

## Volume & Capacity

Outcomes	Language capacity, container, liquid, full, empty, about half-full, volume, space, has more, has less, will hold more, will hold less, takes up more space.		
NUMERACY CONTINUUM	Emergent structure Attempts direct comparison without attending to alignment. May attempt to measure indirectly without attending to gaps of overlaps.	Direct alignment Directly compares the size of two objects (alignment).	Transitive comparison Directly compares the size of three or more objects (transitivity). Uses indirect comparison by copying the size of one of the objects.
<p><b>Measurement</b>  <i>Knowledge of the structure of units in length, area and volume.</i></p> <p>Syllabus pp55 &amp; 56  The order in which volume and capacity appear in the content is not necessarily indicative of the order in which they should be taught. Volume and capacity relate to the measurement of three-dimensional space, in the same way that area relates to the measurement of two-dimensional space.</p> <p>The attribute of volume is the amount of space occupied by an object or substance. Capacity is only used in relation to containers and generally refers to liquid measurement. It is not necessary to refer to these definitions with students.</p> <p>In Early Stage 1, comparisons are made directly, using methods such as pouring or packing the contents of one container into another. Early experiences often lead students to the conclusion that taller containers 'hold more'. To develop beyond this, students need to directly compare containers that are short and hold more, tall and hold less, short and hold less, tall and hold more, and short and hold the same as a tall container, etc. Many opportunities to emphasise volume (stacking, packing and making models) and capacity (pouring and filling) concepts occur when students pack toys or objects into cupboards, or in play situations, eg sand pit play, water play.</p>			

Teaching and Learning Activities	Notes/ Future Directions/Evaluation	Date
<p><b>Fill it up</b>            Students choose containers and materials for packing and pouring, so that each container is full (filled to the brim). Suggestions for materials: sand, water, play dough. Experiment with packing small containers or moulds with sand or play dough and then tipping out. Compare the moulded form with the original container.</p>		
<p><b>Find a Partner</b>            Children are given different containers to compare. They need to find a container, with another child that holds about the same amount.            Children are asked to predict during this activity. Then check by pouring from one to the other.</p>		
<p><b>Gross Comparisons</b>            Find containers that hold more/less, about the same and teacher to model pouring and filling-use only one kind of material and model informal way to record results.            Children to predict which container will hold more or less</p>		
<p><b>Packing Them In.</b>            Provide students with a container and blocks. Students pack the blocks to determine who can fit the most blocks into their container.</p>		
<p><b>Towers</b>            Build towers using multilink cubes - which take up the most space.</p>		
<p><b>What will it hold?</b>            Students discuss which containers will hold different materials e.g. a sieve will hold marbles but not sand, a round container holds sand better than blocks.</p>		
<p><b>Who can Hold The Most?</b>            Students work in small groups to find who can hold the most beans in two hands (cupped together). Students compare the volume of their handfuls by putting their beans into clear plastic cups and looking at the height of the beans in the cup. Some</p>		

<p>students may be able to count the beans.  <i>Variation:</i> Do the same activity with blocks and count them.</p>		
<p><b><u>Using Technology to Teach Mathematics</u></b></p> <p><b>Mathletics:</b></p> <ul style="list-style-type: none"> <li>• Which holds more?</li> </ul>		
<p><b><u>Story Books</u></b></p> <ul style="list-style-type: none"> <li>- Who sank the boat? By Pamela Allen</li> <li>- Mr Archimede's bath by Pamela Allen</li> </ul>		
<p><b><u>Other Activities</u></b></p>		