Capacity vs Volume: Why a Tall Thin Cup Can Hold Less Than a Short Fat One

A simple guide to helping your child understand that the height of a container doesn't always tell us how much it can hold, using playful, hands-on activities.

What is capacity and volume?

In Reception (the first year of primary school for children aged 4 to 5), children begin exploring maths through play. Two important ideas they look at are capacity and volume. Capacity is how much a container can hold, while volume is the amount of liquid or material actually inside it. It is very common for children to think that if a cup is taller, it must hold more. This guide helps children discover that a short, wide bowl might actually hold more than a tall, thin glass.

What happens during these activities?

Children learn by doing. Instead of just looking at two containers, they use 'hands-on' exploration. This involves pouring water, sand, or rice from one container into another to see what happens. For example, if they pour water from a tall, thin vase into a short, fat tub and the water overflows, they can see that the tub has a smaller capacity. This visual evidence helps them move past the 'trick' of height and start reasoning about the space inside an object.

What this means for your child

This activity helps your child develop 'comparative language'. This means using words like 'full', 'empty', 'half-full', or 'nearly full' to describe what they see. By experimenting, they are building the foundations for later maths lessons where they will use formal measurements. It encourages them to be curious and to test their ideas rather than just guessing. Every child learns at their own pace, including those with SEND (Special Educational Needs and Disabilities) or those learning English as an additional language.

Playful ideas for home

You can explore this in the kitchen or bath without any pressure. Try finding two different-sized cups and ask, 'Which one do you think holds more?' Let your child pour water from one to the other to find out. You could also use a scoop of rice or dried pasta. Keep it light and playful; there is no need for drilling or formal tests. If you are unsure what your child is currently focusing on in class, feel free to ask their teacher for a tip.

Common questions

Parents often ask if they need to teach their children about litres or millilitres at this stage. According to official guidance, the focus in Reception is on exploring and comparing rather than using formal units of measurement. The goal is simply to get children comfortable with the concept of space and volume through play. If your child is struggling with the concept, remember that this is a natural part of their development and will become clearer with more everyday practice.

Sources

- Department for Education, Early Years Foundation Stage (EYFS) statutory framework
- GOV.UK, National Curriculum in England: Early Years Foundation Stage