

## Curriculum Area: Year 8 Maths

2017/2018

Topics	Year Curriculum	How you can support learning at home, eg. books, websites, family learning through visits
<p><b>Powers</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Understand how to use squares, cubes and roots.</li> <li>• Write powers in index form.</li> <li>• Recognise and generate square numbers.</li> </ul> <p><b>Negative numbers</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Understand and use negative numbers in context.</li> <li>• Add and subtract single digit negative numbers.</li> <li>• Multiply and divide negative numbers.</li> </ul> <p><b>Prime factorisation</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Understand definitions of prime factors.</li> <li>• Find the highest common factor and lowest common multiple using Venn diagrams or factor trees.</li> </ul> <p><b>Rounding</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Round numbers to decimal places and to the nearest 10, 100, 1000.</li> <li>• Round very large and very small numbers to 1, 2 and 3 significant figures.</li> </ul>	<p>AP1</p>	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>

<p><b>Fractions</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Multiply and divide fractions and mixed numbers.</li> </ul> <p><b>Using a calculator</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Efficiently use a calculator to solve multi-step calculations involving brackets, powers, decimals, fractions and negative numbers.</li> <li>• Convert hours and minutes into decimal time</li> <li>• Understand how to raise a negative number to a give power on a calculator.</li> <li>• Understand and avoids rounding errors.</li> </ul> <p><b>Rearrange formulae</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Use and write 2 stage formulae.</li> <li>• Rearrange formulae requiring factorisation.</li> <li>• Rearrange formulae with up to 4 steps.</li> </ul> <p><b>Linear equations</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Solve simple linear equations using the balancing method, including those with fractional solutions in the form <math>ax+b = c</math> and <math>a(x+b) = c</math>.</li> <li>• Solve linear equations with an unknown on both sides.</li> </ul>	<p>AP2</p>	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>
<p><b>Expressions &amp; equations from real-world situations</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Construct simple linear equations from contextual problems.</li> </ul> <p><b>Geometric formulae</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Use the formula for the area of a trapezium to work out area or a missing length.</li> </ul>	<p>AP3</p>	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>

<ul style="list-style-type: none"> <li>• Use the formula for the area of a circle to work out the area or radius.</li> <li>• Use Pythagoras' theorem.</li> </ul> <p><b>Accurate construction</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Use a pair of compasses to construct triangles and polygons.</li> <li>• Interpret scales on a map or drawing.</li> <li>• Enlarge a shape by a given scale factor.</li> </ul> <p><b>Units of measurement</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Convert between metric units of length, capacity and mass.</li> <li>• Convert between seconds and minutes &amp; seconds.</li> <li>• Express minutes in hours &amp; minutes (e.g. 70mins = 1hr10m) and as a decimal.</li> <li>• Recall and use basic metric-Imperial conversions.</li> <li>• Convert between area units.</li> </ul>		
<p><b>Angles</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Find unknown angles involving parallel lines e.g.</li> <li>• Calculate interior and exterior angles of (regular) polygons e.g.</li> <li>• Draw a pie chart with a sector of any angle.</li> </ul> <p><b>Area of composite shapes</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Calculate the area of abstract composite shapes requiring Pythagoras and <math>\pi r^2</math> and leave answers to a specified degree of accuracy including in terms of <math>\pi</math>.</li> <li>• Identify names of solids, including prisms and pyramids eg.</li> </ul> <p>Cube  Triangular prism  Tetrahedron</p>	AP4	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>

<ul style="list-style-type: none"> <li>• Calculate the surface area of solids from nets e.g. the net for a tetrahedron is given below:</li> </ul> <p><b>Proportional Reasoning</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Understand the difference between additive and multiplicative ways of thinking.</li> <li>• Apply knowledge of how to keep things in proportion to solve problems relating to: <ul style="list-style-type: none"> <li>- Side lengths of similar shapes and scale drawings;</li> <li>- Recipes;</li> </ul> </li> </ul>		
<p><b>Ratio</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Use ratio notation correctly.</li> <li>• Understand the difference between ratio and proportion.</li> <li>• Reduce ratios to their simplest form.</li> <li>• Divide a quantity into a given ratio.</li> <li>• Solve simple problems involving ratio.</li> </ul> <p>e.g.  In a class of children, the ratio of swimmers to non-swimmers is 5:1  a. What fraction of the class are swimmers?  b. There are 30 children in the class.  How many are swimmers?</p> <p><b>Compound measures</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Recall and use the formulae for speed, pressure and density.</li> </ul> <p><b>Circumference</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Name parts of a circle (chord, tangent, diameter, radius, arc, sector, segment).</li> </ul> <p>e.g.</p>	AP5	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>

<p>Write down the name of each part of the circle</p> <ul style="list-style-type: none"> <li>• Calculate the circumference of a circle giving the answer to the required degree of accuracy or to <math>\pi</math>.</li> </ul> <p>e.g. Work out the approximate circumference of the circle</p> <p><b>3D visualisation</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Visualise and identify 3-D shapes and their nets.</li> <li>• Draw plans and elevations of simple 3D shapes.</li> </ul> <p>Plot 3-D co-ordinates</p>		
<ul style="list-style-type: none"> <li>• Solve volume-density problems.</li> <li>• Convert between volume units.</li> </ul> <p><b>Two-way tables</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Solve questions involving two-way tables including: <ul style="list-style-type: none"> <li>- Completing parts of the table;</li> <li>- Extract proportions and ratios from the table.</li> </ul> </li> </ul> <p><b>Presenting &amp; interpreting data</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Draw bar charts and line graphs to represent data.</li> <li>• Interpret bar charts, line graphs and pie charts.</li> </ul> <p><b>Averages</b>  <b>You can...</b></p> <ul style="list-style-type: none"> <li>• Find the median, mode and range of discrete, ungrouped data.</li> <li>• Understand the concept of 'central tendency'.</li> <li>• Draw conclusions about data based on average and range (including outliers).</li> <li>• Use sensible averages to examine data.</li> </ul>	<p>AP6</p>	<p>Complete homework tasks on Hegarty Maths.</p> <p>Use the Corbett Maths website for extra practice.</p>

