Grade 5 Smarter Balanced Assessment Item Specifications Fact Sheet

Claim 1 - Target I: Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Content Domain: Measurement and Data

Claim 1 Priority Cluster

Standards Assessed in Target I:

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.
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.
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.

Achievement Level Descriptors

Level 1	Students should be able to use unit cubes to find the volume of rectangular prisms with whole number edge lengths.
Level 2	Students should be able to understand the concept that the volume of a rectangular prism packed with unit cubes is related to the edge lengths.
Level 3	Students should be able to use the formulas $V = l \times w \times h$ and $V = b \times h$ to find the volume of rectangular prisms. They should be able to find the volume of two non-overlapping right rectangular prisms.
Level 4	Students should be able to find the volume of a right rectangular prism after doubling the edge length of a side and compare it to the original.

Construct-Relevant Vocabulary

area array, associative property, cube, length, right rectangular prism, volume, width

Allowable Stimulus Materials

right rectangular prism models