KS5 – Year 12 – A Level Mathematics

Term	Topic Titles	Brief Overview
1	Algebraic expressions	Manipulation and simplification of expressions using algebraic techniques.
	Equations and inequalities	Solving linear, quadratic, and simultaneous equations, and solving inequalities.
	Quadratics	Analysis and solution of quadratic equations and functions.
	Graphs and transformations	Understanding and applying transformations to graphs of functions.
	Algebraic methods	Using algebra to solve problems and proofs, including the manipulation and simplification of expressions using long division and the factor theorem.
	Straight line graphs	Understanding the properties and equations of straight-line graphs.
	Modelling in mechanics	Using mathematical models to represent real-world mechanical systems.
	Constant acceleration	Analysing motion under constant acceleration using equations of motion.
	Circle geometry	Properties and equations of circles in the coordinate plane.
	Trigonometric ratios and graphs	Understanding and applying trigonometric ratios and their graphical representations.
	Data collection	Methods and techniques for gathering and sampling data.
	Measures of location and spread	Calculating and interpreting statistical measures such as mean, median, and standard deviation.
2	Trigonometric identities and equations	Using trigonometric identities to solve equations.
	Representation of data	Displaying and interpreting data using various graphical methods.
	Differentiation	Techniques and applications of finding derivatives.

	Exponentials and logarithms	Properties and applications of exponential functions and logarithms.
	Integration	Techniques and applications of finding integrals.
	Correlation	Measuring and interpreting the strength and direction of relationships between variables.
	Vectors (2D)	Representation and manipulation of vectors in two dimensions.
	Probability	Calculating and interpreting probabilities of events.
	Binomial expansion	Expanding expressions raised to a power using the binomial theorem.
3	Forces and motion	Analysis of forces and their effects on motion.
	Variable acceleration	Analysing motion when acceleration is not constant.
	Statistical distributions	Understanding and using different probability distributions.
	Hypothesis testing	Techniques for making inferences about populations from sample data.
	Radians (Year 13)	Measurement and application of angles in radians.
	Functions and graphs (Year 13)	Advanced study of functions and their graphical representations.
	Binomial expansion (Year 13)	Further exploration of the binomial theorem and its applications.