



Year 9 Curriculum – 2024-2025

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	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	Straight line graphs <i>(Weeks 1-2)</i> Forming and solving equations <i>(Weeks 2-4)</i> Testing conjectures <i>(Weeks 5-6)</i>	Three dimensional shapes <i>(Weeks 7-9)</i> Constructions and congruency <i>(Weeks 10-12)</i>	Number <i>(Weeks 13-4)</i> Using percentages <i>(Weeks 15-17)</i> Maths and money <i>(Week 18)</i>	Deduction <i>(Weeks 19-21)</i> Rotation and translation <i>(Weeks 22-24)</i> Pythagoras' Theorem and Trigonometry <i>(Weeks 25-26)</i>	Enlargement and similarity <i>(Weeks 27-28)</i> Solving ratio and proportion problems <i>(Weeks 29-30)</i> Rates <i>(Weeks 31-32)</i>	Probability <i>(Weeks 33-34)</i> Algebraic representation <i>(Weeks 35)</i> Revision for end of year assessment
Knowledge & Understanding (National Curriculum) <i>Skills are across the whole year.</i>	<p>Number</p> <ul style="list-style-type: none"> Revisit and extend Y7/Y8 content including, types of number, standard form, HCF and LCM and prime factorisation. Revisit and extend fraction arithmetic Rational and real numbers Revise and extend knowledge on fractions, decimals and percentages. Revise and extend Y7/8 coverage on percentages Reverse percentages Financial maths Repeated percentage change (H) <p>Algebra</p> <ul style="list-style-type: none"> Revise and extend Y7/Y8 coverage including, algebraic representation and $y=mx+c$ Equivalence and Proof Rearranging to the form $y=mx+c$ 					



- Change the subject of a formula
- Testing algebraic conjectures
- Expand a pair of binomials
- Change the subject of a more complex formula
- Revise and extend Y7/Y8 coverage on solving equations and inequalities
- Form and solve equations and inequalities with unknowns on both sides
- Representing inequalities
- Revise and extend Y7/Y8 coverage on linear graphs
- Simplify, use and interpret $y=mx+c$
- Parallel lines
- **Solve simultaneous equations graphically (H)**
- **Explore perpendicular lines (H)**
- Interpret graphs in various forms including piecewise linear
- Non-linear graphs
- Interpret graphs in various forms (including quadratic, piecewise, exponential, speed/distance/time)
- Revisit and extend knowledge on representing a sequence and finding the nth term
- Testing conjectures about sequences

Ratio, Proportion, Rates of change

- Revise scale drawings and conversion graphs
- Solve direct proportion problems
- Inverse proportion
- **Inverse proportion graphs (H)**
- Revise and extend Y7/Y8 coverage on ratio and rates.
- **Repeated percentage change (H)**
- Speed, distance and time
- Density
- Compound units
- Converting compound measures
- Unit pricing problems



Geometry and Measure

- Surface area of cuboids and cylinders
- Volume of cuboids, cylinders and other prisms
- **Explore volume of cones, spheres and compound shapes (H)**
- Surface area of prisms
- Construct and Transform Geometric Figures
- Standard ruler and compass constructions
- **Loci (H)**
- Revise Y7/Y8 coverage on symmetry
- Recognise rotational symmetry
- Rotate points about a given points
- Translate shapes and describe translations
- Perform a series of transformations
- Testing conjectures about shapes
- Properties of 3D shapes
- 2D shapes in 3D shapes
- Revise and extend Y7/Y8 coverage on angles
- Chains of reasoning to find angles
- Understand and use Pythagoras' Theorem
- Show that a triangle is right-angled
- Use Pythagoras' theorem in 3D shapes
- Explore ratios in right angles triangles

Develop Fluency

- Consolidate their numerical and mathematical capability from key stage 2 and extend their understanding of the number system and place value to include decimals, fractions powers and roots.
- Select and use appropriate calculation strategies to solve increasingly complex problems
- Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships
- Substitute values in expressions, rearrange and simplify expressions, and solve equations
- Move freely between different numerical, algebraic, graphical and diagrammatic representations (for example, equivalent fractions, fractions and decimals, and equations and graphs).
- Develop algebraic and graphical fluency, including understanding linear and simple quadratic functions



