Year 9 Mathematics Curriculum

Year 9 learning is built upon the mathematical foundations established in Year 7 and 8. All students work to develop a deep and connected understanding of Mathematics, develop procedural fluency and conceptual understanding in tandem and to develop fluent knowledge of key facts and techniques. All students are expected to practise, be resilient and persevere when approaching all areas of Mathematics.

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
Straight line graphs	Tables of values Gradients and intercepts Y = mx+ c Real life graphs	Building on simple straight line graphs from year 8 Leading to rearranging formula and inverse relationships	End of block assessment	Knowledge organisers with key words.	Analysing: Understanding that the gradient has a meaning e.g. conversion rate Linking: Sequences, proportion and straight line graphs Creating: Exploring how graphs change when the gradient or y-intercept changes and why.	Mymaths. Worksheets. Challenges.
Forming and solving equations	One and two step equations and inequalities. Unknowns on both sides. Substitution into formula and rearranging complex formula	Revisit and extend knowledge of solving linear equations and inequalities and rearranging formula. Leading to algebraic proofs	End of block assessment	Knowledge organisers with key words	Metathinking: identify steps required to solve problems with forming and solving inequalities and equations. Linking: to be able to solve equations and inequalities using basic operations and the order of operations. Realising: spot mistakes when form and solve	Mymaths. Worksheets. Challenges.

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					equations and inequalities. Recall step: using inverse operations.	
Testing conjectures	Conjectures with number and algebra Expanding binomials and trinomials	Review factors, multiples and primes. Developing reasoning skills and leading to algebraic proof	End of block assessment	Knowledge organisers with key words	Analysing and logical thinking.	Mymaths. Worksheets. Challenges.
3D shapes	Naming Prisms Nets Plans and elevations Area and surface area Volume of basic 3D shapes	Building on area and perimeter of 2D shapes. First time looking at 3D shapes Leading to volume of harder 3D shapes	End of block assessment	Knowledge organisers with key words	Complex and multi step problem solving Linking	Mymaths. Worksheets. Challenges.

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Constructions and congruency	Construct scale diagrams Loci Perpendicular bisectors Angle bisectors Construct triangles Congruent shapes and triangles	Builds on constructions from year 7 and 8 leads to locus	End of block assessment	Knowledge organisers with key words	Realising: Automaticity of being able to use compasses for constructions Precision	Mymaths. Worksheets. Challenges.
Numbers	Real and rational numbers Surds Directed number Fraction arithmetic Standard form	Students develop their understanding of real and rational numbers, leading to work with surds Review of standard form and prime factors	End of block assessment	Knowledge organisers with key words	Linking Strategy planning for new topic of surds	Mymaths. Worksheets. Challenges.
Using percentages	FDP equivalence % increase and decrease, reverse % Repeated percentage change, growth and decay	Builds on revision of fractions. Leading to compound interest	End of block assessment	Knowledge organisers with key words	Meta thinking using strategies to solve problems. Analysing and logical thinking. Linking.	Mymaths. Worksheets. Challenges.
Maths and Money	Bills and banking Simple and compound interest	Builds on financial maths from year 7 and 8. Looking at	End of block assessment	Knowledge organisers with key words	Automaticity, building on previous work to embed these fundamental skills.	Mymaths. Worksheets.

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	VAT Wages and taxes Exchange rates Unit pricing	more complex financial problems			Meta thinking, transferring knowledge from other known facts.	Challenges.
Deduction (Geometric reasoning)	Solving angle problems Conjectures with angles and shape Link construction and geometrical reasoning	Review and extend knowledge of angles and shapes, builds on conjectures leading to geometric proof	End of block assessment	Knowledge organisers with key words	Critical and logical thinking Precision Metacognition, transferring knowledge of angles to various problems. Analysing, using knowledge of angles to solve geometric problems.	Mymaths. Worksheets. Challenges.
Rotation and translation	Rotational symmetry Rotation around a point Translation by vectors Rotation and reflection Series of transformations	Building on line symmetry and reflection from year 8 Moving to effects of transformations	End of block assessment	Knowledge organisers with key words	Meta thinking, transferring knowledge from other known facts.	Mymaths. Worksheets. Challenges.
Pythagoras	Squares and roots Calculating missing sides Pythagoras on coordinate axes Proofs	Revision of squares and roots Review of rearranging formula	End of block assessment	Knowledge organisers with key words	Analysing, precision and linking. Using previous knowledge to review and extend problem solving	Mymaths. Worksheets. Challenges.

Unit	Core knowledge/skill development	Sequence	Assessment	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development	Home learning and enrichment
	Pythagoras in 3D	Leading to Pythagoras in 3D and trigonometry				
Enlargement and similarity	Enlargement by positive, negative and fractional scales factors Missing sides and angles in similar shapes	Develop knowledge of transformations to include enlargement Link to similarity and leading to trigonometry	End of block assessment	Knowledge organisers with key words	Meta thinking, transferring knowledge from other known facts. Linking to work on ratio and scale	Mymaths. Worksheets. Challenges.
Solving ratio and proportion problems	Direct proportion Conversion graphs Inverse proportion Solve ratio and best buy problems	Building on all previous ratio work, review best buy and leading to more complex proportion problems	End of block assessment	Knowledge organisers with key words	Meta thinking using strategies to solve problems. Analysing and logical thinking. Linking to all previous ratio work	Mymaths. Worksheets. Challenges.