

Core Content

<p>Cluster Title: Geometric Measurement—understand concepts of volume and relate volume to multiplication and to addition.</p>
<p>Standard 3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <ul style="list-style-type: none"> a. A cube with side length of one 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.
<p>MASTERY Patterns of Reasoning:</p>
<p>Conceptual:</p> <ul style="list-style-type: none"> Students understand that a unit cube with side length of one is made up of six identical square faces and used to measure volume. Students understand that unit cubes fill a container without gaps or overlaps to measure volume. <p>Procedural:</p> <ul style="list-style-type: none"> Students can identify pictures and objects of unit cubes. <p>Representational:</p> <ul style="list-style-type: none"> Students can make a unit cube from a net of six identical square faces with the measure of one. Students can cover the area (the bottom of rectangular/square container) with a layer of unit cubes and then add additional layers to fill the container.

Supports for Teachers

<p>Critical Background Knowledge</p>
<p>Conceptual:</p> <ul style="list-style-type: none"> Students have knowledge of attributes of solid figures (cubes). Students understand that volume is the measurement of capacity. Students understand a cubic unit.

<p>Procedural: Students can identify faces, edges, vertices on three-dimensional figures.</p> <p>Representational: Students can use linking cubes to create a rectangular prism. Using 1 cm grid paper, create a net for the rectangular prism.</p>	
<p>Academic Vocabulary and Notation cube, unit cube (n^3), one cubic unit, volume, solid figure, overlapping (a partial face to partial face creates a gap) vs. stacking (full face to full face)</p>	
<p>Instructional Strategies Used</p> <p>Fill a clear plastic rectangular container with unit cubes and then with non-unit shapes to show how to represent volume. Example: popcorn, packing peanuts, marbles, etc.</p> <p>Have students build three different solid figures using a variety of unit cubes and find their volume.</p>	<p>Resources Used</p>
<p>Assessment Tasks Used</p>	
<p>Skill-Based Task: From a group of solids, identify a cube and recognize that each is a cubic unit used to measure volume.</p>	<p>Problem Task: How many cubic cm would it take to fill a rectangular prism with the height of 2 cm, length 3 cm, and width 5 cm?</p>