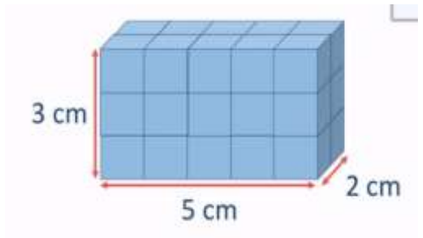
# AREA, PERIMETER and VOLUME

Year 6

KNOWLEDGE ORGANISER

## Overview



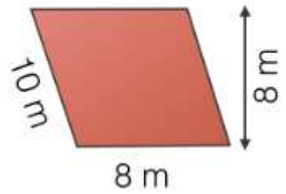

**Area, Perimeter and Volume** we learn about:

-Shapes with Same Area -Area and Perimeter

-Area of a Triangle -Area of a Parallelogram

-What is Volume? -Volume – Counting Cubes

-Volume of a Cuboid




This learning is important because it helps us to understand and measure the size of things in the world around us.

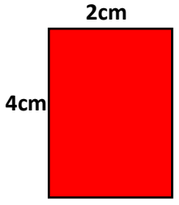
It helps us to grasp ideas such as where things will fit, what size items are in comparison to one another and distances that need to be travelled.

## Area of Rectangles, Compound and Irregular Shapes

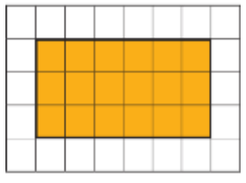
-Area is the term used to describe the amount of space taken up by a 2D shape or surface.

-Area is measured in square units - cm², m² or km².

RECTANGLES: We calculate the area of rectangles by multiplying the length by the width.

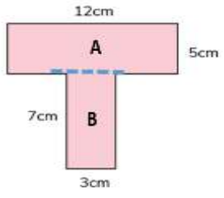



The length is 4cm. The width is 2cm. So, the area is 4cm x 2cm = 8cm²



We can calculate the area of a rectangle on a grid. E.g. this rectangle is 6 squares x 3 squares = 18 squares.

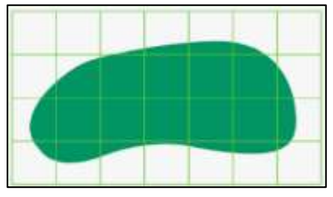
COMPOUND SHAPES: Divide the shape into rectangles with known lengths and widths.




-E.g. area of rectangle A = 12cm x 5cm = 60cm². Area of rectangle B = 7cm x 3cm = 21cm²

60cm² + 21cm² = 81cm²

IRREGULAR SHAPES: We can estimate the area of irregular shapes on grids by adding the number of whole squares to half the number of part squares.



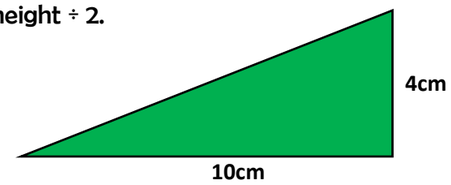
E.g. Whole squares = 7 Part squares = 18

-Estimate = 7cm (whole squares) + 9cm (half part squares) = 16cm²

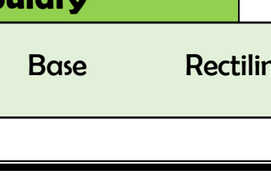
## Area of Triangles and Parallelograms

Area of Triangles

Area of triangle = base x perpendicular height ÷ 2.



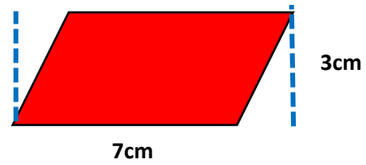

Base = 10cm Height = 4cm
10cm x 4cm = 40cm
40cm ÷ 2 = 20cm²




Base = 6cm
Perpendicular Height = 5cm
6cm x 5cm = 30cm
30cm ÷ 2 = 15cm²

Area of Parallelograms

Area of parallelogram = base x perpendicular height.




Base = 7cm Perpendicular Height = 3cm
7cm x 3cm = 21cm²

**PERPENDICULAR HEIGHT**

Perpendicular height means the height measured at a right angle from the base.

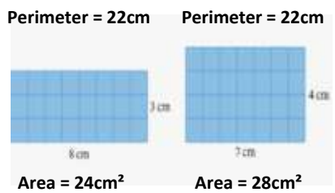
## Perimeter and Area/ Volume

Perimeter and Area

-It is important to remember that shapes with the same perimeter can have different areas.

-Likewise, shapes with the same area can have different perimeters.

-See the example on the right.

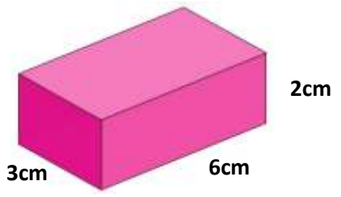



Volume of Cuboids

The volume of a cuboid is the length x the width x the height.

The volume is presented in cm/m³ (cubed).

E.g. The volume of the cuboid on the right is:
6cm x 3cm x 2cm = 36cm³.




## Key Vocabulary

Length Height Width Area Perimeter Volume Base Rectilinear Kilometre (km) Perpendicular Dimensions