

What is volume?

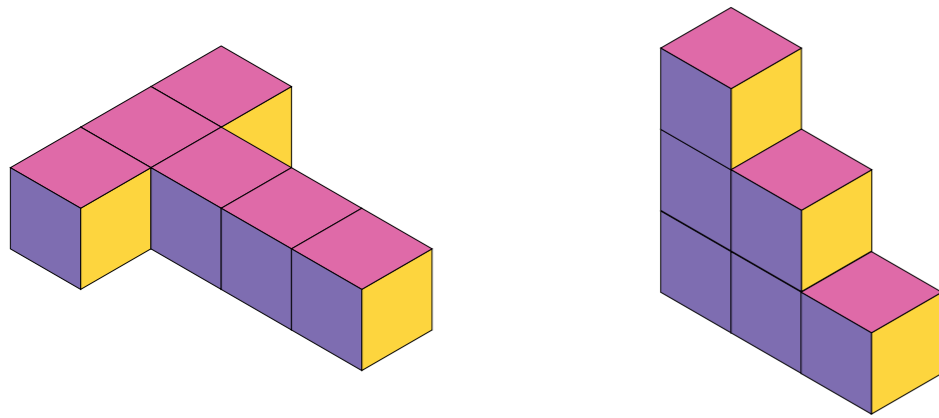
Volume is the amount of space taken up by a three-dimensional shape or substance.

Units of volume

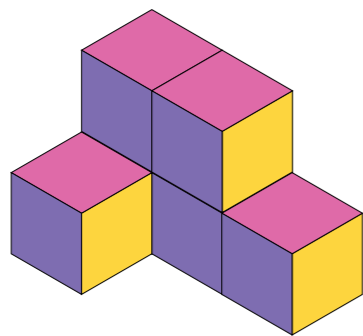
Volume is measured in unit cubes, for example cubic centimetres (cm^3) and cubic metres (m^3). Volume can also be used to measure liquid capacity, for example millilitres (ml) and litres (l).

How to find volume

Volume can be found by **counting cubes**, for example:



Both of these shapes are made from 6 cubes.
Volume = 6 cubes



This shape also has a volume of 6 cubes but one of the cubes cannot be seen.

How to calculate volume of a cube or cuboid

A cube/cuboid is made up from **layers**.

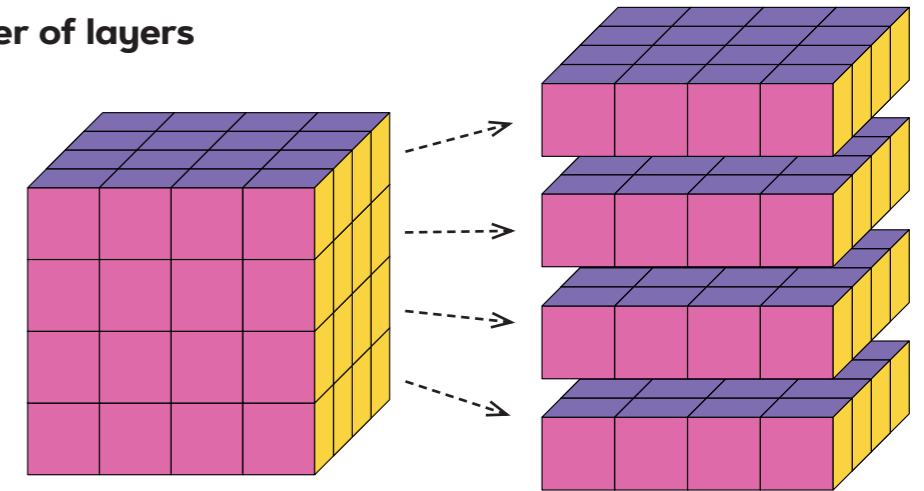
The **volume** of a cube/cuboid can be found using the rule:

Number of cubes in each layer \times **the number of layers**

For example, this cube has 4 layers.

In each layer there are 4 rows, each with 4 small cubes.

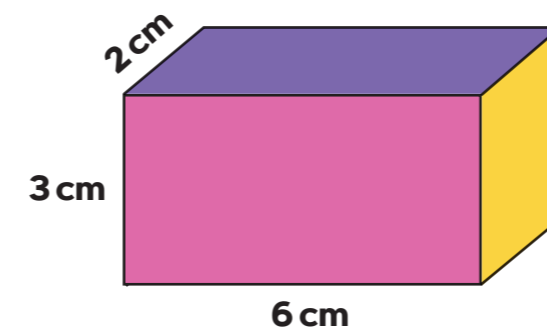
Each layer has $4 \times 4 = 16$ small cubes.



Volume of cube = number of cubes in each layer \times **the number of layers** = $16 \times 4 = 64$ cubes

Another method to calculate the **volume** of a **cube** or **cuboid** is:

- Find the width, the height and depth of the cube/cuboid
- Use the rule **volume = length \times width \times height**



Example

This cuboid has **length 6 cm**, **width 2 cm** and **height 3 cm**

Volume = $6 \times 2 \times 3 = 36 \text{ cm}^3$

Level 4

Estimate/Find volume by counting cubes.

Level 5

Calculate volumes of cubes and cuboids.