

## Y7 Maths Knowledge Organiser Topic 8: Working with units

<u>What must I be able to do?</u>	<u>Key vocabulary</u>								
<ul style="list-style-type: none"> <li>□ Record and order measurements using decimal notation</li> <li>□ Estimate and/or measure:                             <ul style="list-style-type: none"> <li>Length in: kilometres (km), metres (m), centimetres (cm), millimetres (mm)</li> <li>➤ Sparx M828, U388</li> </ul> </li> <li>Mass in: kilograms (kg), grams (g)                             <ul style="list-style-type: none"> <li>➤ Sparx M828, U388</li> </ul> </li> <li>Volume and capacity in: litres (l), millilitres (ml)                             <ul style="list-style-type: none"> <li>➤ Sparx M828, U388</li> </ul> </li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Measure</b></td> <td>To find the <u>size</u> of something by using an instrument marked in <u>standards units</u>.</td> </tr> <tr> <td><b>Length</b></td> <td>The <u>distance</u> from one point to another.</td> </tr> <tr> <td><b>Mass</b></td> <td>A measurement of how <u>heavy</u> an object is.</td> </tr> <tr> <td><b>Volume</b></td> <td>The <u>amount of space</u> that an object occupies.</td> </tr> </table>	<b>Measure</b>	To find the <u>size</u> of something by using an instrument marked in <u>standards units</u> .	<b>Length</b>	The <u>distance</u> from one point to another.	<b>Mass</b>	A measurement of how <u>heavy</u> an object is.	<b>Volume</b>	The <u>amount of space</u> that an object occupies.
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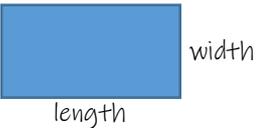
<u>Metric unit conversions</u>		Length: 1km = 1000m
Mass: 1000g = 1kg	Volume: 1000ml = 1 litre	1m = 100cm
1000kg = 1 tonne	1 litre is the amount of water equal to the weight of 1kg	1cm = 10mm

## Y7 Maths Knowledge organiser Topic 9: Area and Perimeter

<u>What must I be able to do?</u>	<u>Key vocabulary</u>						
<ul style="list-style-type: none"> <li>□ Find the area of a rectangle, triangle and parallelogram                             <ul style="list-style-type: none"> <li>➤ Sparx M900, M390, M610</li> </ul> </li> <li>□ Calculate the perimeter of rectangles, squares and rectilinear figures                             <ul style="list-style-type: none"> <li>➤ Sparx M920, M635</li> </ul> </li> <li>□ Calculate and work with perimeters                             <ul style="list-style-type: none"> <li>➤ Sparx M690</li> </ul> </li> <li>□ Solve problems involving length, perimeter and area                             <ul style="list-style-type: none"> <li>➤ Sparx M269</li> </ul> </li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>Area</b></td> <td>The <u>space occupied</u> by a flat shape. The area is the amount of units that the shape has covered. Units are squared. e.g. m<sup>2</sup>, cm<sup>2</sup>, mm<sup>2</sup>, etc.</td> </tr> <tr> <td><b>Perimeter</b></td> <td>The perimeter is the <u>distance around</u> the <u>outside</u> of the shape.</td> </tr> <tr> <td><b>Parallelogram</b></td> <td>A <u>quadrilateral</u> with <u>two pairs of parallel sides</u>.</td> </tr> </table>	<b>Area</b>	The <u>space occupied</u> by a flat shape. The area is the amount of units that the shape has covered. Units are squared. e.g. m <sup>2</sup> , cm <sup>2</sup> , mm <sup>2</sup> , etc.	<b>Perimeter</b>	The perimeter is the <u>distance around</u> the <u>outside</u> of the shape.	<b>Parallelogram</b>	A <u>quadrilateral</u> with <u>two pairs of parallel sides</u> .
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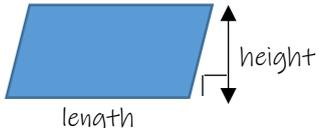
Area formulae

Rectangle/Square



Area = Length x width

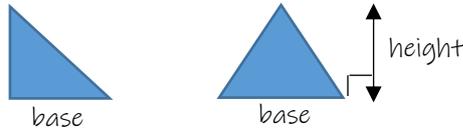
Parallelogram



Area = length x perpendicular height

Perpendicular means at right angles to the base (not the sloping side!)

Triangles

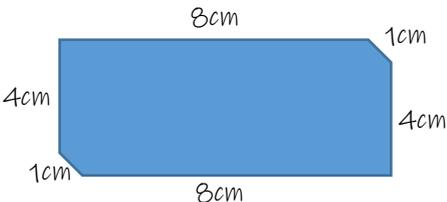


Area = Base x perpendicular height ÷ 2

A triangle is half the area of a rectangle

Perimeter

Add up the length of each side on the outside of the shape.

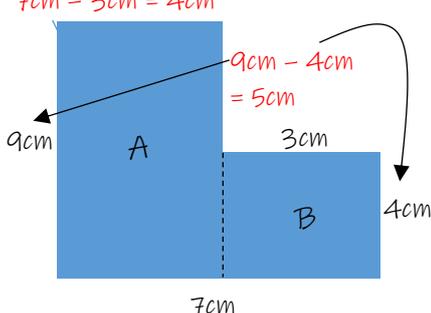


The perimeter is:

$$= 8\text{cm} + 1\text{cm} + 4\text{cm} + 8\text{cm} + 1\text{cm} + 4\text{cm}$$

$$= 26\text{cm}$$

Compound shapes



Area: Split the shape into known shapes (e.g. rectangles) and find the area of each then add them together:

Rectangle A:  $9 \times 4 = 36\text{cm}^2$

Rectangle B:  $4 \times 3 = 12\text{cm}^2$

Total area =  $48\text{cm}^2$

Perimeter: Find any missing sides by using the known ones, then add all sides together.

Perimeter =  $9\text{cm} + 7\text{cm} + 4\text{cm} + 3\text{cm} + 5\text{cm} + 4\text{cm} = 32\text{cm}$