→ Use language and properties precisely to analyse numbers, algebraic expressions, 2D and 3D shapes, probability and statistics

Reason Mathematically

- Extend their understanding of the number system; make connections between number relationships, and their algebraic and graphical representations
- Extend and formalise their knowledge of ratio and proportion in working with measures and geometry, and in formulating proportional relations algebraically
- Identify variables and express relations between variables algebraically and graphically
- Make and test conjectures about patterns and relationships; look for proofs or counter examples
- Begin to reason deductively in geometry, number and algebra, including using geometrical constructions
- Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning
- Explore what can and cannot be inferred in statistical and probabilistic settings, and begin to express their arguments formally

Solving Problems

- Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems
- Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematics
- Begin to model situations mathematically and express the results using a range of formal mathematical representations
- Select appropriate concepts, methods and techniques to apply to unfamiliar and non-routine problems; interpret their solution in the context of the given problem.

Skills

R Develop RESILIENCE

★ Increase resilience through learning new concepts and building upon knowledge secured in year 7/8

★ Making mistakes but being able to learn from and correct those mistakes



		<ul style="list-style-type: none"> ★ <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> ★ <i>Being able to try another method when problem solving and realising their first method has not worked.</i>
	<p>A Possess AMBITION</p>	<ul style="list-style-type: none"> ★ <i>Attempting questions and developing problem solving strategies</i> ★ <i>Completing homework to a high standard</i> ★ <i>Making detailed corrections to work independently.</i> ★ <i>Participating in group or whole class discussions each lesson</i>
	<p>I Demonstrate INTEGRITY</p>	<ul style="list-style-type: none"> ★ <i>Supporting peers through good manners and conduct, helping each other when somebody doesn't understand.</i> ★ <i>Being polite when somebody offers an incorrect answer.</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>Ask good questions, for example "What would happen if ..."</i>



	<p>E Display EMPATHY</p>			<ul style="list-style-type: none"> ★ Offers equipment to those who don't have it. ★ Shows respect for teacher and fellow students during class discussion. ★ Being polite when somebody offers an incorrect answer. 		
Curriculum Links	<p>Straight line graphs and proportional graphs are covered in Y8 HT2. Solving equations is taught in Y8 HT3 and other algebraic skills are taught in Y7 HT1.. Testing conjectures links to Y7 HT6 as well as students covering this at Ks2.</p>	<p>In Ks2, pupils will learn how to identify and recognise properties of 2D and 3D shapes, including calculating with basic angle facts. They also cover constructions and geometric reasoning in Y7 HT5.</p>	<p>Directed numbers and HCF and LCM are seen in Y7 HT4 and HT6. Percentages are covered in Y7 HT4 and HT5 and also build on KS2 content. Area and perimeter of shapes is covered in KS2 along with knowing the names of parts of a circle.</p>	<p>Deduction links to prior knowledge on angles from Y8 HT5 and Y7 HT5. Rotation and translations are covered at KS2 where rotations are described as a turn and translations as a movement from left to right.</p>	<p>Enlargements link to similar shapes and multiplicative relationships covered in Y8 HT1. Ratio and proportion is also covered in Y8 HT1 as well as being covered in KS2.</p>	<p>Set notation and probability is taught in Y7 HT6, and again in Y8 HT2. Algebraic representation extends knowledge of straight line graphs covered in Y8 HT2 and Y9 HT1 into non-linear and other types of graphs. Algebraic knowledge also needed from Y7 HT1.</p>
Assessment	<p>Each half term will consist of an end of unit assessment which will be teacher assessed and a checkpoint activity that will asses the retention of prior key learning</p>			<p>Students will complete a GCSE foundation paper towards the end of year 9. This will be modified for different ability groups to ensure it is accessible for all.</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>					

