



# Year 10 Curriculum Plan

## Maths

	Term 1	Term 2	Term 3
<b>PRIOR LEARNING</b>	<p><b>From KS3 pupils should have learnt:</b></p> <ul style="list-style-type: none"> <li>• Arithmetic strategies.</li> <li>• Order of operations.</li> <li>• Negative numbers.</li> <li>• Algebraic expressions.</li> <li>• Solving equations.</li> <li>• Number lines.</li> <li>• Substitution.</li> <li>• Writing expressions, equations and formulae.</li> <li>• Reading tables.</li> <li>• Interpreting graphs and charts.</li> <li>• Averages.</li> <li>• Solving linear equations.</li> <li>• Formulae.</li> <li>• Linear graphs.</li> <li>• Scatter graphs.</li> <li>• Sequences.</li> <li>• Linear inequalities.</li> <li>• Standard form.</li> <li>• Conversion graphs.</li> <li>• Introduction to probability.</li> <li>• Two-way tables.</li> <li>• Sample space.</li> <li>• Frequency trees.</li> <li>• Venn diagrams.</li> <li>• Simultaneous equations.</li> <li>• Congruency.</li> <li>• Similar shapes.</li> <li>• Transformations.</li> <li>• Pythagoras.</li> <li>• Trigonometry.</li> </ul>	<p><b>From KS3 and Year 10 term 1 pupils should have learnt:</b></p> <ul style="list-style-type: none"> <li>• Frequency tables.</li> <li>• Cumulative frequency.</li> <li>• Comparing data.</li> <li>• Prime factors.</li> <li>• HCF/LCM.</li> <li>• Error intervals.</li> <li>• Laws of indices.</li> <li>• Expanding brackets.</li> <li>• Factorising.</li> <li>• Rearranging complex formulas.</li> <li>• Quadratic graphs.</li> </ul>	<p><b>From KS3, Year 10 term 1 and 2 pupils should have learnt:</b></p> <ul style="list-style-type: none"> <li>• Surface area.</li> <li>• Volume.</li> <li>• Similar shapes (area/volume).</li> <li>• Sequences (Quadratic).</li> <li>• Recurring relations.</li> <li>• 3D shapes.</li> <li>• Trigonometry.</li> <li>• Pythagoras.</li> <li>• Area of triangle <math>\frac{1}{2}ab\sin C</math>.</li> <li>• Sine/cosine rule.</li> </ul>



