending the formula. Teachers will help students understand that knowing why a formula works is more important than memorizing it. For example, at this level, students learn the formulas for determining the area and circumference of a circle and use those formulas to solve problems. With a hands-on understanding of the formulas, students can readily recall or even generate the formulas as needed.