

YR5 Knowledge Organiser - Volume

Key Concepts

- Estimate volume, for example, using 1cm^3 blocks to build cuboids
- Understand how volume differs to capacity and cubic measures relate to millilitres
- Use the four operations to solve problems involving volume

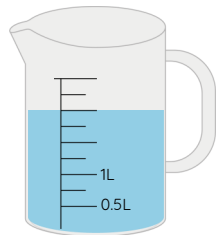
Key Vocabulary

- volume
- capacity
- cubic measures / cm^3 / m^3
- millilitres
- estimate



Volume and Capacity

Volume is the amount of physical space that something takes up. Capacity is the maximum amount that a container can hold.



The capacity of the jug is 2.5 litres.

The volume of the water in the jug is 1.25 litres.

How Cubic Measures Relate to Millilitres

We can use cubic measures, for example cm^3 and m^3 , to measure volume. To help us understand and visualise volume, it is useful to know that 1cm^3 is equivalent to 1ml.

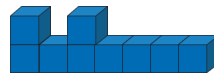


"The spoon can hold 5ml. This means, if I have a level teaspoon of something, it has a volume of 5cm^3 ."

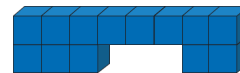


Measure Volume

Volume is measured in cubic units because it is a measure of three dimensions (length, width and depth). We can use 1cm^3 blocks to build shapes and count them to find their volume.



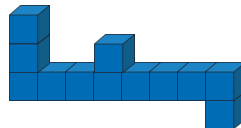
The volume is 9cm^3 .



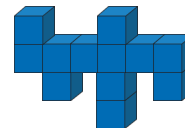
The volume is 13cm^3 .

Compare Volume

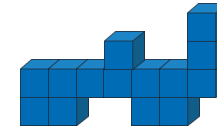
By exploring volume with cubes, we can see that different shapes can have the same volume. For example, these shapes have the volume 12cm^3 .



is equal to



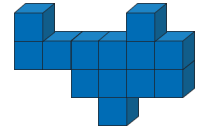
We can also compare shapes with different volumes.



14cm^3

is greater than

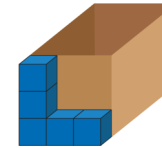
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13cm^3

Estimate Volume

We can apply our understanding of volume to estimate the volume of different objects.



I estimate the volume of the box is 36cm^3 .

We should also be able to identify the most appropriate unit of measure, for example m^3 for the volume of a classroom rather than cm^3 .

Four Operations with Volume

Now, we can begin to solve problems involving volume:

A cup contains 250ml of water. How many cups are needed to fill a bucket with a 2l capacity?

$2,000 \div 250 = 8$ so 8 cups are needed.

