Mathematics Year 9 Curriculum Map

Term	I am learning	By the end of this topic I will be able
Autumn	**Topic: Straight line graphs** • to explore both the algebraic structure of the equations of straight lines given in a variety of forms and the interpretation of real-life contexts • to study y=mx+c as the general form of an equation of a straight line and interpreting m and c in abstract and real-life contexts **Topic: Forming and solving equations** • to revisit and extend knowledge of forming and solving linear equations and inequalities • to explore rearranging formulae and how it links to solving equations and reinforcing the understanding of the difference between equations, formulae, expressions and identities	**Topic: Straight line graphs** • to understand and use y=mx+c • to compare gradients and intercepts • to interpret gradients and intercepts of real-life graphs **Topic: Forming and solving equations** • to solve one and two step equations and inequalities, including those with directed numbers • to begin to solve equations and inequalities with an unknown on both sides • to rearrange formulae
	Topic: Three dimensional shapes • to extend knowledge and understanding of prisms and associated key language • to develop and strengthen understanding of nets, plans and elevations • to think deeply about surface area and volume beyond procedural fluency **Topic: Construction and congruency** • to embed knowledge of constructions, loci and extending into congruency • to explore congruency and compare congruent figures (including triangles)	**Topic: Three dimensional shapes** • to know 2D and 3D shapes including prisms • to recognise and sketch nets of 3D shapes • to draw plans and elevations • to work out surface area of prisms (including cube, cuboid, triangular prism and cylinder) • to work out volume of a cube or cuboid **Topic: Construction and congruency** • to understand and use loci (from a point and straight line) • to construct a perpendicular bisector and angle bisector • to identify congruent figures

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Spring	**Topic: Numbers** • to fluently use and apply number skills • to develop a range of number concepts from types of number through to operations with fractions • to develop knowledge of the number system to include rational and real numbers **Topic: Rotation and translation** • to develop fluency with rotating shapes, noting the links with rotational symmetry, and with translating shapes using column vectors • to compare the characteristics of rotation, translation and also reflection	**Topic: Numbers** • to solve problems with integers, fractions and decimals • to use HCF and LCM • to change numbers between ordinary and standard form **Topic: Rotation and translation** • to rotate a shape about a point • to translate a shape using vectors • to compare rotation and reflection of shapes
	Topic: Enlargement and similarity • to demonstrate a deep understanding of enlargement through accurate drawing and description • to understand similarity in the context of enlargements within polygons **Topic: Solving ratio and proportion problems & algebraic representations** • to develop a deep understanding of direct and inverse proportion including graphs of proportional relationships • to explore best buy and ratio problems with algebra • to develop and strengthen the understanding of quadratic graphs, how to interpret graphs including reciprocal and piecewise examples	**Topic: Enlargement and similarity** • To enlarge a shape by a positive scale factor • To work out missing angles and sides of similar shapes **Topic: Solving ratio and proportion problems & algebraic representations** • to solve problems with direct and inverse proportion • to solve best buy problems • to draw and interpret quadratic graphs • to interpret reciprocal and piece-wise graphs

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Summer	**Topic: Pythagoras' theorem and introduction to trigonometry** • to explore the use of Pythagoras' theorem in right angled triangles • to become familiar with the three trigonometric functions (Sine, Cosine, Tangent) **Topic: Rates** • to embed and strengthen understanding of speed, distance and time calculations, use travel graphs, investigate rates of change problems and to convert between compound units.	**Topic: Pythagoras' theorem and introduction to trigonometry** • to identify the hypotenuse of a right-angled triangle • to understand and use Pythagoras' theorem to find any side of a right-angled triangle • to know what the three trigonometric functions are and their uses (Sine, Cosine, Tangent) **Topic: Rates** • to solve speed, distance and time problems • to use distance-time graphs • to solve problems with mass, density and volume
	Topic: Probability • to introduce and strengthen understanding of sets, and set notation • to explore sample spaces, two-way tables and Venn diagrams linking them to probability • to strengthen understanding of relative frequency, expected outcomes, diagrams to show probability and to introduce key concepts of independence and tree diagrams **Topic: Using percentages & Money problems** • to deepen understanding of percentage work with and without a calculator • to gain financial understanding of maths and money by exploring real life concepts	**Topic: Probability** • to understand and use sets and set notation with Venn diagrams • to understand and use the probability scale • to construct sample space diagrams • to find probabilities from two-way tables and Venn diagrams • to understand relative frequency • to understand and use a probability tree diagram **Topic: Using percentages & Money problems** • to calculate percentage increase and decrease • to solve reverse percentage problems • to calculate simple and compound interest • to solve problems with VAT • to calculate wages and taxes