





Year 10 Curriculum – 2024-2025

	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	Manipulating algebra and solving equations (Weeks 1 to 3) Ratio and Proportion (Weeks 4 to 5) Rounding, estimating and place value (Weeks 6 to 7)	Fractions, decimals and percentage (Weeks 8 to 9) Sequences (Week 12) Plotting graphs (Week 13)	Calculating with angle facts (Week 14) Complex solving equations (Weeks 15 to 16) Percentages (Week 17) Trigonometry and Pythagoras (Weeks 18 to 20)	Data handling cycle (Weeks 21 to 22) Constructions (Weeks 25 to 26)	Area perimeter and volume (Weeks 27 to 28) Analysing data (Week 29) Inequalities (Week 30) Simultaneous equations (Week 31)	Probability (Weeks 32 to 33) Geometric reasoning (Weeks 34 to 35)
Knowledge & Understanding (National Curriculum) <i>Skills are across the whole year.</i>	Pupils will: <ul style="list-style-type: none"> • use and interpret algebraic notation • substitute numerical values into formulae and expressions, including scientific formulae • use algebraic methods to solve linear equations in one variable • solve linear equations • use ratio notation, including reduction to simplest form • divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio 					



- understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction
- round numbers and measures to an appropriate degree of accuracy
- use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation
- apply and interpret limits of accuracy when rounding or truncating
- interpret and compare numbers in standard form
- work interchangeably with terminating decimals and their corresponding fractions
- calculate exactly with fractions
- recognise arithmetic sequences and find the n th term
- recognise geometric sequences and other sequences
- some students will deduce expressions to calculate the n th term of quadratic sequences
- work with coordinates in all four quadrants
- recognise, sketch and produce graphs of linear and quadratic functions of one variable
- use the form $y = mx + c$ to identify parallel lines
- apply angle facts to derive results about angles
- interpret and use bearings
- solve linear and some students will solve quadratic equations
- interpret percentages as operators
- set up, solve and interpret the answers in growth and decay problems, including compound interest
- use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles
- apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles
- interpret, analyse and compare the distributions of data
- construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms
- derive and use the standard ruler and compass constructions
- derive and apply formula to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids



- calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
- calculate arc lengths, angles and areas of sectors of circles
- calculate surface areas and volumes of spheres, pyramids, cones and composite solids
- use and interpret scatter graphs; recognise correlation; draw estimated lines of best fit; make predictions
- some students will construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms and cumulative frequency graphs, and know their appropriate use
- solve linear inequalities; represent the solution set on a number line
- solve two simultaneous equations
- record, describe and analyse the frequency of outcomes of simple probability experiments using appropriate language and the 0-1 probability scale
- understand that the probabilities of all possible outcomes sum to 1
- apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one
- calculate the probability of independent and dependent combined events, including using tree diagrams
- apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles
- understand and use the relationship between parallel lines and alternate and corresponding angles
- derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons

Throughout the year students will

- Develop fluency by extending their understanding of the number system, selecting appropriate calculation strategies in various contexts, extend understanding algebraic simplification, move freely between different mathematical representations and use mathematical language and properties accurately.
- Reason mathematically by extending knowledge of ratio and proportion, and expressing relationships between variables, reason and deduce in various contexts, interpret when the structure of a problem requires reasoning
- Solve problems to develop mathematical knowledge including with multi-step problems, in financial contexts, make connections between different parts of mathematics, select appropriate methods to unfamiliar and non-routine problems



Skills	<p>R Develop RESILIENCE</p>	<ul style="list-style-type: none"> ★ <i>Correcting mistakes given guidance</i> ★ <i>Attempting multi step problems even if they are not sure of how to get to solution</i> ★ <i>Making improvements on answers during class discussions (during cold calling)</i>
	<p>A Possess AMBITION</p>	<ul style="list-style-type: none"> ★ <i>Attempting</i> ★ <i>Completing homework to a high standard</i> ★ <i>Making detailed corrections to work independently</i>
	<p>I Demonstrate INTEGRITY</p>	<ul style="list-style-type: none"> ★ <i>Supporting peers through good manners and conduct</i> ★ <i>Takes responsibility for actions and demonstrates improved behaviour in subsequent lessons</i>
	<p>S Embed Self-Discovery</p>	<ul style="list-style-type: none"> ★ <i>Independently seeks to make improvements in known areas of weakness outside of lesson time.</i> ★ <i>Discovers how to solve a problem or comes up with an alternative solution.</i> ★ <i>Work creatively through various problem solving activities</i>



