

Volume

Math 2, Unit 10

Anaheim Union High School District

Why are we studying this?

In eighth grade students learn the formulas for calculating the volumes of cones, cylinders, and spheres and use the formulas to solve real-world and mathematical problems. When students learn to solve problems involving volumes of cones, cylinders and spheres, together with their previous grade seven work in angle measure, area, surface area and volume, they will have acquired a well-developed set of geometric measurement skills. These skills, along with proportional reasoning and multistep numerical problem solving, can be combined and used in flexible ways as part of modeling during high school and in college and careers. (Adapted from PARCC 2012 and CA Math Framework)

Sample question we will be able to answer:

You just got a sphere of small candies (see picture below). You dropped the “ball” and it has cracked open. For safe-keeping, you decide to transfer the candies into another container. You have a cylindrical can whose height and diameter are equal to the diameter of the sphere.

*Will the candies fit?
Will there be extra
space in the
cylinder? If so,
about how much?*



Dear Student & Parent/Guardian,

In this unit we will extend our understanding of geometry to include exploring, comparing and contrasting the volume of more complex geometric solids, including cones, cylinders and spheres.

We will begin exploring volume by using playdoh to determine which geometric solids, of similar dimensions have greater volume. Activities will also include exploring volume and surface area of different sized cylinders to determine the shape of the cylinder that will yield the greatest volume with the least amount of surface area – think packaging and marketing a product.

-AUHSD Math Teachers

When you order an Ice Cream “cone”, why is it that you can choose between one that is actually shaped like a cone and one that is more of a cylinder?



Which cone will hold more ice cream?

Essential Questions Addressed in this Unit

- What is volume?
- How do the volume of cylinders, cones and spheres compare to one another?
- Where is volume used in real world contexts?
- How do volume and surface area relate?

Careers that Use Volume

- Construction Managers
- Medical Field
- Real Estate/Property Managers
- Economists
- Fashion Designers