

**Year 9 – Curriculum Overview [2022-2023]**  
**Subject – Maths**

	Knowledge & Understanding			Literacy Skills	Employability Skills [if any]	Assessment Opportunities
	Composites	Components [includes understanding of KEY concepts & subject specific vocab]	Formal Retrieval [if any]	Opportunities for developing literacy skills		
<b>Autumn Term HT1</b> <b>Block 1 Reasoning with Algebra</b>	<u>Equations Forming and Solving</u>  Week 1/2	<ul style="list-style-type: none"> <li>• One and two step equations and inequalities.</li> <li>• Equations and inequalities with brackets.</li> <li>• Inequalities with negative numbers</li> <li>• Solve equations with unknowns on both sides</li> <li>• Solve inequalities with unknowns on both sides.</li> </ul>	<ul style="list-style-type: none"> <li>• Mathsbox skills check 10 questions – once per week and one set for HWK – once a week</li> <li>• Skills check tested once per half term in class</li> <li>• Retrieval starters used</li> </ul>	<ul style="list-style-type: none"> <li>• Key words – learned and understood</li> <li>• Encourage use of subject language</li> <li>• Questioning</li> <li>• Pupil explanations and reasoning</li> <li>• Engage with worded exam questions</li> </ul>	<ul style="list-style-type: none"> <li>• Analytical skills</li> <li>• Algebraic reasoning</li> <li>• General reasoning</li> <li>• Number skills</li> <li>• Communication</li> <li>• Retail</li> <li>• Hairdressers</li> <li>• Builders</li> <li>• Constructions</li> <li>• Teachers</li> <li>• Medical</li> </ul>	Unit assessment
<b>Block 1 Reasoning with Algebra</b>	<u>Straight Line Graphs</u>  Week 3/4	<ul style="list-style-type: none"> <li>• Lines parallel to the axis <math>y=x</math> and <math>y=-x</math></li> <li>• Using a table of values</li> <li>• Compare gradients</li> <li>• Compare intercepts</li> <li>• Understand and use <math>y=mx+c</math></li> <li>• Write an equation in the form <math>y=mx+c</math> (H)</li> <li>• Find the equation of a line from a graph</li> <li>• Interpret gradients and intercepts from real life graphs</li> <li>• Model real life graphs involving inverse proportion (H)</li> <li>• Explore perpendicular lines (H)</li> </ul>				Unit assessment

<p><b>Block 1</b> <b>Reasoning with Algebra</b></p>	<p><u>Testing Conjectures</u> Week 5/6</p>	<ul style="list-style-type: none"> <li>• Factors multiples and primes</li> <li>• True or False</li> <li>• Always sometimes never</li> <li>• Show that</li> <li>• Conjectures about number</li> <li>• Expand a pair of binomials</li> <li>• Conjecture with algebra</li> <li>• Explore the 100 squares grid</li> </ul>				<p>Unit assessment</p>
<p><b>HT2</b> <b>Block 2</b> <b>Constructing in 2 and 3 Dimensions</b></p>	<p><u>3 Dimensional Shapes</u> Week 7/8/9</p>	<ul style="list-style-type: none"> <li>• Know names of 2D and 3D shapes</li> <li>• Recognise prisms including language of vertices and edges</li> <li>• Accurate nets of cuboids and other 3D shapes</li> <li>• Sketch and recognise the nets of cuboids and other 3D nets</li> <li>• Plans and elevations</li> <li>• Find area of 2D shapes</li> <li>• Surface area of cubes and cuboids</li> <li>• Volume of cubes and cuboids</li> <li>• Volume of other 3D shapes-prisms and cylinders</li> <li>• Explore volumes of cones pyramids and spheres (H)</li> </ul>			<ul style="list-style-type: none"> <li>• Statistician</li> <li>• Data Analyst</li> <li>• Law</li> </ul>	<p>Unit assessment</p>
<p><b>Block 2</b> <b>Constructing in 2 and 3 Dimensions</b></p>	<p><u>Construction and congruency</u> Week 10/11/12</p>	<ul style="list-style-type: none"> <li>• Draw and measure angles</li> <li>• Construct and interpret scale drawings</li> <li>• Locus of distance from a point.</li> <li>• Locus of distance from a straight line.</li> <li>• Locus equidistant from two points.</li> <li>• Construct a perpendicular bisector</li> <li>• Construct a perpendicular from a point.</li> <li>• Construct a perpendicular to a point.</li> <li>• Locus of distance from two lines</li> <li>• Construct an angle bisector.</li> <li>• Construct triangles from given information</li> <li>• Identify congruent figures</li> <li>• Explore congruent triangles</li> <li>• Identify congruent triangles</li> </ul>			<ul style="list-style-type: none"> <li>• Engineering and architecture and planning</li> <li>• Number skills involved in many areas of different work.</li> </ul>	<p>Unit assessment End of term test</p>

