



Key Stage 4 Mathematics Curriculum Maps

	AUTUMN							SPRING						SUMMER									
	1	2	3	4	5	6	7	16	17	18	19	20	21	22	27	28	29	30	31	32			
Year 10 Foundation	Topic – Calculating P - Calculate with powers and roots P - Explore the use of standard form P - Explore the effects of rounding				Topic – Visualising and constructing Sk - use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle) Sk - use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line Sk - construct plans and elevations of 3D shapes			See week 15	Topic – Solving equations and inequalities I P - understand and use the concepts and vocabulary of inequalities P - solve linear inequalities in one variable P - represent the solution set to an inequality on a number line			Topic – Calculating space Sk - Solve problems involving arcs and sectors Sk - Solve problems involving prisms Sk - Investigate right-angled triangles Sk - Solve problems involving Pythagoras' theorem			See week 25/26	Topic – Solving equations and inequalities II Sk - Solve simultaneous equations Sk - Use graphs to solve equations Sk - Solve problems involving simultaneous equations				Topic – Algebraic proficiency: visualizing II Sk - Explore graphs of quadratic functions Sk - Explore graphs of other standard non-linear functions Sk - Create and use graphs of non-standard functions Sk - Solve kinematic problems			
	8	9	10	11	12	13	14	15	23	24	25	26	33	34	35	36	37	38	39				
Year 10 Foundation	Topic – Algebraic proficiency: tinkering S - understand and use the concepts and vocabulary of identities S - know the difference between an equation and an identity P - simplify and manipulate algebraic expressions by expanding products of two binomials and factorising quadratic expressions of the form $x^2 + bx + c$ Sk - argue mathematically to show algebraic expressions are			Topic – Proportional reasoning Sk - Solve problems involving different types of proportion P - Investigate ways of representing proportion Sk - Understand and solve problems involving congruence Sk - Understand and solve problems involving similarity P - Know and use compound units in a range of situations				Topic – Pattern sniffing P - Investigate Fibonacci numbers P - Investigate Fibonacci type sequences P - Explore quadratic sequences		Topic – Conjecturing S - use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) Sk - apply angle facts, triangle congruence, similarity, and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' Theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs			Topic – Algebraic proficiency: visualising I P - identify and interpret gradients and intercepts of linear functions algebraically P - use the form $y = mx + c$ to identify parallel lines P - find the equation of the line through two given points, or through one point with a given gradient P - interpret the gradient of a straight-line graph as a rate of change			Topic – Understanding risk P - Understand and use tree diagrams P - Develop understanding of probability in situations involving combined events Sk - Use probability to make predictions			Topic – Presentation of data Sk - Construct and interpret graphs of time series Sk - Interpret a range of charts and graphs Sk - Interpret scatter diagrams Sk - Explore correlation				

	equivalent, and use algebra to support and construct arguments								
	Sk - translate simple situations or procedures into algebraic expressions or formulae								
	Closed book assessment based on HT1				Closed book assessment				Closed book Y10 exams P2
	Non-calculator test HT2				Y10 exams P1				

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YEAR 10	Topic – Calculating		Topic – Investigating properties of shapes			Topic – Solving equations and inequalities I		Topic – Solving equations and inequalities II			Topic – Calculating space			Topic – Exploring fractions, decimals, and percentages		Topic – Solving equations and inequalities III		Topic – Understanding risk
Higher	P - estimate powers and roots of any given positive number P - calculate with roots, and with integer and fractional indices P - calculate exactly with surds Sk - apply and interpret limits of accuracy, including upper and lower bounds		P - Investigate similar triangles Sk - Explore trigonometry in right-angled triangles P - Set up and solve trigonometric equations Sk - Use trigonometry to solve practical problems			P - Solve simultaneous equations Sk - Solve problems involving simultaneous equations		S - Understand and use set notation P - Solve inequalities Sk - Represent inequalities on a graph			P - Calculate surface areas of solids P - Calculate volumes of solids Sk - Solve problems involving enlargement and 3D shapes			S - Explore the links between recurring decimals and fractions Sk - Solve problems involving repeated percentage change Sk - Solve problems involving exponential growth and decay		Sk - solve quadratic equations algebraically by factorising Sk - find approximate solutions to quadratic equations using a graph Sk - deduce roots of quadratic functions algebraically		P - Understand and use the product rule for counting P - Use Venn diagrams to represent probability situations P - Use two-way tables to represent probability situations Sk - Solve probability problems involving combined events P -