	<p>E <i>Display EMPATHY</i></p>			<ul style="list-style-type: none"> ★ <i>Offers equipment to those who don't have it.</i> ★ <i>Shows respect for teacher and fellow students during class discussion.</i> ★ <i>Work collaboratively with other students</i> 		
<p>Curriculum Links</p>	<p>Manipulating algebra and solving equations builds from y7 developing number sense/directed numbers (ht 4), y9 reasoning with number (h3)</p> <p>Ratio and Proportion builds from builds from y8 ratio and scale (ht1), y9 reasoning with proportion (ht5)</p> <p>Rounding, estimating and place value builds from y7 place value and order integers (ht2), y9 reasoning with number (h3)</p>	<p>Fractions, decimals and percentage builds from y7 FDP equivalence (ht2), y8 fractions and percentage, y9 using percentage (ht3)</p> <p>Sequences builds from yr7 sequences (ht1), y8 sequences (ht3)</p> <p>Plotting graphs builds from builds from year 8 working in the cartesian plane (ht2), year 9 straight line graphs (ht1)</p>	<p>Calculating with angle facts builds from y7 developing geometric reasoning (ht5), y8 angles in parallel lines and polygons (ht5)</p> <p>Complex solving equations builds from yr equality and equivalence (ht1), year 7 operations and equations with directed number, year 9 forming and solving equations (ht1)</p> <p>Percentages builds from y8 fractions and percentage, y9 using percentage (ht3)</p>	<p>Data handling cycle builds from year 8 representing data (ht2) and the data handling cycle (ht6)</p> <p>Constructions builds from year 7 constructing, measuring and geometric notation (ht5), year 9 constructions and congruency (ht2)</p>	<p>Area perimeter and volume builds from y8 area of trapezia and circles (ht5)</p> <p>Analysing data builds from year 8 representing data (ht2) and the data handling cycle (ht6)</p> <p>Inequalities builds from yr7 understand and use algebraic notation (ht1), year 8 Brackets, equations, inequalities (ht 3)</p> <p>Simultaneous equations builds from year 10 complex solving equations (ht3)</p>	<p>Probability builds from year 7 sets and probability (ht6), y9 probability (ht6)</p> <p>Geometric reasoning builds from y7 developing geometric reasoning (ht5), y8 angles in parallel lines and polygons (ht5)</p>



			Trigonometry and Pythagoras builds from year 9 Pythagoras' Theorem (ht4)			
Assessment	<ul style="list-style-type: none"> • AO1: Use and apply standard techniques Students should be able to: <ul style="list-style-type: none"> ○ accurately recall facts, terminology and definitions ○ use and interpret notation correctly ○ accurately carry out routine procedures or set tasks requiring multi-step solutions. • AO2: Reason, interpret and communicate mathematically Students should be able to: <ul style="list-style-type: none"> ○ make deductions, inferences and draw conclusions from mathematical information ○ construct chains of reasoning to achieve a given result ○ interpret and communicate information accurately ○ present arguments and proofs ○ assess the validity of an argument and critically evaluate a given way of presenting information. • AO3: Solve problems within mathematics and in other contexts 					



	<p>Students should be able to:</p> <ul style="list-style-type: none"> ○ translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes ○ make and use connections between different parts of mathematics ○ interpret results in the context of the given problem ○ evaluate methods used and results obtained ○ evaluate solutions to identify how they may have been affected by assumptions made. <p>3 assessment periods using full exam papers to track progress, identify weaknesses and predict outcomes and select appropriate interventions. 6 checkpoints throughout the year to assess retention of key topics.</p>		
<p>Aspirations & Careers</p>	<p>All pupils need to be numerate and able to use mathematics at both work and in everyday life beyond school. Mathematics is fundamental to future success and closely linked with financial success. It enhanced their ability to infer, problem solve, think logically, spot patterns as well as navigate any chosen career.</p> <p>Promote maths and further maths A levels (in Further Maths option and in classes). Promote careers in finance, engineering, computing etc and emphasise the importance of maths in these areas.</p>		