



Strengthen Activities

MISCONCEPTION

Children may confuse volume and capacity and may not be able to differentiate between the two.

STRENGTHENING UNDERSTANDING

1. First, ask children for a definition of volume and capacity. Discuss their ideas to get to the point where children understand that volume is the amount of space an object takes up, whereas capacity is the amount of substance a container can hold. Volume is measured in unit cubes, whereas capacity is in litres, gallons, pints, etc.
2. Show children an empty juice carton (cuboid) and ask: *How can we use this carton to show the difference between volume and capacity?* Encourage children to build the volume of the carton using cubes and give the volume in unit cubes.
3. Find the capacity by filling the carton with water and emptying into a measuring jug to measure the capacity. Use other containers of different shapes and sizes to estimate the volume and capacity.

ASSESSMENT CHECKPOINT

Can children give a clear definition to distinguish between volume and capacity?

RESOURCES

Containers including empty juice carton, cubes, water, measuring jug, whiteboards, pens

MISCONCEPTION

Children may view the estimation process as a form of calculation that provides the actual volume, because it involves counting, and do not realise that it is not exact.

STRENGTHENING UNDERSTANDING

1. Show children a 1 cm³ cube and 1 ml of water in a measuring cylinder. Ask: *Compare the volume of the cube to the volume of water, what can you tell me about them?* Establish that 1 cm³ has exactly the same volume as 1 ml of water, so 1 cm³ = 1 ml.
2. Give children an empty cup and ask them to estimate the volume the cup can hold by filling it with centimetre cubes and then counting the number of cubes. Write this estimate down and work out what this estimate would be in ml.
3. Now fill the cup with water and pour into a measuring cylinder to work out the actual volume. Ask: *Would you expect the actual volume to be more or less than the estimation? Why?* Ensure children can see that the estimation would have gaps as the cubes would not fill every part of the cup, so the estimation will be smaller than the actual volume. Measure the volume and compare with their estimations – was it a good estimation?

ASSESSMENT CHECKPOINT

Can children explain why the cube would have the most accurate estimate in Q1 on Textbook p202?

RESOURCES

Centimetre cubes, measuring cylinder, water, cups, whiteboards, pens, Textbook

MISCONCEPTION

Children may think that a tall, thin container has a greater capacity than a short, wide one.

STRENGTHENING UNDERSTANDING

1. Provide children with 12 multi-link cubes and tell them that these cubes represent the capacity of a cuboid shaped container. Ask children to explore what the possible containers could look like, by building them using the 12 cubes. Encourage different orientations of the same arrangements too.
2. Now ask children to sketch out what each container would look like on whiteboards and compare. Ask: *Which container has the greatest/smallest capacity?* Ensure children understand that actually all the different containers have the same capacity as they have the same volume inside the container.
3. Establish that just because a container is taller, that may not necessarily mean it has a greater capacity, because the container is thinner and vice versa. Reiterate that when looking at capacity, be sure to consider the width of the container and not just the height.

ASSESSMENT CHECKPOINT

Can children use what they know about width and height of containers to estimate capacity in Q2 on Textbook p206?

RESOURCES

Multi-link cubes, whiteboards, pens, Textbook