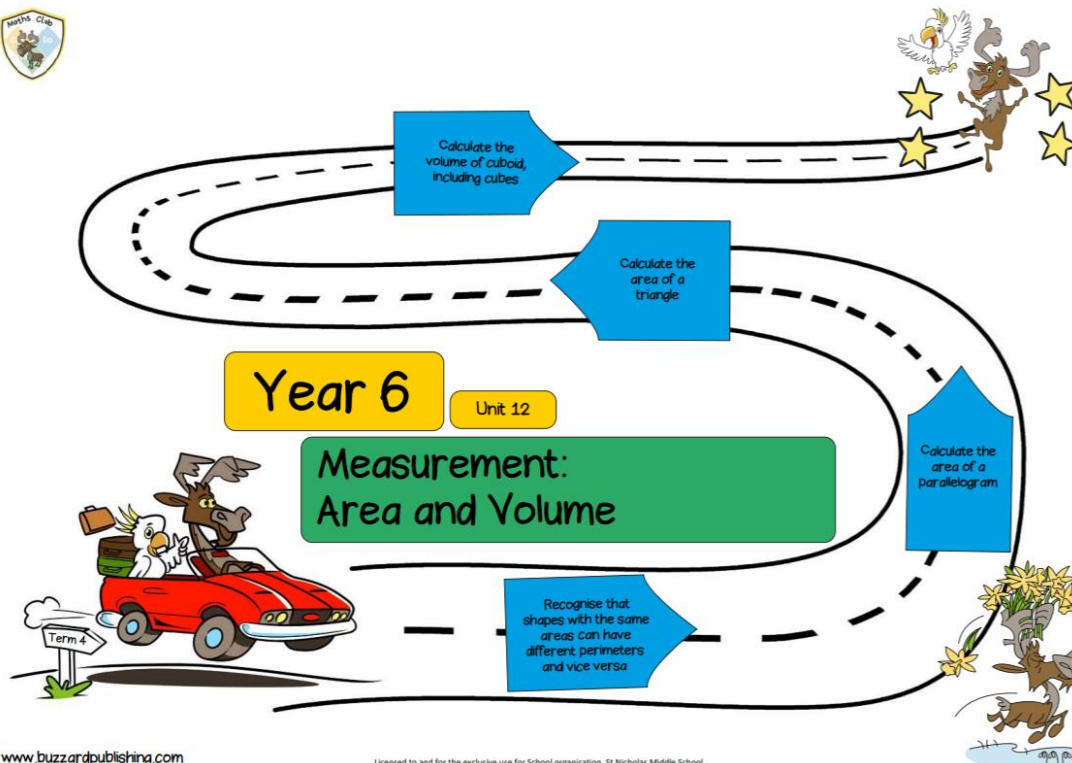


Year 6 – Maths – Measurement: Area and Volume



Key words

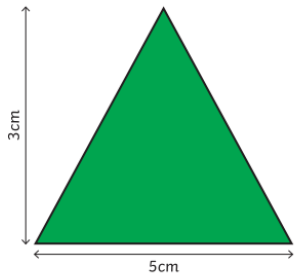
- Area
- Perimeter
- Parallelogram
- Triangle
- Volume
- Cuboid
- Cube

Outcomes

Pupils should be taught to: ♣ recognise that shapes with the same areas can have different perimeters and vice versa ♣ recognise when it is possible to use formulae for area and volume of shapes ♣ calculate the area of parallelograms and triangles ♣ calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Finding the Area of a Triangle

To find the area of a triangle:
multiply the **base** × the **height** and **divide** the answer by 2



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The area:
 $5\text{cm} \times 3\text{cm} = 15\text{m}^2$
 $15\text{m}^2 \div 2 = 7.5\text{cm}^2$
 area = 7.5cm^2

Shapes with the Same Area and Different Perimeters

Some shapes can have the same area...



Length × Width = Area
 $5\text{cm} \times 4\text{cm} = 20\text{cm}^2$



Length × Width = Area
 $10\text{cm} \times 2\text{cm} = 20\text{cm}^2$

and have a different perimeter...



Perimeter
 $2(5\text{cm} + 4\text{cm}) = 18\text{cm}$



Perimeter
 $2(10\text{cm} + 2\text{cm}) = 24\text{cm}$

and vice versa.



Area
 Length × Width = Area
 $5\text{cm} \times 5\text{cm} = 25\text{cm}^2$
 Perimeter
 $2(5\text{cm} + 5\text{cm}) = 20\text{cm}$

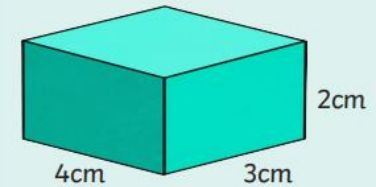
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Area
 Length × Width = Area
 $8\text{cm} \times 2\text{cm} = 16\text{cm}^2$
 Perimeter
 $2(8\text{cm} + 2\text{cm}) = 20\text{cm}$

Volume

3D shapes have volume.
 length × height × depth = volume



$$4\text{cm} \times 2\text{cm} \times 3\text{cm} = 24\text{cm}^3$$

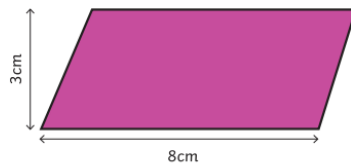
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Finding the Area of a Parallelogram

To find the area of a parallelogram:
multiply the **base** by the **height**

$$8\text{cm} \times 3\text{cm} = 24\text{cm}^2$$

See how the parallelogram can be changed into a rectangle.

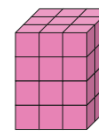


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Calculating Volume of Cubes and Cuboids

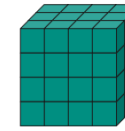


Count the top layer of each shape and calculate the volume.
 The unit measurement is shown underneath.



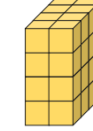
cubic centimetres

$$36\text{cm}^3$$



cubic metres

$$48\text{m}^3$$



cubic centimetres

$$32\text{cm}^3$$