

Maths Curriculum Map - Year 11

Term	Units of Study	Curriculum Guidelines	NC –Aims / Focus Points
Autumn 1	<p>Fractions, indices and standard form</p> <p>Congruence, similarity and vectors</p>	<ul style="list-style-type: none"> • Consolidate their numerical and mathematical capability from key stage 3 and extend their understanding of the number system to include powers, roots. • Select and use appropriate calculation strategies to solve increasingly complex problems, including exact calculations involving multiples of π use of standard form and application and interpretation of limits of accuracy. • Use mathematical language and properties precisely. • Extend and formalise their knowledge of ratio and proportion, including trigonometric ratios, in working with 	<ul style="list-style-type: none"> • Calculate with roots, and with integer indices. • Calculate with numbers in standard form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer. • Identify and work with fractions in ratio problems. • Compare lengths, areas and volumes using ratio notation and/or scale factors; make links to similarity (including trigonometric ratios). • Apply the concepts of congruence and similarity, including the relationships between lengths, in similar figures. • Describe translations as 2D vectors.

		<p>measures and geometry, and in working with proportional relations algebraically and graphically.</p> <ul style="list-style-type: none"> • Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems. • Reason deductively in geometry, number and algebra, including using geometrical constructions. 	<ul style="list-style-type: none"> • Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors.
<p>Autumn 2</p>	<p>More algebra</p>	<ul style="list-style-type: none"> • Consolidate their numerical and mathematical capability from key stage 3 and extend their understanding of the number system to include powers, roots. • Consolidate their algebraic capability 	<ul style="list-style-type: none"> • Simplify and manipulate algebraic expressions (including those involving surds by factorising quadratic expressions of the form $2x^2 + bx + c$ or $ax^2 + bx + c$, including the difference of two squares; simplifying

		<p>from key stage 3 and extend their understanding of algebraic simplification and manipulation to include quadratic expressions.</p> <ul style="list-style-type: none"> • Extend fluency with expressions and equations from key stage 3, to include quadratic equations, simultaneous equations and inequalities. • Move freely between different numerical, algebraic, graphical and diagrammatic representations, including of linear, quadratic, reciprocal functions. • Extend their ability to identify variables and express relations between variables algebraically and graphically. • Develop their mathematical knowledge, in part through solving problems and 	<p>expressions involving sums, products and powers, including the laws of indices</p> <ul style="list-style-type: none"> • Know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments plot and interpret graphs (including reciprocal graphs and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration • Solve quadratic equations, algebraically by factorising, find approximate solutions using a graph • Solve two simultaneous
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		<p>evaluating the outcomes, including multi-step problems.</p>	<p>equations in two variables algebraically; find approximate solutions using a graph.</p> <ul style="list-style-type: none"> • Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y. • Set up, solve and interpret the answers in growth and decay problems, including compound interest.
<p>Spring 1</p>	<p>Perimeter, area and volume 2</p>	<ul style="list-style-type: none"> • Consolidate their numerical and mathematical capability from key stage 3 and extend their understanding of the number system to include powers, roots. • Select and use appropriate calculation strategies to solve increasingly complex problems, including exact calculations involving multiples of π use of standard form and application and 	<ul style="list-style-type: none"> • Calculate with roots, and with integer indices. • Calculate exactly with fractions, and multiples of π. • Calculate surface areas and volumes of spheres, pyramids, cones and composite solids. • Apply the concepts of congruence and similarity, including the relationships between lengths in similar figures.

		<p>interpretation of limits of accuracy.</p> <ul style="list-style-type: none">• Use mathematical language and properties precisely.• Extend and formalise their knowledge of ratio and proportion, including trigonometric ratios, in working with measures and geometry, and in working with proportional relations algebraically and graphically.• Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.• Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems.	<ul style="list-style-type: none">• Apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles in two dimensional figures.
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Spring 2	Revision		
Summer 1	Revision		
Notes*****			