



Year 11 Curriculum – 2024-2025						
	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	Number skills (Weeks 1- 2) Algebra manipulation (Weeks 3-5) Angles and Geometry (Weeks 6-7)	Data Handling process (Weeks 8-9) Fraction, decimal, percentage (Week 10) Proportion (Week 12) Solving Equations (Weeks 13-14)	Area, perimeter, volume (Weeks 15-17) Probability (Weeks 18-19) Graphs (Weeks 19- 20)	Transformations (Week 21) Exam preparation	Exam preparation	
Knowledge & Understanding (National Curriculum) <i>Skills are across the whole year.</i>	Students will know and understand how to: <ul style="list-style-type: none"> • calculate with numbers in standard form • apply and interpret limits of accuracy when rounding or truncating • simplify and manipulate algebraic expressions, including factorising quadratic expressions • know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent • deduce expressions to calculate the nth term of linear and quadratic sequences • interpret and use bearings • apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles and, in some cases, general triangles 					



- Some students will apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results
- interpret, analyse and compare the distributions of data sets from distributions
- apply statistics to describe a population
- 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
- calculate exactly with fractions
- set up, solve and interpret the answers in growth and decay problems, including compound interest
- solve linear and quadratic equations
- solve two simultaneous equations in two variables
- solve linear inequalities
- identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment
- calculate arc lengths, angles and areas of sectors of circles
- calculate surface areas and volumes of spheres, pyramids, cones and composite solids
- some will apply the concepts of congruence and similarity, including the relationships between lengths, areas and volume
- 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
- Some will calculate and interpret conditional probabilities through representation with tree diagrams and Venn diagram
- use the form $y = mx + c$ to identify parallel and for some students perpendicular lines
- find the equation of the line through two given points, or through one point with a given gradient
- identify and interpret roots, intercepts and turning points of quadratic functions graphically
- recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions and the reciprocal function
- interpret and use whole number, fractional and, for some students, negative scale factors for enlargements
- Some students will describe the changes and invariance achieved by combinations of rotations, reflections and translations
- apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; some students will use vectors to construct geometric arguments and proofs

Throughout the year students will



	<ul style="list-style-type: none"> • 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	R <i>Develop RESILIENCE</i>	<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>
	A <i>Possess AMBITION</i>	<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>
	I <i>Demonstrate INTEGRITY</i>	<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>
	S <i>Embed Self-Discovery</i>	<ul style="list-style-type: none"> ★ <i>Independently seeks to make improvements in known areas of weakness outside of lesson time.</i>



				<ul style="list-style-type: none"> ★ <i>Discovers how to solve a problem or comes up with an alternative solution.</i>
	<p>E Display EMPATHY</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>
<p>Curriculum Links</p>	<p>Number skills – builds from y7 developing number sense/directed numbers (ht 4), y9 reasoning with number (h3), y10 number skills (ht1)</p> <p>Algebra manipulation – builds from KS3 : y7 understand algebraic notation and y9 algebraic representations, year 10 ht 1 algebra skills</p> <p>Angles and Geometry – from y7 developing geometric reasoning (ht5), y8 angles in parallel lines and polygons (ht5), year 10 geometric reasoning (ht2).</p>	<p>Data Handling process – builds from year 8 representing data (ht2) and the data handling cycle (ht6) and in year 10 data handling cycle and representing (ht4)</p> <p>FDP – builds from y7 FDP equivalence (ht2), y8 fractions and percentage, y9 using percentage (ht3), y10 FPD equivalency and fraction arithmetic (ht2)</p> <p>Proportion - builds from y8 ratio and scale (ht1), y9 reasoning with proportion (ht5)</p> <p>Solving Equations –</p>	<p>Area, perimeter, volume – builds from y8 area of trapezia and circles (ht5), year 10 area, perimeter and volume (ht 5)</p> <p>Probability – builds from year 7 sets and probability (ht6), y9 probability (ht6), year 10 probability (ht 6)</p> <p>Graphs - builds from year 8 working in the cartesian plane (ht2), year 9 straight line graphs (ht1)</p>	<p>Transformations builds from year 8 lines of symmetry and reflection, year 9 rotation and translation</p>



Assessment

- AO1: Use and apply standard techniques

Students should be able to:

- o accurately recall facts, terminology and definitions
- o use and interpret notation correctly
- o accurately carry out routine procedures or set tasks requiring multi-step solutions.

- AO2: Reason, interpret and communicate mathematically

Students should be able to:

- o make deductions, inferences and draw conclusions from mathematical information
- o construct chains of reasoning to achieve a given result
- o interpret and communicate information accurately
- o present arguments and proofs
- o assess the validity of an argument and critically evaluate a given way of presenting information.

- AO3: Solve problems within mathematics and in other contexts

Students should be able to:

- o translate problems in mathematical or non-mathematical contexts into a process or a series of mathematical processes
- o make and use connections between different parts of mathematics
- o interpret results in the context of the given problem
- o evaluate methods used and results obtained
- o 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. 4 checkpoints throughout the year to assess retention of key topics.</p>
Aspirations & Careers	<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>