

PERIMETER AND AREA KNOWLEDGE ORGANISER

Key Concepts

- measure and calculate the perimeter of composite rectilinear shapes in cm and m
- calculate and compare the area of rectangles including standard units, cm² and m² and estimate the area of irregular shapes

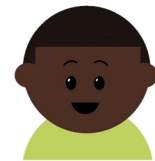
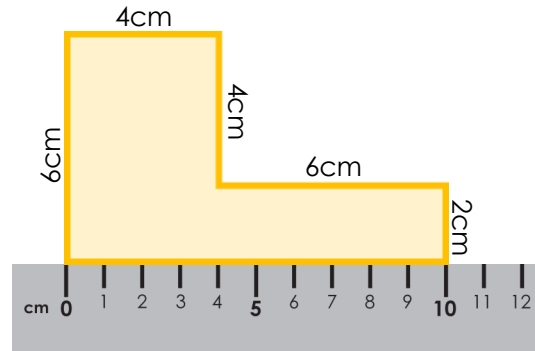
Key Vocabulary

- measure
- perimeter
- composite
- rectilinear
- centimetres
- metres
- area
- square centimetres
- square metres
- estimate
- irregular



Measure Perimeter

We do not need a grid to **measure the perimeter of rectilinear shapes**. We can use a ruler or metre stick to take our own accurate measurements.



Remember to line up the ruler carefully to take accurate measurements!

Now that we have the measurements of each side, we just need to add them together to find the perimeter!

$$4 + 4 + 6 + 2 + 10 + 6 = 32$$



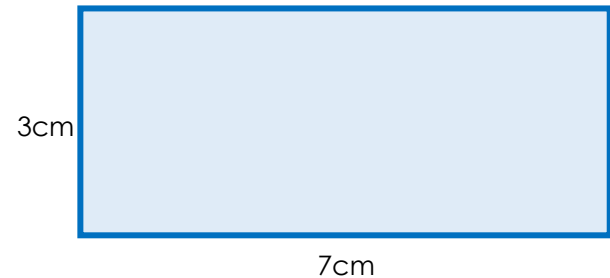
The perimeter of the rectilinear shape is 32cm.



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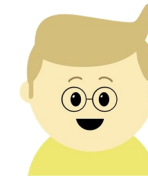
Area of Rectangles

To find the **area of rectangles**, we must multiply the length by the width.



$$\text{length} \times \text{width} = \text{area}$$

$$7\text{cm} \times 3\text{cm} = 21\text{cm}^2$$



The units cm² (squared centimetres) or m² (square metres) are used for area.

We can use this knowledge to work out what the length and width could be using a given area.

$$\text{Area} = 12\text{m}^2$$

Length and width could be:

1m and 12m

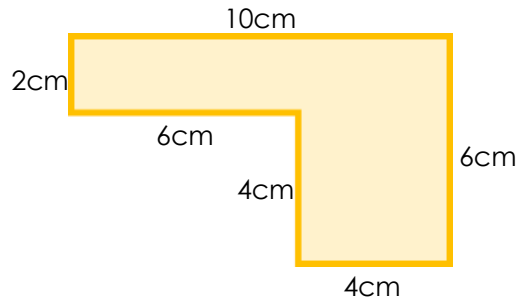
2m and 6m

3m and 4m

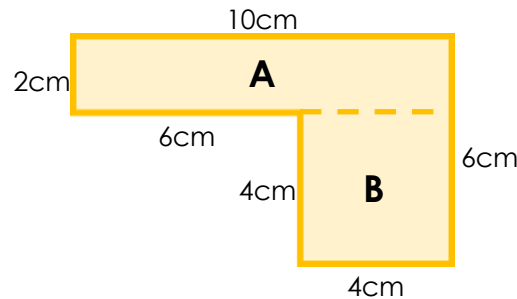
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Area of Compound Shapes

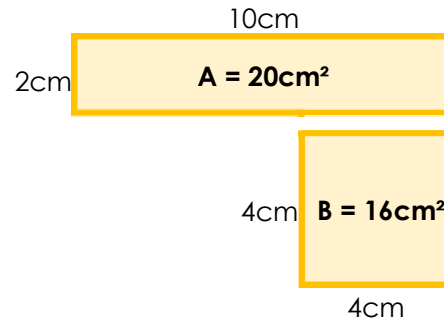
We can now apply our knowledge of finding the area of rectangles to calculate the **area of compound shapes**.



First we split the shape into rectangles.

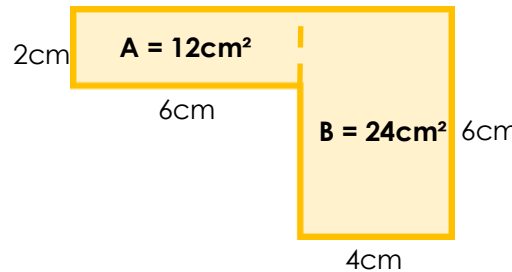


Then we calculate the area of each rectangle and add these together to find the total area of the compound shape.



Total area = $20\text{cm}^2 + 16\text{cm}^2 = 36\text{cm}^2$

The area remains the same even if you split the shape in different ways.



Total area = $12\text{cm}^2 + 24\text{cm}^2 = 36\text{cm}^2$

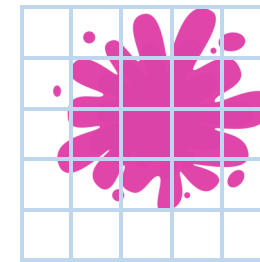


Remember to check the lengths which correspond to each rectangle carefully.



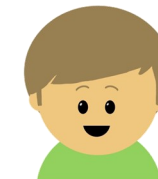
Area of Irregular Shapes

We can estimate the **area of irregular shapes** on a grid using our Year 4 knowledge of counting squares. We need to look at the number of whole squares which are covered, and the number of part-covered squares.



I can see 3 fully covered squares and 16 part-covered squares.

We can use our knowledge of fractions to add the different part-covered squares to create a rough total estimate.



The area of the irregular shape is approximately 10cm^2 .

Top tip!
Cross off squares as you count them to avoid miscalculating the area.