	8	9	10	11	12	13	14	15	21	22	23	24	25	26	33	34	35	36	37	38	39					
Year 10 Higher	Topic – Mathematical movement I P - Explore enlargement of 2D shapes Sk - Investigate the transformation of 2D shapes		Topic – Algebraic proficiency: tinkering P - Manipulate algebraic fractions P - Manipulate algebraic expressions Sk - Solve quadratic equations by factorisation P -			Topic – Proportional reasoning P - Explore differences between direct and inverse proportion P - Investigate ways of representing proportion in situation Sk - Solve problems involving proportion			Topic – Pattern sniffing P - Explore quadratic sequences Sk - Investigate geometric progressions			Topic – Conjecturing Sk - Investigate geometric patterns using circles S - Explore circle theorems Sk - Make and prove conjectures			Topic – Algebraic proficiency: visualising I S - Explore exponential graphs Sk - Create and use graphs of non-standard functions Sk - Investigate gradients of graphs Sk - Find and interpret areas under graphs Sk - Investigate features of quadratic graphs			Topic – Analysing statistics P - Construct and interpret cumulative frequency graphs P - Construct and interpret box plots Sk - Analyse distributions of data sets			Topic – Algebraic proficiency: visualising II P - Investigate features of straight-line graphs S - Know and use the equation of a circle with centre at the origin Sk - Solve problems involving the equation of a circle			Topic – Mathematical movement II P - Explore the concept of a vector Sk - Solve problems involving vectors		
	Closed book assessment based on HT1								Closed book Y10 exams P1						Closed book Y10 exams P2											

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Year 11 Foundation	Topic – Calculating P- calculate with roots, and with integer indices		Topic – Investigating properties of shapes P- Investigate similar triangles S - Explore trigonometry in right-angled triangles Set up and solve trigonometric equations • Use trigonometry to solve practical problems			Topic – Solving equations and inequalities P - Solve simultaneous equations Sk - Solve problems involving simultaneous equations		Topic – Pattern sniffing P - recognise and use simple geometric progressions and other sequences		Topic – Calculating space P - Calculate surface areas of solids P - Calculate volumes of solids		Topic – Exploring fractions, decimals, and percentages P - Solve problems involving repeated percentage change Sk - Solve problems involving exponential growth and decay		Topic – Algebraic Proficiency: Visualising P – Identify and interpret roots, intercepts of quadratics graphically Sk – Identify turning points of quadratic functions graphically		Revision and GCSE exams	
	9	10	11	12	13	14	15	22	23	24	25	26					
Year 11 Foundation	Topic – Mathematical movement P - Explore enlargement of 2D shapes P - Investigate the transformation of 2D shapes		Topic – Algebraic proficiency: tinkering Sk - Manipulate algebraic expressions Sk - Change the subject of a formula			Topic – Proportional reasoning P - Explore differences between direct and inverse proportion P - Investigate ways of representing proportion in situation Sk - Solve problems involving proportion			Topic – Solving equations and inequalities P - solve quadratic equations algebraically by factorising P - find approximate solutions to quadratic equations using a graph Sk - deduce roots of quadratic functions algebraically		Topic – Analysing statistics S - Understand the limitations of sampling P - Use a sample to infer properties of a population		Topic – Mathematical movement II S - Understand the concept of a vector S - Know and use different notations for vectors, including diagrammatic representation P - Add and subtract vectors P - Multiply a vector by a scalar Sk - Solve simple geometrical problems involving vectors		Topic – Understanding Risk S – Apply product rule for counting P – Understand and use Venn Diagrams and Set Notation		Assessment- Y11 December Mock exams
	Assessment- Y11 December Mock exams									Assessment- Y11 March Mock exams							

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Year 11 Higher	Topic – Analysing statistics S - Construct and interpret histograms P - Analyse distributions of data sets Sk - Solve problems involving histograms			Topic – Investigating properties of shapes S - Explore three-dimensional shapes P - Apply Pythagoras’ theorem in three dimensions P - Apply trigonometry in three dimensions Sk - Know and use the sine rule Sk - Know and use the cosine rule			Topic – Calculating Sk - Manipulate expressions by simplifying surds	Topic – Proportional reasoning S - Explore differences between direct and inverse proportion Sk - Solve problems involving proportion		Topic – Pattern sniffing P - recognise and use simple geometric progressions and other sequences		Topic – Solving equations and inequalities II P - solve quadratic inequalities in one variable P - solve two simultaneous equations in two variables where one is quadratic algebraically		Revision and GCSE exams					
	8	9	10	11	12	13	14	15	22	23	24	25	26						
Year 11 Higher	Topic – Solving equations and inequalities P - solve quadratic equations by completing the square and by using the quadratic formula P - deduce turning points of quadratic functions by completing the square P - deduce roots of quadratic functions algebraically P - Find approximate solutions to complex equations using iteration Sk - work with general iterative processes			Topic – Mathematical movement P - Identify, describe, and construct similar shapes, including on coordinate axes, by considering enlargement (including negative scale factors)			Topic – Algebraic proficiency: tinkering P - interpret the succession of two functions as a ‘composite function’ P - interpret the reverse process as the ‘inverse function’		Topic – Algebraic proficiency: visualising I S - Explore graphs of exponential functions S - Explore graphs of trigonometric functions Sk - Investigate the connections between graphs of functions and their translations P - Manipulate quadratic functions P- Solve problems involving graphs of quadratic functions Sk - Explore rates of change				Topic – Mathematical movement II Sk - use vectors to construct geometric arguments and proofs						
	Assessment- Y11 December Mock exams							Assessment- Y11 March Mock exams											