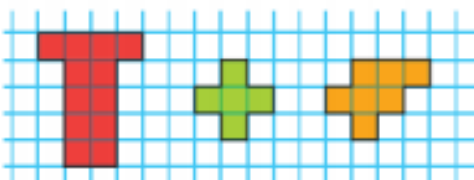POWER MATHS

Prior Knowledge (Y4 Unit 4, 7)

- Convert between different units of measure (kilometre to metre)
- Measure and calculate the perimeter of a rectilinear shape (centimetres and metres)
- Find the area of rectilinear shapes by counting squares

→ perimeter, distance, area, space
→ scale, actual area/actual size, convert
→ centimetres (cm), metres (m), square centimetres (cm2), square metres (m2)
→ rectangle, square, rectilinear shape, sides, length, width
→ measure, combine, brackets, total, double, estimate, array
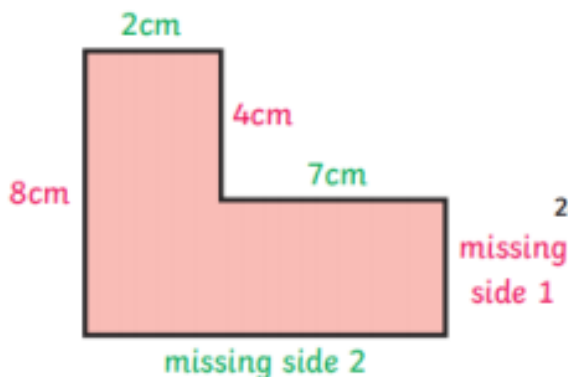
Structures and Representations

Rectilinear Shapes on squared paper

Arrays

Calculating Perimeter

Calculate the missing sides of this rectilinear shape to find the perimeter:

Missing side 1 + 4cm = 8cm, so missing side 1 = 4cm.

Missing side 2 = 2cm + 7cm = 9cm

2cm

4cm

7cm

8cm

missing side 1

missing side 2

Perimeter = sum of all sides = 2cm + 4cm + 7cm + 4cm + 9cm + 8cm = 34cm

Measuring Perimeter

Measure the perimeter of a rectangle:

w

l

Measure the length (l) and width (w).
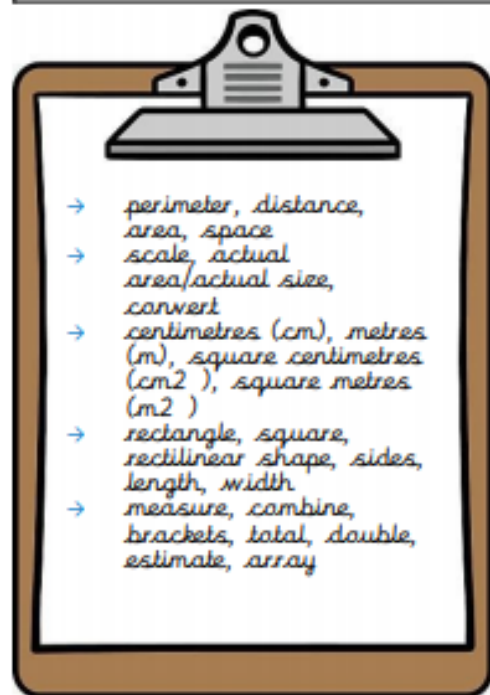Perimeter = l + w + l + w or (l + w) × 2

Measure the perimeter of regular shapes:

Measure the length (l) and count the number of sides (s) on the shape.

l

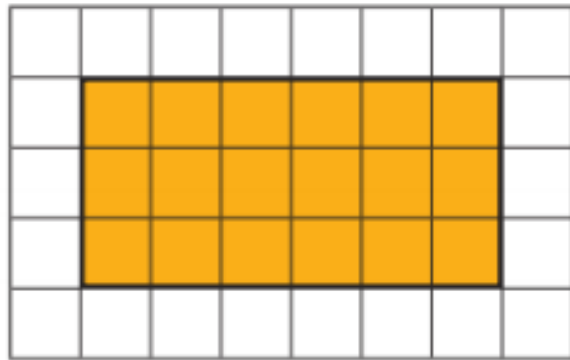Perimeter = l × s

Measure the perimeter of irregular shapes:

Measure the length of each side and add them together.

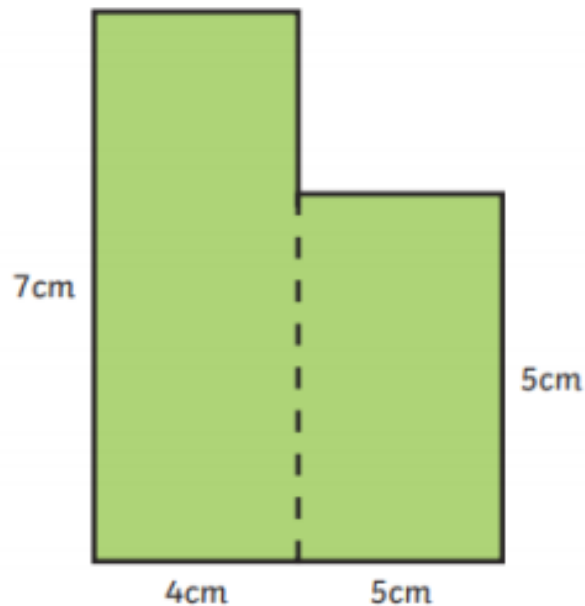## Area of Rectangles

The area of a rectangle on a grid:

Multiply the length × width
= 6 × 3 = 18 squares.

The area of a rectangle = length (l) × width (w).

w

l

Area of Compound Shapes

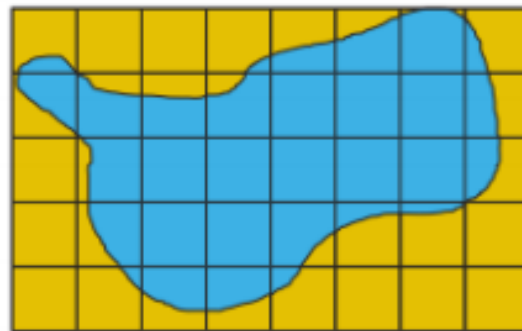To find the area of a compound shape, divide the shape into rectangles with known dimensions:

7cm

5cm

4cm   5cm

Area = 7cm × 4cm + 5cm × 5cm
= 28cm² + 25cm²
= 53cm²

Area of Irregular Shapes

To find the area of an irregular shape, find the number of whole squares and part squares.

Whole squares = 10
Part squares = 22

Estimate of area = whole squares + half part squares

= 10cm² + 11cm² = 21cm²

*There are other ways to estimate the area of irregular shapes.