

Subject content (What will be covered)	As a result, what students should know /understand (Order of study)	What students should be able to do by the end of year 9 (<i>Extention in italics</i>)	How students will be assessed	By when (Half term 1 > 6)
<p>The curriculum is split into 4 main areas Numbers, Algebra, Shape, Space and Measures and Statistics. In addition to this all areas have an element of using and applying mathematics to solve problems. This could involve:</p> <ul style="list-style-type: none"> • Solve increasingly demanding problems and evaluate solutions; <i>generate fuller solutions.</i> • Represent problems in algebraic, geometric or graphical form • Solve substantial problems by breaking them into simpler tasks, using a range of efficient techniques; use trial and improvement where a more efficient method is not obvious. • Identify exceptional cases or counter-examples, explaining why; <i>justify generalisations,</i> 	Integers, powers and roots Sequences – linear and quadratic Geometrical reasoning: lines, angles and shapes Bearings Construction and loci	<p><u>Numbers and the number system and calculations</u></p> <ul style="list-style-type: none"> • Multiply and divide by any integer power of 10; <i>begin to write numbers in standard form.</i> • Round numbers to one, two or three decimal places, and to a number of significant figures; <i>understand bounds.</i> Make estimates of calculations; <i>estimate calculations by rounding numbers to one significant figure and multiplying or dividing mentally.</i> • Use index notation for integer powers; <i>know and use the index laws for multiplication and division; understand negative and fractional powers.</i> • Understand the equivalence of simple algebraic fractions; <i>use algebraic methods to convert a simple recurring decimal to a fraction.</i> • Use efficient methods to add, subtract fractions; cancel common factors before multiplying or dividing. • Solve problems involving percentage changes. • Compare two ratios; interpret and use ratio in a range of contexts, including solving word problems. • Understand the effects of multiplying and dividing by numbers between 0 and 1; <i>recognise and use reciprocals.</i> • Extend mental methods of calculation, working with decimals, fractions, percentages, factors, powers and roots. • Add and subtract integers and decimals of any size, including with differing numbers of decimal places; multiply and divide by decimals, • Use a calculator efficiently and appropriately to perform complex calculations with numbers of any size, knowing not to round during intermediate steps of a calculation; <i>use the reciprocal key.</i> <p><u>Algebra</u></p> <ul style="list-style-type: none"> • Understand the difference between equations, identities, formulae and functions. • Use simple index laws; <i>know and use the index laws in generalised form for multiplication and division of integer powers.</i> • Simplify algebraic expressions by factorising; add simple algebraic fractions; <i>expanding two brackets into a quadratic expression</i> • Construct and solve linear equations (with and without brackets, negative signs in the equation, positive or negative solution). • <i>Solve simultaneous linear equations by elimination or graphically.</i> • Use formulae and, in simple cases, change its subject; <i>derive and use more complex formulae, and change the subject of a formula.</i> 	Continuous assessment in class	HT1
	Probability – tree diagrams and relative frequency Ratio and proportion Equations, formulae, identities and expressions Compound areas and circle properties		Continuous assessment in class Termly Assessment examination based on topics studied term 1 and 2	HT2
	Linear graphs. Written calculations and estimates incl bounds Transformations - scale factor enlargements		Continuous assessment in class	HT3
	Equations – double brackets and DOTS Interpreting grouped data and using cumulative frequency Pythagoras’ Theorem		Continuous assessment in class Termly Assessment examination based on topics studied term 3 and 4	HT4
	Percentage change Volume and surface area Using formulae and changing the subject.		Continuous assessment in class End of year examination based on topics studied throughout the year	HT5
	Functions and Graphs – gradient and intercept of linear graphs and plotting		Continuous assessment in class	HT6

<p>arguments or solutions.</p>	<p>quadratics. Trigonometry Converting area and volume measures. Venn diagrams.</p>	<ul style="list-style-type: none"> • Generate terms of a linear sequence; <i>find the next term and the nth term of quadratic sequences; deduce properties of the sequences of triangular and square numbers from spatial patterns.</i> • Plot straight line graphs; find the gradient of lines given by equations of the form $y = mx + c$; <i>investigate the gradients of parallel and perpendicular lines; plot graphs of quadratic and cubic functions</i> • Construct and interpret graphs arising from real situations, including distance–time graphs. <p>Shape, space and measures</p> <ul style="list-style-type: none"> • Calculate sum of interior and exterior angles of some polygons; find interior and exterior angles of regular polygons. • Solve problems using properties of angles, of parallel and intersecting lines, and of polygons; <i>understand and apply Pythagoras’ theorem.</i> • Understand congruence; <i>know that if two 2-D shapes are similar, corresponding angles are equal and sides are in the same ratio.</i> • Name the parts of a circle; <i>know that the tangent is perpendicular to the radius at that point.</i> • Enlarge 2-D shapes, given a centre of enlargement and a whole scale factor or fractional scale factor; <i>recognise the similarity of the shapes; understand how enlargement effects perimeter, area and volume.</i> • Use and interpret maps and scale drawings. • Construct a triangle, find the locus of a point according to a simple rule; <i>extend to more complex rules involving loci and constructions.</i> • Convert between area and volume measures; <i>recognise that measurements may be inaccurate by up to a half unit in either direction.</i> • <i>Understand and use compound measures: speed, density or pressure.</i> • Use the formulae for the circumference and area of a circle, <i>and arcs and sectors of circles.</i> Calculate the surface area and volume of prisms. • <i>Begin to use trigonometry in right-angled triangles to solve problems.</i> <p>Statistics</p> <ul style="list-style-type: none"> • Construct tables for large discrete and continuous sets of raw data, choosing suitable class intervals; design and use two way tables. • Find averages selecting the statistics most appropriate; <i>find the median and quartiles; estimate the mean, median and interquartile range of grouped data.</i> • Construct: <i>frequency polygons; scatter graphs, understanding correlation; lines of best fit by eye, understanding what they represent.</i> • Compare two or more distributions and make inferences. • Identify all the mutually exclusive outcomes of an experiment; know that the sum of probabilities of all mutually exclusive outcomes is 1. • Estimate probabilities from experimental data; <i>understand relative frequency as an estimate of probability. Use tree diagrams</i> • <i>Use Venn diagrams to count data items to calculate probability</i> 		
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