

Date: 4/21

Standards:

5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- a. 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.
- b. 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.

Standard for Mathematical Practice:

SMP 3: Construct viable arguments and critique the reasoning of others.

SMP4: Model with Mathematics

SMP7: Look for and make use of structure (dimensions to determine volume related to formulae).

SMP8: Look for and express regularity in repeated reasoning (recognize multiplication).

K:

$$V = (l)(w)(h)$$

$$V = Bh$$

U: Students will understand that volume is found from measurements of area similarly to how areas are found from measurements of lengths.

Students will understand that the type of units used describe what is being measured, and what is being measured has a specific type of unit.

D: The students will be able to explain the role of units in geometric measurement.

The students will be able to correctly calculate volumes of right rectangular prisms and composite shapes made of right rectangular prisms.

The students will be able to apply geometric measurement to real-world problems.

Build-the-volume activity

Whole Class:

Discussion around volume: from using cubes to count, to using cubes to build a specific volume, to predicting volume given dimensions, to hypothesizing a short-cut method without cubes
Practice drawing right rectangular prisms

Fold boxes and fill with popcorn to compare? Calculate your volume (If time)
Another Fill-It problem

Formative Assessment/ Check for Understanding: All About Volume

Your task is to let me know EVERYTHING you now know about volume. To share your wisdom with me, you may:

- Create a step-by-step information sheet
- Write a letter to a 4th grade student who only knows about area
- Make a 2-page book
- Construct a 5-question quiz with answers

No matter which option you choose, your All About Volume must include the following information:

- Define the following terms: Volume, right rectangular prism, dimension(s), units used for volume
- Formulas related to volume and how you could use them
- At least one example worked out with explanations

Closure: What is your favorite thing you just wrote or drew about volume?