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<b>Spring Term HT3 Reasoning with number</b>	<u>Numbers</u>  Week 1,2	<ul style="list-style-type: none"> <li>• Integers, real and rational numbers</li> <li>• Understand and use surds</li> <li>• Work with directed numbers</li> <li>• Solve problems with integers</li> <li>• Solve problems with decimals</li> <li>• HCF and LCM</li> <li>• Adding and subtracting fractions</li> <li>• Multiplying and dividing fractions</li> <li>• Solve problems with fractions</li> <li>• Numbers in standard forms</li> </ul>	<ul style="list-style-type: none"> <li>• Mathsbox skills check 10 questions – once per week and one set for HWK – once a week</li> <li>• Skills check tested once per half term in class</li> <li>• Retrieval starters used</li> </ul>	<ul style="list-style-type: none"> <li>• Key words – learned and understood</li> <li>• Encourage use of subject language</li> <li>• Questioning</li> <li>• Pupil explanations and reasoning</li> <li>• Engage with worded exam questions</li> </ul>		Unit assessment
	<u>Using percentages</u>  Week 3,4	<ul style="list-style-type: none"> <li>• Use the equivalence of fractions, decimals, and percentages</li> <li>• Calculate percentage increase and decrease</li> <li>• Express change as a percentage</li> <li>• Solve reverse percentage problems</li> <li>• Recognise and solve percentage problems</li> <li>• Solve problems with repeated percentage change</li> </ul>				Unit assessment

	<p><b><u>Maths and Money</u></b></p> <p>Week 5,6</p>	<ul style="list-style-type: none"> <li>• Solve problems with bills and bank statements</li> <li>• Calculate simple interest</li> <li>• Calculate compound interest</li> <li>• Solve problems with Value Added Tax</li> <li>• Calculate wages and taxes</li> <li>• Solve problems with exchange rates</li> <li>• Solve unit pricing problems</li> </ul>				Unit assessment
<p><b>Spring Term HT4 Reasoning with Geometry</b></p>	<p><b><u>Deduction</u></b></p> <p>Week 7,8</p>	<ul style="list-style-type: none"> <li>• Angles in parallel lines</li> <li>• Solve angle problems</li> <li>• Solve angle problems with algebra</li> <li>• Conjectures with angles</li> <li>• Conjectures with shapes</li> <li>• Link constructions and geometrical reasoning</li> </ul>	<ul style="list-style-type: none"> <li>• Mathsbox skills check 10 questions – once per week and one set for HWK – once a week</li> <li>• Skills check tested once per half term in class</li> <li>• Retrieval starters used</li> </ul>	<ul style="list-style-type: none"> <li>• Key words – learned and understood</li> <li>• Encourage use of subject language</li> <li>• Questioning</li> <li>• Pupil explanations and reasoning</li> <li>• Engage with worded exam questions</li> </ul>	Engineering and architecture and planning	Unit assessment End of term test
	<p><b><u>Rotation and Translation</u></b></p> <p>Week 9,10</p>	<ul style="list-style-type: none"> <li>• Identify the order of rotational symmetry of a shape</li> <li>• Compare and contrast rotational symmetry with line symmetry</li> <li>• Rotate a shape about a point on a shape</li> <li>• Rotate a shape about a point not on a shape</li> <li>• Translate points and shapes by a given vector</li> <li>• Compare rotation and reflection of shapes</li> <li>• Find the result of a series of transformations</li> </ul>			Engineering and architecture and planning	

