

Unit 11 Chapter 11 Geometry/ Volume

Content Area: **Mathematics**
Course(s): **Math 5**
Time Period: **April**
Length: **MP - 3 - 4**
Status: **Published**

Unit Summary

In this unit, students will begin to recognize volume as an attribute of solid figures and understand concepts of volume measurement. Students relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. Students will also learn to classify two-dimensional figures into categories based on their properties.

Standards

MA.5.G.B.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
MA.5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.
MA.5.MD.C.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
MA.5.MD.C.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.
MA.5.MD.C.3a	A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
MA.5.MD.C.3b	A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
MA.5.MD.C.5a	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
MA.5.MD.C.5b	Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
MA.5.MD.C.5c	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
TECH.8.1.5.A.CS2	Select and use applications effectively and productively.

Student Learning Objectives

Students will learn to:

- identify and classify polygons.
- classify and draw triangles using their properties.
- classify and compare quadrilaterals using their properties.

- identify, describe and classify three dimensional figures.
- understand unit cubes and how they can be used to build a solid figure.
- count unit cubes that fill a solid figure to find volume.
- estimate the volume of a rectangular prism.
- find the volume of a rectangular prism.
- use formula to find the volume of a rectangular prism.
- use the strategy make a table to compare tables.
- find the volume of combined rectangular prisms.

Essential Questions

- How can you identify and classify polygons?
- How can you classify triangles?
- How can you classify and compare quadrilaterals?
- How can you use the strategy *act it out* to approximate whether the sides of a figure are congruent?
- How can you identify, describe, and classify three-dimensional figures?
- How can you use an everyday object to estimate the volume of a rectangular prism?
- How can you find the volume of a rectangular prism?
- How can you use a formula to find the volume of a rectangular prism?
- How can you find the volume of rectangular prisms that are combined?

Enduring Understandings

Students will understand that:

- polygons can be named and classified.
- triangles can be named and classified.
- quadrilaterals can be named and classified based on their properties.
- three dimensional figures can be named and classified based on their properties.
- volume can be calculated by counting unit cubes in a solid figure.
- rectangular prism have volume.
- a formula can be used to find the volume of a rectangular prism.
- the strategy *make a table* can be used to compare volumes of different figures.
- combined rectangular prisms can be 'broken apart' to find its volume.

Application

Students will be able to independently use their learning to:

- identify and classify polygons.
- classify and draw triangles using their properties.
- classify and compare quadrilaterals using their properties.
- identify and describe and classify three dimensional figures.

- understand unit cubes and how they can be used to build a solid figure.
- count unit cubes that fill a solid figure to find volume.
- estimate the volume of a rectangular prism.
- find the volume of a rectangular prism.
- use formula to find the volume of a rectangular prism.
- use the strategy make a table to compare tables.
- find the volume of combined rectangular prisms.

Skills

Students will be skilled at:

- identifying and classifying polygons.
- classifying and drawing triangles using their properties.
- classify and comparing quadrilaterals using their properties.
- identifying, describing and classifying three dimensional figures.
- understanding unit cubes and how they can be used to build a solid figure.
- counting unit cubes that fill a solid figure to find volume.
- estimating the volume of a rectangular prism.
- finding the volume of a rectangular prism.
- using formula to find the volume of a rectangular prism.
- using the strategy *make a table* to compare volume of figures.
- finding the volume of combined rectangular prisms.