

Title: Rules of Volume
Content Area: Mathematics
NC SCOS or Common Core Objective(s): 5.MD 3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. 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. b. 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. 4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. 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. c. 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.
Rationale/Relationship to Text: The volume of a Fish Tank as referenced in the text.
Instructions/Procedures: Give the students the background information or “rules” of finding volume: $V=lwh$ or $V=bh$. Have stations set up with either pretend or real fish tanks of different sizes and

shapes and have the students go and measure the length, width, and height first with a unit block. then the students will go back with a ruler to measure the actual length, width, and height of the fish tank. The students will record their findings on a data sheet and report back to the class.

Materials:

Data sheet: attached

Real Fish Tanks or Pretend Fish Tanks (ex: shoe boxes, gift boxes, anything rectangular)

Rulers

Unit blocks

References: *RULES* by Cynthia Lord

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