	<p><u>Pythagoras</u></p> <p>Week 11,12</p>	<ul style="list-style-type: none"><li>• Squares and square roots</li><li>• Identify the hypotenuse of a right-angled triangle</li><li>• Determine whether a triangle is right-angled</li><li>• Calculate the hypotenuse of a right-angled triangle</li><li>• Calculate missing sides in right-angled triangles</li><li>• Use Pythagoras' theorem on coordinate axes</li><li>• Explore proofs of Pythagoras' theorem</li><li>• Use Pythagoras' theorem in 3D shapes</li></ul>			<p>Engineering and architecture and planning</p>	
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<b>Summer Term HT5 Reasoning and Proportion</b>	<u>Enlargement and Similarity (includes trigonometry)</u>  Week 1,2	<ul style="list-style-type: none"> <li>Recognise enlargement and similarity</li> <li>Enlarge a shape by a positive integer scale factor</li> <li>Enlarge a shape by a positive integer scale factor from a point</li> <li>Enlarge a shape by a positive fractional scale factor</li> <li>Enlarge a shape by a negative scale factor</li> <li>Work out missing sides and angles in a pair of given similar shapes</li> <li>Solve problems with similar triangles</li> <li>Explore ratios in right-angled triangles</li> </ul>	<ul style="list-style-type: none"> <li>Mathsbox skills check 10 questions – once per week and one set for HWK – once a week</li> <li>Skills check tested once per half term in class</li> <li>Retrieval starters used</li> </ul>	<ul style="list-style-type: none"> <li>Key words – learned and understood</li> <li>Encourage use of subject language</li> <li>Questioning</li> <li>Pupil explanations and reasoning</li> <li>Engage with worded exam questions</li> </ul>		Unit assessment
	<u>Solving Ratio and Proportion Problems</u>  Week 3,4	<ul style="list-style-type: none"> <li>Solve problems with direct proportion</li> <li>Direct proportion and conversion graphs</li> <li>Solve problems with inverse proportion</li> <li>Graphs of inverse relationships</li> <li>Solve ratio problems given the whole or a part</li> <li>Solve best buy problems</li> <li>Solve problems involving ratio and algebra</li> </ul>			<ul style="list-style-type: none"> <li>Number skills involved in many areas of different work.</li> </ul>	Unit assessment
	<u>Rates</u>  Week 5,6	<ul style="list-style-type: none"> <li>Solve speed, distance and time problems with and without a calculator</li> <li>Use distance-time graphs</li> </ul>				Unit assessment

		<ul style="list-style-type: none"> <li>• Solve problems with density, mass and volume</li> <li>• Solve flow problems and their graphs</li> <li>• Rates of change and their units</li> <li>• Convert compound units</li> </ul>				
<b>Summer Term HT6 Representations and Revision</b>	<b><u>Probability</u></b>  Week 7,8	<ul style="list-style-type: none"> <li>• Single event probability</li> <li>• Relative frequency – including convergence</li> <li>• Expected outcomes</li> <li>• Independent events</li> <li>• Use tree diagrams</li> <li>• Use tree diagrams to solve without replacement problems</li> <li>• Use diagrams to work out probabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Mathsbox skills check 10 questions – once per week and one set for HWK – once a week</li> <li>• Skills check tested once per half term in class</li> <li>• Retrieval starters used</li> </ul>	<ul style="list-style-type: none"> <li>• Key words – learned and understood</li> <li>• Encourage use of subject language</li> <li>• Questioning</li> <li>• Pupil explanations and reasoning</li> <li>• Engage with worded exam questions</li> </ul>		Unit assessment End of term test
	<b><u>Algebraic Representation</u></b>  Week 9	<ul style="list-style-type: none"> <li>• Draw and interpret quadratic graphs</li> <li>• Interpret graphs, including reciprocal and piecewise</li> <li>• Investigate graphs of simultaneous equations</li> <li>• Represent inequalities</li> </ul>				