Maths Year 13 – Curriculum Overview

Intent: This course will enable pupils to understand mathematics and mathematical processes in a way that promotes confidence, fosters enjoyment, and provides a strong foundation for progress to further study. It extends their range of mathematical skills and techniques. With the application of mathematics in other fields of study and be aware of the relevance of mathematics to the world of work and to situations in society in general. They will use their mathematical knowledge to make logical and reasoned decisions in solving problems both within pure mathematics and in a variety of contexts and communicate the mathematical rationale for these decisions clearly.

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2
Core Course Topic: These topics are taught through the identified terms. They are taught in small bitesize chunks and revisited regularly.	**Pure** - Algebraic Methods (Recap) - Functions and Graphs (Recap) - Binomial Theorem (Recap) - Series and Sequences (Recap) - Trigonometry **Applied** - Regression and Correlation (Recap) - Probability (Recap) - Normal Distribution - Moments	**Pure** - Trigonometry - Parametric Equations - Differentiation **Applied** - Forces at any angle - Application of Kinematics	**Pure** - Numerical Methods - Integration **Applied** - Application of Forces - Further Kinematics	**Pure** - Vectors - Revision **Applied** - Further Kinematics - Revision
Additional support links: Here are links to additional resources which will help your child	Edexcel A-level Maths Revision - PMT Your Complete Guide to Bicen Maths and Acing your A-Levels Maths Genie • Learn A Level Maths for Free Jethwa Maths - Jethwa Maths A-LEVEL | Dr Austin Maths			
Knowledge: Included here is the specific knowledge your child will learn in detail	• Use proof by contradiction • Convert an expression into partial fractions • Using Partial fractions to expand binomial expressions • Expand (a+bx)n for any rational constant n • Sketch and transform a modulus graph • Understand and use arithmetic and geometric sequences • Finding, arc length, area of sectors and segments in radians	• Small angle Approximations and using trigonometric identities to solve equations • Convert Parametric equations into cartesian form • Use parametric equations in modelling • Differentiation using chain, product and quotient rules. • Solve problems with connected rates of change • Set up differential equations	• Generate sequences from recurrence relation • Locating roots and using iteration • Integration using reverse chain rule • Use the Newton Raphson method to find an approximation to the solutions of equations • Integration by substitution, by parts and using partials fractions • Solve and model with differential equations	• Using calculus/vectors in kinematics in 2-dimensions
	• Understand linear and exponential regression models • Finding probabilities, mean, standard deviation and hypothesis testing data with normal distribution • Understand and use conditional probability • Calculate the moments around a point	• Resolving forces	• Using friction and solving forces in equilibrium • Horizontal projectiles	
Common Lexicon: These are the key words and terms learnt. These can be found on knowledge organisers.	Contradiction, Coefficient, Improper Algebraic Fraction, Infinite Series, Sequence, Series, Arithmetic sequence, Radian, Arc Length, Sector, Segment, Bivariate Data, Variable, Interpolation, Extrapolation, Coplanar Forces, Lamina	Concave, Convex, Common ratio, Converging, Divergent, Cosecant, Secant, Cotangent, Root, Continuous function, Cartesian equation, Parametric Equation, Mutually exclusive, Intersection, Union, Complement, Resultant force, Weight	Derivative, Differential equation, Trapezium rule, coplanar vectors, magnitude, mean standard deviation, probability, standardise, Velocity, Displacement, Acceleration	Static Equilibrium, Friction, Modelling, Particles, Velocity, Acceleration, Displacement, Integration, Differentiation, Vector, Constraints