Curriculum Plan Mathematics

Year 9	Knowledge (Topics covered, NC links)	Subject Skills	Literacy and Numeracy	School values (Attitude / Achievement / Community / Endeavour)	Extra curricular opportunities	Personal development (Character, SMSC, Fundamental British values, Careers guidance, healthy living, Citizenship, equality and diversity, financial capability, preparation for next stage)
Cycle 1	Linear Simultaneous equations	Form and solve linear simultaneous equations.	Inverse processes	Challenging nature of mathematics builds Endeavour	UKMT Maths Challenge	Modelling and Problem solving skills.
	Probability	Notation Fractions Decimals	Wording and interpretation of questions		UKMT Maths Team Challenge	Probability – Key area of statistics that is used in all areas of professional life including; medical and scientific research, law, business, design and engineering.
	Simultaneous equations	Graphical solution (links with straight line graphs)	Link between algebra and geometry		Maths Masterclass University Workshops	Common applications to real world scenarios.
	Volume and density	Volume of cones, pyramids and spheres The relationship between mass, volume and density	Formulae			Volume – Used in practical careers (construction, food technology) as well as other areas of science and technology. Consideration for environmental impact e.g. packaging

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	Quadratic equations	Completed square form Sketching quadratic graphs with intercepts Quadratic formula	Substitution and order of operations.		Used in engineering, physical science and simulation.
	Bounds	Can use the bounds of measurements to understand accuracy.	Estimation. Error intepretation		Knowing the limitations of measurement and application of information.

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Cycle 2	Trigonometry	Missing sides and angles in right angled triangles	Contextual questions			Used in practical careers such as design, construction and craft as well as engineering and science based areas.
	Quadratics	Choosing appropriate techniques for solving.	Contextual questions			Used in engineering, physical science and simulation.
	Vectors	Manipulating 2D vectors Interpreting and using 2D vectors				Used in physical simulation and modelling (eg. Game and simulation software design).
	Ratio	Combining ratios to solve problems	Common application of understanding ratio and proportion			Financial understanding
	Linear Inequalities	Forming, solving and representing graphically	Notation			Representing limitations to problems e.g. financial
	Quadratics	Forming and solving in context				Construction, manufacturing

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	Percentage	Use of multipliers to find, increase, decrease and reverse percentage change Profit, interest and exponential change				Percentage – used in all areas of life. Has many financial applications. Growth and decay applications in Science.
	Interleaved geometry	Applying trigonometry in the context of volume and area.				

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Cycle 3	Venn diagrams	Sorting data Using Venn diagrams in the context of probability	Number properties			Considering risk and likelihood
	Percentage	Growth, decay and the exponential graph				Modelling real life applications e.g. finance
	Enlargement	2D enlargement using scale factors and centre of enlargement.	Types of polygon			Transformations and enlargements – applications in graphical programming, design and simulation.
	Similarity and congruence	Application of similarity in the contexts of length, area and volume.				

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	Transformations	Translation, rotation and reflection of 2D shapes Combining transformations				Art and geometry e.g. Islamic Art
	Kinematics	Speed, distance and time Graphical representation and links with gradient and area	Re-arranging formulae			Kinematics – applications in physics and engineering.
	Plans and elevations	Graphical representation of 3D solids	Names of 3D shapes			Construction and architecture