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<p><b>KNOWING WHAT...</b></p>	<p><u>Statistics/Probability unit 4 and 5 -</u> Grouped data - mean, mode and median. Cumulative frequency and box plots. Compare data sets through graphs, central tendency and spread. Set notation. Venn diagrams. Applying the 'AND' and 'OR' rules for independent and mutually exclusive events. Represent the solutions to linear inequalities using set notation. Calculate with conditional probability.</p> <p><u>Number unit 14 -</u> Product of prime factors. Highest Common Factor/Lowest Common Multiple. Recurring and terminating decimals. Error intervals.</p> <p><u>Algebra unit 11 –</u> Laws of Indices. Expanding and Simplifying binomials. Factorising; quadratics and the difference of two squares. Simplifying algebraic fractions, including numerical Factors, single letter factors and bracket factors. Rearranging more complex formulae.</p> <p><u>Algebra unit 12 –</u> Plotting and reading a quadratic graph. Solving quadratics graphically. Identifying the solutions on a graph. The quadratic formula. Completing the square. Producing a sketch graph of a quadratic by finding roots, y-intercept and turning points.</p>	<p><u>Geometry and Measure unit 8 -</u> Surface area of prisms and cylinders, spheres, pyramids, cones, composite solids. Volume of prisms and cylinders, spheres, pyramids, cones, composite solids, frustums. Similarity of volume and area.</p> <p><u>Algebra unit 13 -</u> Working with visual representations of arithmetic, quadratic and geometric sequences. Fibonacci sequences. Quadratic sequences. Recurrence relations.</p> <p><u>Geometry/Measure unit 9 -</u> Pythagoras and right-angled trigonometry in 3D. Area of a triangle = <math>\frac{1}{2}ab\sin C</math>. Sine and cosine rules. Area of a segment. Problems involving length and area, including bearings, 3D and multi-step problems.</p>	<p><u>Statistics/Probability unit 6 –</u> Solving complex problems with mean/mode/median. Sampling. Histograms. Frequency polygons. Finding mean, mode and median from histograms and frequency polygons.</p> <p><u>Number unit 15 -</u> Completing the number line - knowing about the different sets of numbers (natural, integers, rational, real (incl. irrational). Simplifying surds. Arithmetic with surds. Expanding featuring surds. Rationalising a denominator. Laws of indices (recap). Negative and fractional indices. Equations involving indices, including changing the base. Problems and applications, including Pythagoras and trigonometric exact values, solving quadratics without a calculator, geometric sequences.</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>KNOWING HOW...</b></p>	<ul style="list-style-type: none"> <li>• Represent data.</li> <li>• Read and write set notation.</li> <li>• Draw Venn diagrams.</li> <li>• Represent inequalities on a number line.</li> <li>• Use a Venn to find HCF/LCM.</li> <li>• Calculate with error intervals.</li> <li>• Grid method for expanding and factorising algebraic expressions.</li> <li>• Collecting like terms.</li> <li>• Rearranging formula.</li> <li>• Solving equations and inequalities.</li> <li>• Substitution into formula such as quadratic.</li> <li>• Draw axis.</li> <li>• Sketch quadratic graphs.</li> </ul>	<ul style="list-style-type: none"> <li>• Form and solve equations.</li> <li>• Substitution Into complex formulas; area of segment.</li> <li>• Use of mathematical equipment; calculator, compass, protractor.</li> <li>• Recall area facts.</li> <li>• Substitute into surface area and volume formulas.</li> <li>• Sketch quadratic graphs.</li> </ul>	<ul style="list-style-type: none"> <li>• Construct and read histograms.</li> <li>• Construct and read frequency polygons.</li> <li>• Form and solve equations.</li> <li>• Substitute into formula to find averages.</li> <li>• Use number lines to represent exact values.</li> <li>• Arithmetic with exact values.</li> <li>• Rearranging and solving with exact values.</li> <li>• Recall angle facts.</li> <li>• Select the correct method to solve complex questions involving right angled triangles.</li> </ul>
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<b>ASSESSMENT...</b>	<p>After each unit pupils complete a short assessment based on each bullet point from above. The test is split into 3 parts.</p> <p>Part 1 - skill questions and key definitions/literacy.</p> <p>Part 2 - more difficult reasoning questions.</p> <p>Part 3 - problem solving questions which also link to prior knowledge from other units.</p> <p>Pupils also sit two larger assessments; one is at the halfway point for the year and the other is during whole school exam week in June.</p>	
	<p><b><u>Assessment 1</u></b></p> <ul style="list-style-type: none"> <li>• Grouped data - mean, mode and median.</li> <li>• Cumulative frequency.</li> <li>• Box-plots.</li> <li>• Interquartile range.</li> <li>• Set notation.</li> <li>• Venn diagrams.</li> <li>• Applying the 'AND' and 'OR' rules.</li> <li>• Represent the solutions to linear inequalities using set notation.</li> <li>• Product of prime factors.</li> <li>• HCF/LCM.</li> <li>• Recurring and terminating decimals.</li> <li>• Error intervals.</li> <li>• Laws of indices.</li> <li>• Expand two and three binomials.</li> <li>• Factorising a quadratic and the difference of two squares</li> <li>• Simplifying algebraic fractions.</li> <li>• Rearranging more complex formulae.</li> <li>• Plotting a quadratic equation.</li> <li>• Solving quadratic equations by factorising, the quadratic formula, Identifying the solutions on a graph.</li> <li>• Completing the square.</li> <li>• Sketch graph of a quadratic.</li> </ul>	<p><b><u>Assessment 2</u></b></p> <ul style="list-style-type: none"> <li>• Surface area of prisms and cylinders, spheres, pyramids, cones, composite solids.</li> <li>• Volume of prisms and cylinders, spheres, pyramids, cones, composite solids, frustums.</li> <li>• Similarity of volume and area.</li> <li>• Arithmetic, quadratic, Fibonacci and geometric sequences.</li> <li>• Recurrence relations.</li> <li>• Pythagoras and right-angled trigonometry in 3D.</li> <li>• Area of a triangle = <math>\frac{1}{2}ab\sin C</math>.</li> <li>• Sine and cosine rules.</li> <li>• Area of a segment.</li> <li>• Sampling and Populations.</li> <li>• Histograms.</li> <li>• Frequency polygons.</li> <li>• Simplifying surds.</li> <li>• Arithmetic with surds.</li> <li>• Expanding binomials featuring surds.</li> <li>• Rationalising a denominator.</li> </ul>