

Key Stage 5 – YEAR 12 A level Maths
Curriculum Map for Students

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Topic Overview	Surds, Indices, Algebra, Trigonometry	Co-ordinate Geometry and Binomial Expansion + Vectors	Algebraic Methods Exponentials and Logs. Differentiation	Natural logs and “e” Applications of Differentiation. Integration Applied Topic Mechanics Modelling	Mechanics -Constant Acceleration. Forces and Motion. Statistics -Data collection and Sampling Measures of Location Spread. Data Representation	Mechanics- Forces and Motion Continued. Variable Acceleration. Statistics. Probability, Probability Distributions. Hypothesis Testing	
Focus	<p>Rules for manipulating and evaluating Indices and Surds.</p> <p>Applications of Quadratics. Solving quadratic equations, Completing the square. Use of the discriminant. Modelling using quadratic functions.</p> <p>Solving Simultaneous Equations (linear and quadratic). Linear and quadratic inequalities and regions.</p> <p>Graphs of quadratic, cubic, quartic and reciprocal functions and their points of intersection.</p> <p>Trigonometry. Using Sine Rule, Cosine Rule etc to solve Triangles.</p> <p>Trig Graphs</p> <p>Trig Identities and Equations</p>	<p>Transformations of Graphs</p> <p>Co-ordinate geometry, Straight Line Graphs. Gradients, $y=mx+c$ Equation of a circle, Tangents. Points of intersection.</p> <p>Binomial Expansion for integer powers of n.</p> <p>Pascals triangle, factorial notation. Solving numerical problems using binomial expansion.</p> <p>Vectors in 2 dimensions. Notation, Magnitude and direction. Position vectors, Relative position and velocity vectors.</p>	<p>Problem solving with Vectors</p> <p>Algebraic fractions, Factor Theorem, Polynomial division, (+ or Grid method) Mathematical proof.</p> <p>Differentiation from 1st principles. Rules for differentiating individual algebraic terms. Gradients Tangents and normal</p> <p>Exponential functions, logarithms. Log laws.</p>	<p>Solving equations using logs and exponentials. Use of natural logs and “e”</p> <p>Using Logs to find constants in non-linear relationships using $y = mx + c$</p> <p>Stationary points, Use of 2nd derivative. Max min points. Modelling and problem solving.</p> <p>Integrating single algebraic term. Indefinite integrals</p> <p>Definite Integrals. Area under a curve. Using addition and subtraction to find Areas between curves or curves and lines.</p> <p>Areas under the x axis.</p> <p>Modelling +Assumptions. Quantities, Units Vectors</p>	<p>Solving equations using logs and exponentials. Use of natural logs and “e”</p> <p>Using Logs to find constants in non-linear relationships using $y = mx + c$</p> <p>Stationary points, Use of 2nd derivative. Max min points. Modelling and problem solving.</p> <p>Integrating single algebraic term. Indefinite integrals</p> <p>Definite Integrals. Area under a curve. Using addition and subtraction to find Areas between curves or curves and lines.</p> <p>Areas under the x axis.</p> <p>Modelling +Assumptions. Quantities, Units Vectors</p>	<p>Displacement, velocity Time graphs.</p> <p>Constant Acceleration Formulas.</p> <p>Vertical motion under gravity.</p> <p>Force Diagrams</p> <p>$F=ma$. Forces as vectors.</p> <p>Motion in 2 dimensions.</p> <p>Populations, Sampling Methods.</p> <p>Types of Data.</p> <p>Large Data Set</p> <p>Measures of Location and Spread. Interpolation.</p> <p>Coding.</p> <p>Cumulative Frequency.</p> <p>Box Plots including outliers. Histograms.</p> <p>Comparing Data</p> <p>Correlation and Linear Regression.</p>	<p>Connected Particles and Pulleys</p> <p>Variable Acceleration. Use of Differentiation and Integration.</p> <p>Independent Events, Probability Laws. Use of Venn and Tree Diagrams to solve Problems.</p> <p>Probability Functions. Binomial Model. Cumulative Binomial Probabilities.</p> <p>Hypothesis Testing. Null and Alternative Hypothesis. Critical values and regions.</p> <p>Pure Book 2</p> <p>Proof by Contradiction</p> <p>Partial Fractions</p> <p>Arithmetic +Geometric sequences. Nth term. Sum of “n” terms. Sum to infinity of a GP.</p> <p>Sigma Notation.</p> <p>Recurrence Relations</p>
Assessment		Assessment 1 Ch1-4,9,10 Ch4 (4.1-4.4) only	Assessment 2 Ch4 (4.5,4.64.7) Ch5, Ch6, Ch8 Ch11 (11.1-11.4)	Assessment 3 Ch 12,13,14	Assessment 4 Applied Ch 1-4 and Ch 9, ch10 (sec10.1-10.4)	Year 12 Final Assessment (Pure and Applied A/IS papers)	

