

Unit Guide

Surface Area and Volume – Learn it, Live it, and Apply it!

Elizabeth Denenberg

In this unit, students will learn to solve problems involving the surface area and volume of various three-dimensional shapes. Students will first gain an understanding of the properties that define commonly known solids such as prisms, pyramids, cylinders, cones, and spheres. In addition, students will investigate the five platonic solids by verifying Euler's formula for each one. They will have a chance to interact with these shapes and see how they can be used in the real world. Students will be able to calculate the surface area and volume of figures where it is not just plugging numbers into formulas. The activities I have designed involve applying geometry to everyday objects, analyzing complex shapes, making predictions on what may be true about an object's surface area or volume, justifying answers with mathematical reasoning, and reflecting back on previous predictions. Too often, activities involving surface area and volume concepts are very boring and formula-based, where students never gain a true understanding of the meaning and usefulness of these measurements. My goal with this unit, is to provide new methods of teaching these concepts so that students gain a stronger understanding and appreciation of surface area of volume.