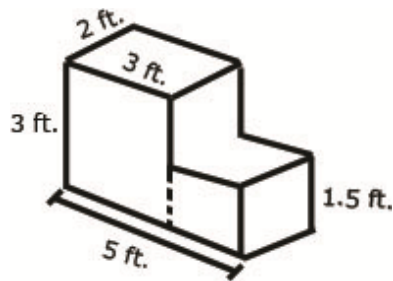


Fifth Grade: Volume

- 3.
- A rectangular container that has a length of 30 cm, a width of 20 cm, and a height of 24 cm. Calculate the volume and label in cubic units.
 - The rectangular container from Part A is filled with water to a depth of 15 cm. When an additional 6.5 liters of water is poured into the container, some water overflows. How many liters of water overflow the container? Use words, pictures, and numbers to explain your answer. **(Remember $1 \text{ cm}^3 = 1 \text{ mL}$.)**



4. Calculate the volume and label in cubic units. Write and explain your work using equations

A Progression Toward Mastery

Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
3 A & B 5.MD.3 5.MD.5	The student is unable to find the volume of the water that has overflowed and is unable to explain the reasoning used.	The student finds the volume of the water that has overflowed, but is unable to explain the reasoning used.	The student makes a calculation error in finding the volume of the water that has overflowed, but is able to clearly explain the reasoning used.	The student finds the volume of the water that has overflowed to be 1.1 L and uses words, numbers, and pictures to clearly explain the reasoning used.
4 5.MD.4 5.MD.5	The student is unable to find the volume and write the equation	The student can to find the volume but and not write the equation	The student makes a calculation error in finding the volume, but is able to write the equation	The student finds the volume and writes the correct equation

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

- 5.MD.3** Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- 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.
 - 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.
- 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.
- 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.
 - 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.
 - 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.