# Maths Mastery

## Recognise When It Is Possible to Use Formulae for Area and Volumes of Shapes

# Rectangles

The formula for the area of a rectangle is:

**A = ab, where a and b are the length of the sides.**

A room is 3m × 4m and 3m high. Use the formula to calculate surface area of the walls, ignoring any windows or doors.

$42m^2$

If the doorway is 2m high and 1m wide, and the window is 2m wide and 2m high, what is the surface area of the walls?

$36m^2$

In a small group, share how you calculated the answers, and write some similar problems involving calculating area for each other.

Hide Answers

# Cubes

The formula for the volume of a cube is:

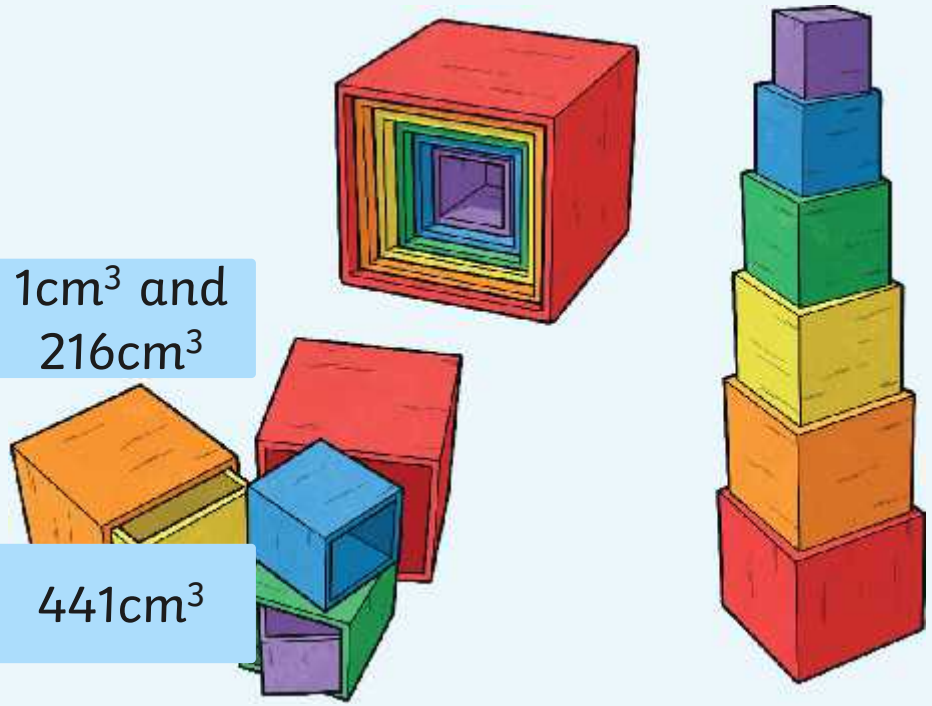
**$V = a^3$, where a is length of the edges.**

A set of nested boxes has 6 boxes. The smallest box has an edge of 1cm, with each box larger by 1cm. What is the volume of the smallest and largest cube?

$1cm^3$ and $216cm^3$

What is the volume of all the cubes put together?

$441cm^3$



Share your answers with a partner. Discuss where else you would use this formula to calculate the volume of different cubes.

Hide Answers

# Cuboids

The formula for the volume of a cuboid is:

**V = abc, where a, b and c are the length of the edges.**

A food supplier wants to pack 12 tins in a box. The tins are 10cm tall and the diameter of the top is 5cm. Investigate the different size cuboid shaped boxes that could be used? For example, what size box would hold 12 cans in a line?

This box would be
60cm × 5cm × 10cm = 3000cm$^3$

Hide Answers