

# Chapter 11: Surface Area and Volume

Content Area: **Math**  
Course(s): **Geometry CP, Geometry A, Geometry H**  
Time Period: **Marking Period 4**  
Length: **14 Days**  
Status: **Published**

## Unit Introduction

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## Standards

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CCSS.Math.Content.HSG-CO.A.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
CCSS.Math.Content.HSG-GMD.A.1	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.
CCSS.Math.Content.HSG-GMD.A.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
CCSS.Math.Content.HSG-GMD.B.4	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
CCSS.Math.Content.HSG-MG.A.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
CCSS.Math.Content.HSG-MG.A.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
CCSS.Math.Content.HSG-MG.A.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

## Essential Questions

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- How can you determine the intersection of a solid and a plane?
- How can you represent a three dimensional figure with a two dimensional drawing?
- How do the surface areas and volumes of similar solids compare?
- How do you find the surface area and volume of a solid?

## Content

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## Skills

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- Find surface area of composite space figures

- Find the surface area of prisms, cylinders, pyramids, cones, and spheres
- Find the volume of composite space figures
- Find the volumes of prisms, cylinders, pyramids, cones, and spheres
- Make nets and drawings of 3D figures
- Recognize polyhedra and their parts
- To find relationships between the ratios of the areas and volumes of similar solids
- Visualize cross sections of space figures