

Welcome to this book

This book will help you revise for the national tests in maths at the end of Key Stage 2.

Red headings show you which topic is covered.

Illustrations and diagrams help you to understand the topic.

This tells you which page can help you with this topic.

Find out about words in **bold** by turning to the Glossary.

Volume

Volume is the space inside a 3-D shape. Volume is measured in cubic units, such as cubic millimetres (mm³), cubic centimetres (cm³), cubic metres (m³) and cubic kilometres (km³). The 3 in the cubed sign can help you remember that you need to multiply the lengths of the three dimensions (length \times width \times height).

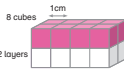
Finding volume by counting cubes

To find the volume of a cuboid, follow these steps.

- First count the cubes in one layer.
- Then count the number of layers.
- Multiply the number of cubes in one layer (8) by the number of layers (2).

$$8 \times 2 = 16$$

$$\text{volume} = 16\text{cm}^3$$



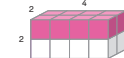
Finding volume using length, width and height

Look at the shape again. Count the number of cubes along its height, length and width: length = 4, width = 2, height = 2.

Multiply the length by the width by the height to get the volume.

$$4 \times 2 \times 2 = 16$$

$$\text{volume} = 16\text{cm}^3$$

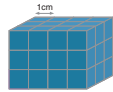


Find the volume of this cuboid without counting all the cubes

$$\text{Multiply } l \times w \times h$$

$$4 \times 3 \times 3 = 36$$

$$\text{Answer volume} = 36\text{cm}^3$$

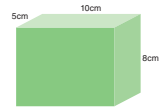


Find the volume of this cuboid

Multiply the length by the width by the height:

$$10 \times 5 \times 8 = 400$$

$$\text{Answer volume} = 400\text{cm}^3$$

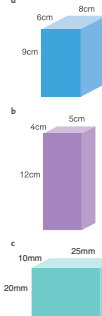


Remember

volume of a cuboid = length (l) \times width (w) \times height (h)
You can multiply the three numbers in any order – the answer will be the same.

Test yourself

1. Find the volume of these cuboids.



Capacity

The **capacity** of something is the amount it can hold. It is measured in millilitres (ml) and litres (l) and in imperial units (pints and gallons).



A millilitre is a small amount of liquid that fills about $\frac{1}{5}$ of a teaspoon.



A litre is a much larger quantity of liquid – the amount found in a standard pack of juice.

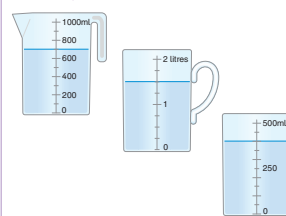


Remember 1000ml = 1 litre. Use this diagram to **convert** between litres and millilitres (ml).

Measuring capacity

You can measure capacity in containers that have scales marked on them. Look at [page 62](#) for help in reading scales.

How much liquid is in each container?



Answers 700ml, 1500ml (or $1\frac{1}{2}$ litres or 1.5 litres), 400ml

Linking volume and capacity

Sometimes units of volume, like cubic centimetres (cm³) and cubic metres (m³), are used to describe capacity. This is because 1 litre of water is equivalent to 1000cm³ and 1 millilitre of water is equivalent to 1cm³.



Remember

1ml of water is equivalent to 1cm³. 50ml and 50cm³ take up the same amount of space.

Test yourself

1. What could you measure in
 - a millilitres
 - pints
 - litres
 - gallons?
2. Estimate the capacity of
 - a bucket
 - an egg cup
 - a mug
 - a teaspoon
 - a bath.
3. Change these amounts to millilitres.
 - 7 litres
 - 8.5 litres
4. Change these amounts to litres.
 - 500ml
 - 4575ml

Test yourself questions to check your understanding (answers are at the back of the book).

Remember boxes summarise important information.

How to revise

- Turn to the topic and read about it.
- Read the Remember box and then cover it up. Can you remember what it says?
- Read the Test yourself questions and write your answers on a piece of paper.
- Check your answers against the right answers at the back of the book.
- If you got any answers wrong, read the topic again, then have another go at the questions.
- If you got the answers right – well done! Move on to the next topic.
- Once you have worked through this revision guide, move on to the maths papers in the **KS2 SATs Maths and English Practice Papers**.

Tips for tests

- Always read the question carefully before you answer it.
- Have a go at as many questions as you can. If there is a question you really can't answer, just move on to the next one. You can always come back to it if you have time.
- Always approximate before you calculate. Check your calculations by doing them a different way, using an inverse operation and by using your approximation.
- If you have time at the end, check through your work.