



Year Group	Year 9					
Subject intent	<p>Our curriculum will enable students to:</p> <ul style="list-style-type: none"> - Learn within a coherent and exciting framework which does not limit students' ambitions. - Develop new skills through a variety of interesting contexts to foster enjoyment. - Develop a rich, deep and secure subject knowledge. - Understand what they are doing well and how they need to improve. - Explore the breadth and depth of the national curriculum. - Improve their spiritual, social, moral and cultural understanding to develop confidence in their own financial and numerical understanding 					
Subject Implementation	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Knowledge	<p><u>Year 9 Higher:</u></p> <ul style="list-style-type: none"> - Indices and standard form <p><u>Year 9 Intermediate:</u></p> <ul style="list-style-type: none"> - Indices and standard form <p><u>Year 9 Foundation:</u></p> <ul style="list-style-type: none"> - Indices and standard form 	<p><u>Year 9 Higher:</u></p> <ul style="list-style-type: none"> - Multiplicative reasoning <p><u>Year 9 Intermediate:</u></p> <ul style="list-style-type: none"> - Multiplicative reasoning <p><u>Year 9 Foundation:</u></p> <ul style="list-style-type: none"> - Multiplicative reasoning 	<p><u>Year 9 Higher:</u></p> <ul style="list-style-type: none"> - Construction <p><u>Year 9 Intermediate:</u></p> <ul style="list-style-type: none"> - Construction <p><u>Year 9 Foundation:</u></p> <ul style="list-style-type: none"> - Construction 	<p><u>Year 9 Higher:</u></p> <ul style="list-style-type: none"> - Sequences, inequalities, equations and proportion <p><u>Year 9 Intermediate:</u></p> <ul style="list-style-type: none"> - Sequences, inequalities, equations and proportion <p><u>Year 9 Foundation:</u></p> <ul style="list-style-type: none"> - Sequences, inequalities, equations and proportion 	<p><u>Year 9 Higher:</u></p> <ul style="list-style-type: none"> - Circles, Pythagoras and prisms <p><u>Year 9 Intermediate:</u></p> <ul style="list-style-type: none"> - Circles, Pythagoras and prisms <p><u>Year 9 Foundation:</u></p> <ul style="list-style-type: none"> - Circles, Pythagoras and prisms 	End of Exam preparation and consolidation tasks



Skills	<p>Use index laws to simplify expressions.</p> <p>Calculate combinations of powers, roots, fractions and brackets.</p> <p>Estimate answers to calculations.</p> <p>Use powers of 10 and their prefixes.</p> <p>Write large and small numbers using standard form.</p> <p>Enter and read standard form numbers on a calculator.</p> <p>Order numbers written in standard form.</p>	<p>Enlarge 2D shapes using a positive whole number scale factors and centre of enlargement.</p> <p>Enlarge 2D shapes using a negative whole number scale factors and fractional scale factor.</p> <p>Find an original value using inverse operations.</p> <p>Calculate percentage change.</p> <p>Solve problems using compound measures.</p> <p>Solve problems using constant rates and related formulae.</p> <p>Solve best-buy problems.</p> <p>Solve problems involving inverse proportion.</p>	<p>Use scales on maps and diagrams.</p> <p>Draw diagrams to scale.</p> <p>Make accurate constructions using drawing equipment.</p> <p>Construct accurate triangles.</p> <p>Construct accurate nets of solids involving triangles.</p> <p>Construct and draw accurate scale diagrams.</p>	<p>Use the nth term to generate an arithmetic sequence.</p> <p>Recognise and continue geometric sequences.</p> <p>Recognise and continue quadratic sequences.</p> <p>Represent inequalities on a number line.</p> <p>Find integer values that satisfy an inequality.</p> <p>Construct and solve equations including fractions or powers.</p> <p>Use algebra to solve problems involving direct or inverse proportion.</p>	<p>Calculate the circumference of a circle.</p> <p>Calculate the area of a circle.</p> <p>Find the length of an unknown side of a right-angled triangle.</p> <p>Calculate the volume and surface area of a prism.</p> <p>Calculate the volume and surface area of a cylinder.</p> <p>Convert between m^3, cm^3 and mm^3.</p> <p>Find the lower and upper bounds for a measurement.</p> <p>Calculate percentage error intervals.</p>	
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Subject Impact	<p>Recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions); use conventional notation for priority of operations, including brackets, powers, roots and reciprocals. Use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5; estimate powers and roots of any given positive number. Calculate with roots, and with integer and fractional indices. Calculate with and interpret standard form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer.</p>	<p>Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures); use inequality notation to specify simple error intervals due to truncation or rounding. Define percentage as 'number of parts per hundred'; interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; work with percentages greater than 100%; solve problems involving percentage change, including percentage increase/decrease</p>	<p>Use scale factors, scale diagrams and maps. Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line. Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles; understand and use alternate and corresponding angles on parallel lines; derive and use the sum of angles in a triangle (e.g. to</p>	<p>Solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph. Translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution. Solve linear inequalities in one or two variable(s), and quadratic inequalities in one variable; represent the solution set on a number line, using set notation and on a graph. Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise and use</p>	<p>Apply and interpret limits of accuracy, including upper and lower bounds. Change freely between related standard units (e.g. time, length, area, volume/capacity, mass) and compound units (e.g. speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts. Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment. Know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders). Know the formulae: circumference of a</p>	
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		<p>and original value problems, and simple interest including in financial mathematics.</p> <p>Solve problems involving direct and inverse proportion, including graphical and algebraic representations.</p> <p>Use compound units such as speed, rates of pay, unit pricing, density and pressure.</p> <p>Compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors.</p> <p>Identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional and negative scale factors).</p>	<p>deduce and use the angle sum in any polygon, and to derive properties of regular polygons).</p> <p>Measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings.</p>	<p>sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (rn where n is an integer, and r is a rational number > 0 or a surd) and other sequences.</p> <p>Solve problems involving direct and inverse proportion, including graphical and algebraic representations.</p> <p>Construct and interpret equations that describe direct and inverse proportion.</p>	<p>circle = $2\pi r = \pi d$, area of a circle = πr^2;</p> <p>calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes; surface area and volume of spheres, pyramids, cones and composite solids.</p> <p>Calculate arc lengths, angles and areas of sectors of circles.</p> <p>Know the formulae for: Pythagoras' theorem $a^2 + b^2 = c^2$, and the trigonometric ratios, $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$, $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ and $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$</p> <p>apply them to find angles and lengths in right-angled triangles and, where possible, general triangles in two and three dimensional figures.</p>	
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Assessment	Summative and formative	Summative and formative	Summative and formative	Summative and formative	Summative and formative	Summative and formative
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