

Year 6 – Maths – Measurement: Area, Perimeter and Volume

Key vocabulary

perimeter

area

volume

cubic units (e.g. cm^3)

cuboid

width

length

rectangle

rectilinear

parallelogram

perpendicular height

Links to other learning

Year 5 - Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres; Calculate and compare the area of rectangles, including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes; Estimate volume, for example using 1 cm^3 blocks to build cuboids and capacity.

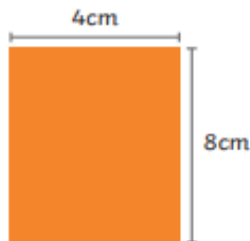
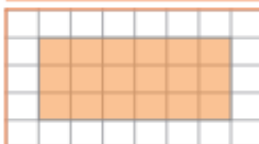
Key questions

How do you find the area of a triangle?

Do shapes with the same area have the same perimeter?

Area of Rectangles

length $\times$ width = area of a rectangle



Counting squares:

area = 18cm^2

Use formula:

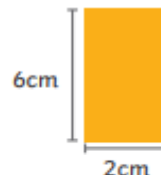
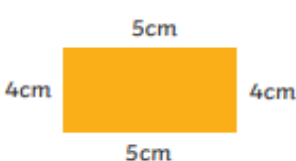
$6\text{cm} \times 3\text{cm}$

area = 18cm^2

$8\text{cm} \times 4\text{cm}$ area = 32cm^2

Perimeter of Rectangles

perimeter = length + width + length + width or (length + width) $\times$ 2

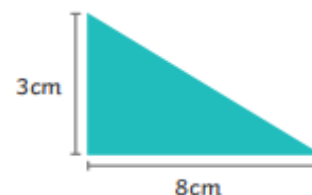


$5\text{cm} + 4\text{cm} + 5\text{cm} + 4\text{cm}$
area = 18cm^2

$(6 + 2) \times 2$
area = 16cm^2

Area of Triangles

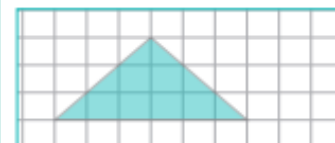
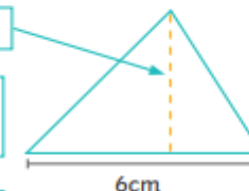
base $\times$ perpendicular height $\div$ 2 = area of a triangle



$8\text{cm} \times 3\text{cm} \div 2$
area = 12cm^2

perpendicular height = 5cm

$6\text{cm} \times 5\text{cm} \div 2$
area = 15cm^2



Counting squares:

6 whole squares = 6cm^2

6 half squares = 3cm^2

$6\text{cm}^2 + 3\text{cm}^2 = 9\text{cm}^2$

area = 9cm^2

Using formula:

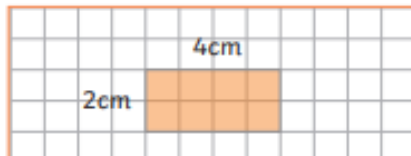
$6\text{cm} \times 3\text{cm}$

$\div 2 = 9\text{cm}^2$

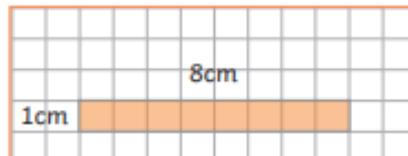
Year 6 – Maths – Measurement: Area, Perimeter and Volume

Perimeter and Area

Shapes with the same area can have different perimeters.

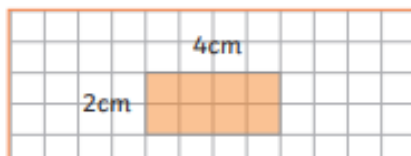


area = 8cm^2 perimeter = 12cm

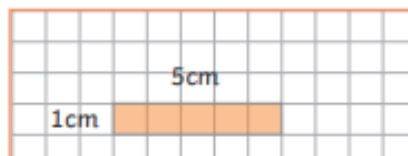


area = 8cm^2 perimeter = 18cm

Shapes with the same perimeter can have different areas.



area = 8cm^2 perimeter = 12cm

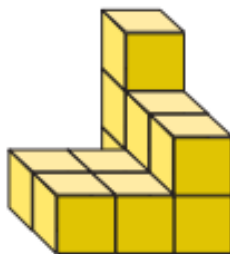


area = 5cm^2 perimeter = 12cm

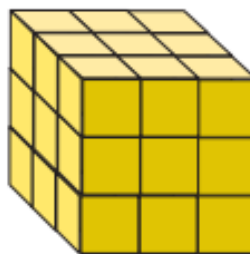
Volume - Counting Cubes



= 1cm^3



11cm^3

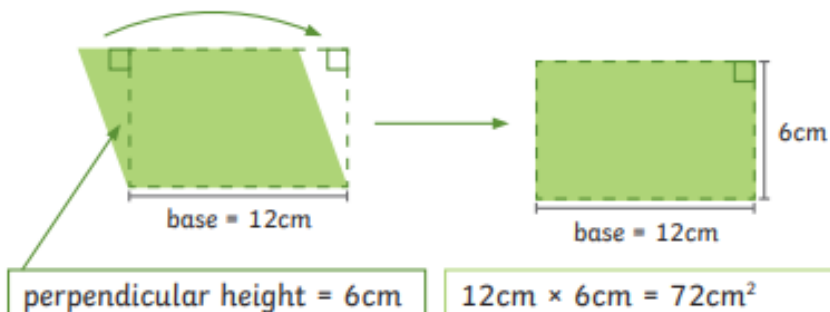


27cm^3

Area of Parallelograms

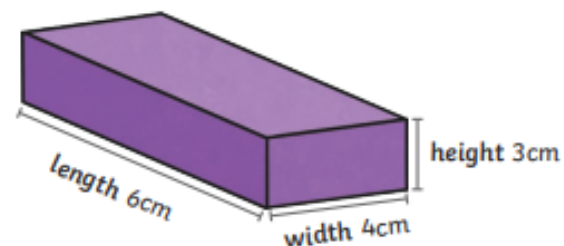
base $\times$ perpendicular height = area of a parallelogram

A parallelogram can be transformed into a rectangle.



Volume of Cuboids

length $\times$ width $\times$ height = volume of a cuboid



Multiply dimensions in **any** order:

$3\text{cm} \times 6\text{cm} \times 4\text{cm}$

volume = 72cm^3