

## Year 10

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	<b>Angles and Trigonometry</b>	<b>How is trigonometry applied to non-right angled triangles and to 3D shapes?</b>	<ul style="list-style-type: none"> <li>Angle properties including angles in polygons.</li> <li>Pythagoras theorem and SOHCAHTOA.</li> <li>Sine rule, cosine rule and area of a triangle (<math>\frac{1}{2}ab\sin C</math>)</li> <li>2D and 3D problem solving</li> </ul>	<p><b>How understanding is assessed</b></p> <ul style="list-style-type: none"> <li>Through applying the theory to a range of questions and increasingly more complex situations.</li> <li>Discussion in lessons, sample problems.</li> <li>Homework and tests involving past paper questions.</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>In addition to the understanding of the concepts significant algebraic &amp; problem solving skills are required.</li> </ul> <p><b>Assessment Point information</b></p> <ul style="list-style-type: none"> <li>Timed questions using past GCSE papers relevant to topics studied.</li> </ul>
	<b>Number 1</b>	<b>Can you work with indices and surds?</b>	<ul style="list-style-type: none"> <li>HCF and LCM</li> <li>Numerical indices</li> <li>Standard form problem solving</li> <li>Surds (simplifying, manipulating and rationalising the denominator)</li> </ul>	
	<b>Algebra 1</b>	<b>Can you factorise a quadratic?</b>	<ul style="list-style-type: none"> <li>Algebraic indices</li> <li>Expanding (multiplying up to 3 brackets)</li> <li>Factorising</li> </ul>	
	<b>Mensuration</b>	<p><b>Can you find the upper and lower bounds of a measurement and use in calculations?</b></p> <p><b>Can you solve volume problems?</b></p>	<ul style="list-style-type: none"> <li>Perimeter and area</li> <li>Units and accuracy</li> <li>Volume and surface area               <ul style="list-style-type: none"> <li>Prisms</li> <li>Cylinders and spheres</li> <li>Pyramids and cones</li> </ul> </li> </ul>	

	<b>Algebra 2</b>	<b>Can you solve different types of equations?</b>	<ul style="list-style-type: none"> <li>Solving linear equations</li> <li>Solving quadratic equations</li> <li>Rearranging formula</li> </ul>	
Spring	<b>Fractions, ratio and percentages</b>  <b>Interpreting and representing data</b>  <b>Graphs 1</b>  <b>Reasoning</b>	<b>Can you calculate with percentages?</b>  <b>Can you work with ratio and proportion?</b>  <b>Can you interpret and construct a variety of statistical diagrams including time series and scatter graphs?</b>  <b>Can you work with the straight line graph equation <math>y = mx + c</math>?</b> <b>Can you sketch and use quadratic, cubic and reciprocal graphs?</b>  <b>Can you calculate with compound measures?</b>	<ul style="list-style-type: none"> <li>Fractions (add, subtract, multiply, divide, finding reciprocal)</li> <li>Ratio and proportion (simplifying, problem solving, simple direct proportion)</li> <li>Percentages (percentages of amounts, reverse percentages, simple interest, percentage change)</li> <li>Converting between fractions, decimals and percentages</li> <li>Time series</li> <li>Scatter graphs and line of best fit</li> <li>Averages and range</li> <li>Reading and interpreting diagrams</li> <li>Linear graphs (<math>y=mx+c</math>, parallel and perpendicular lines, mid points, line segments, sketch)</li> <li>Quadratic graphs</li> <li>Cubic and reciprocal graphs</li> <li>Equation of a circle</li> <li>Compound measures (Speed, distance and time, Mass, density and volume, Force, pressure and area)</li> <li>Units</li> </ul>	<b>How understanding is assessed</b> <ul style="list-style-type: none"> <li>Through applying the theory to a range of questions and increasingly more complex situations.</li> <li>Discussion in lessons, sample problems.</li> <li>Homework and tests involving past paper questions.</li> </ul> <b>Skills</b> <ul style="list-style-type: none"> <li>In addition to the understanding of the concepts significant algebraic &amp; problem solving skills are required.</li> </ul> <b>Assessment Point information</b> <ul style="list-style-type: none"> <li>Timed questions using past GCSE papers relevant to topics studied.</li> </ul>

	<b>Proportion</b>	<b>Can you solve problems involving direct and inverse proportion?</b>	<ul style="list-style-type: none"> <li>• Direct and inverse proportion algebraic problem solving</li> </ul>	
	<b>Exponential functions</b>	<b>Can you solve problems with exponentials?</b>	<ul style="list-style-type: none"> <li>• Know what is meant by an exponential function</li> <li>• Recognise the graphs of <math>y=a^x</math> and <math>y=a^{-x}</math></li> <li>• Problem solving (growth and decay)</li> </ul>	
Summer	<b>Graphs 2</b>	<b>Can you construct and interpret real-life graphs?</b>	<ul style="list-style-type: none"> <li>• Real life graphs               <ul style="list-style-type: none"> <li>- Distance time graphs</li> <li>- Velocity time graphs</li> <li>- Real life graphs and rates of change</li> <li>- Tangents and areas under curves</li> </ul> </li> </ul>	<p><b>How understanding is assessed</b></p> <ul style="list-style-type: none"> <li>• Through applying the theory to a range of questions and increasingly more complex situations.</li> <li>• Discussion in lessons, sample problems.</li> <li>• Homework and tests involving past paper questions.</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• In addition to the understanding of the concepts significant algebraic &amp; problem solving skills are required.</li> </ul> <p><b>Assessment Point information</b></p> <ul style="list-style-type: none"> <li>• Timed questions using past GCSE papers relevant to topics studied.</li> </ul>
	<b>Probability &amp; combinations</b>	<b>Can you construct and use a probability tree? Can you construct and use a venn diagram?</b>	<ul style="list-style-type: none"> <li>• listing outcomes, combined events, sample space diagrams, mutually exclusive events and experimental probability</li> <li>• Independent events and tree diagrams</li> <li>• Conditional probability</li> <li>• Venn diagrams and set notation</li> </ul>	
	<b>Similarity and congruence</b>	<b>Can you apply the concepts of congruence and similarity?</b>	<ul style="list-style-type: none"> <li>• Congruence (Proof)</li> <li>• Similarity (Length, area and volume problem solving)</li> </ul>	
	<b>Circle theorems</b>	<b>Can you work with standard circle theorems?</b>	<ul style="list-style-type: none"> <li>• Circle theorems</li> <li>• Proofs</li> <li>• Finding the equation of a tangent at a point on a circle</li> </ul>	