Curriculum Plans: Year 11 Sets 2 & 3

Term	Topic	Knowledge: By the end of the unit students will know:	Skills: What skills will students have developed by the end of this unit?	Key terms: What new key terms and vocabulary will be learnt in this unit?	Summative Assessment: How will pupils be assessed in this unit?
Michaelmas 1	Algebra, quadratics Algebra, simultaneous equations Algebra, completing the square	Removing brackets and factorising Factorising quadratic expressions of the form $ax^2 + bx + c$ including the difference of two squares Solving quadratic equations by factorising Solving simultaneous equations by elimination and substitution Solving simultaneous equations graphically Forming then solving simultaneous equations Solving quadratic equations by completing the square and using the quadratic formula	Expanding brackets, factorising linear expressions. Methods for factorising quadratics including the difference of two squares. Techniques for solving quadratic equations by factorising. Techniques for solving simultaneous equations using elimination and substitution. Methods for solving simultaneous equations graphically. Forming and solving simultaneous equations from given problems. Completing the square and using the quadratic formula to solve equations.	Factorising, expansion Quadratic expressions, difference of two squares Factorising method Elimination, substitution, simultaneous equations Graphical methods, Completing the square, quadratic formula	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. Half term test in the final week of the half term to formally assess students in all areas covered.

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	Algebra	Deduce turning points and the symmetrical property of a quadratic by completing the square	Understanding turning points and symmetry from a completed square form.	Turning point, symmetry	
		Solve problems by first forming quadratic equations	Applying quadratic equations to problem-solving contexts.	Quadratic, Linear	
		Solve simultaneous equations consisting of one quadratic and one linear equation	Solving problems involving one linear and one quadratic equation.		
		Use algebra to prove number statements and disprove number statements using a counter example	Using algebraic proof and understanding counterexamples.	Algebraic proof, counterexample	
	Data Handling	Understanding the handling data cycle and carrying out effective data collection	The handling data cycle and effective data collection methods.	Handling data cycle, data collection	
		Identifying different types of data including qualitative, quantitative, discrete, continuous, primary, and secondary data	Recognising different data types and their properties.	Qualitative, quantitative, discrete, continuous, primary, secondary data Sampling methods, bias, random	

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		Understanding different sampling methods and identifying possible bias Calculating stratified samples Drawing and interpreting histograms, calculating frequency density	Different sampling techniques and identifying biases. The process of calculating a stratified sample. Drawing histograms and calculating frequency density.	Stratified sample Histogram, frequency density	
Michaelmas 2	Algebra Indices Number Algebra	How to change the subject where the new subject appears once or more than once. The rules of index notation and how to multiply, divide, and raise powers. How to work with negative indices and evaluate expressions with fractional indices. How to find fractions of quantities, order, simplify, add, subtract, multiply, and divide fractions. How to add, subtract, multiply, and divide	Ability to rearrange formulas and expressions to make a different variable the subject. Application of index laws in simplifying expressions and solving problems involving powers. Competence in handling negative and fractional indices in algebraic and numerical expressions. Proficiency in handling different operations with fractions, both numerical and algebraic.	Subject, rearrange, transpose, formula. Index notation, power, exponent, multiply, divide. Negative indices, fractional indices, exponentiation. Fraction, numerator, denominator, reciprocal. Algebraic fractions,	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. Mock examinations in the final weeks of the half term to formally assess students in all areas covered in the GCSE.

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		algebraic fractions and solve equations with algebraic denominators.	Skill in manipulating and solving equations involving algebraic fractions.	common denominator, factorising.	
Lent	Shape, Pythagoras and trigonometry	How to use coordinates to represent points in 3D space and apply Pythagoras and trigonometric principles in 3D problems.	Ability to navigate 3D coordinate systems and apply geometric and trigonometric principles in three dimensions.	3D coordinates, Pythagoras, trigonometry, space.	Weekly homework set via Sparx Maths which is connected to each scheme of work and creates questions that are a combination of retrieval and current content. A second round of Mock examinations around Easter, assessing the full content of the Maths GCSE course.
	Co-ordinate Geometry	The equation of a circle with its centre at the origin and how to find the equation of a tangent to a circle.	Skills in deriving equations for circles and tangents from given points or conditions.	Circle equation, tangent, origin.	
	Shape, vectors	How to express positions and lines using vectors and solve geometric problems involving vectors.	Proficiency in representing and manipulating vectors to solve geometric problems.	Vector, scalar, magnitude, direction.	
	Shape, Trigonometry	How to calculate sine, cosine, and tangent values for angles greater than 90°, and draw graphs of these trigonometric functions.	Competence in working with trigonometric values and functions beyond right angles, including graphing.	Sine, cosine, tangent, periodic, amplitude.	
		How to apply the sine and cosine rules to find unknown lengths and angles in any triangle, and	The ability to solve problems involving any triangle using the sine and cosine rules and calculate areas effectively.	Sine rule, cosine rule, triangle, angle, side.	

		calculate the area of any triangle.			
	Algebra, functions	The use of function notation, understanding of inverse and composite functions, and how to sketch transformed graphs of functions.	Understanding and using function notation and transforming graphs using different transformations.	Function notation, inverse, composite, transformation.	
	Algebra, iteration	How to find approximate solutions to equations numerically using iteration methods.	Skill in applying numerical methods for finding approximate solutions to equations.	Iteration, approximation, numerical solution.	
	Number, surds	How to simplify surds and rationalise denominators in mathematical expressions.	Capability to work with surds, simplifying and rationalizing expressions accurately.	Surds, rationalisation, denominator, simplify.	