Lesson 7: Cubic Units of Measure

Standards Alignments

Addressing 5.MD.C.4

Teacher-facing Learning Goals

- Find the volume of rectangular prisms with standard units of measure by multiplying the base times the height or multiplying the length times the width times the height.

Student-facing Learning Goals

- Let's use different sized cubic units to measure volume.

Lesson Purpose

The purpose of this lesson is for students to find the volume of rectangular prisms in cubic centimeters, cubic inches, and cubic feet.

In previous lessons, students used unit cubes with a side length of 1 unit to determine the volume of right rectangular prisms. In this lesson, the units are now a specific unit of measure. In grade 5, students use words, not exponents, when recording the cubic unit of measure, such as "cubic centimeters (cm)," "cubic feet (ft)" or "cubic inches (in)." The exponents in Grade 5 are limited to powers of 10, which will be addressed in a later unit.

In this lesson, students distinguish between different standard unit measures of volume. They examine the distinction between cubic cm, cubic in, and cubic ft. Throughout the lesson, students share their rationale for choosing a unit to measure specific real-world objects and learn the importance of identifying the unit of measure when finding the volume of an object (MP6).

This lesson has a Student Section Summary.

Access for:

Students with Disabilities

- Representation (Activity 2)

Instructional Routines

MLR4 Information Gap (Activity 2), Notice and Wonder (Warm-up)

Materials to Gather

- Rulers (centimeters): Activity 1
- Rulers (inches): Activity 1
- Yardsticks: Activity 1

Materials to Copy

- Info Gap Volume Cards (groups of 2): Activity 2

Lesson Timeline

Warm-up	10 min
Activity 1	10 min
Activity 2	25 min
Lesson Synthesis	10 min
Cool-down	5 min

Teacher Reflection Question

During today's lesson, students described which standard cubic measurement unit they would use to measure the volume of objects that are shaped like rectangular prisms. Consider which objects students see on a regular basis in their communities that are shaped like rectangular prisms. How did you incorporate these objects into the lesson to help students connect their lived experience with their developing math identity? How can you incorporate these objects into future lessons?

Cool-down (to be completed at the end of the lesson) 5 min

Find the Volume

Standards Alignments

Addressing 5.MD.C.4

Student-facing Task Statement

Priya's family rented a moving truck to move their belongings to their new house. The space inside the back of the moving truck is 15 feet long, 5 feet wide, and 8 feet tall.

What is the volume of the back of the moving truck? Explain or show your reasoning. (Remember to include the cubic unit of measure.)

Student Responses

The volume of the moving truck is 600 cubic feet.
Sample response: $8 \times 5 \times 15 = 40 \times 15 = (40 \times 10) + (40 \times 5) = 400 + 200 = 600$