Year 12 AS/Year 1 Curriculum Overview:
Mathematics (Edexcel)

RESPECT
COURAGE
RESPONSIBILITY
KINDNESS
RESILIENCE

	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**1) Algebraic Techniques** **2) Trigonometry** **3) Coordinate Geometry** **4) Vectors** **5) Statistics – Data representation and collection** **6) Mechanics - Kinematics**	• Algebra skills from GCSE including indices, surds, quadratics and equations • The binomial expansion • The factor theorem • Sine and cosine rules • Trigonometric graphs • The equation of a straight line • Graph transformations • Vectors • Data collection, representations and restrictions • Uniform acceleration equations	Baseline assessment in September to highlight areas from GCSE which need focus. Formal assessments at the end of half term 1 and 2. One will be skills based and the other will be problem solving.	Encourage students to become independent learners. We will provide a skills breakdown following each assessment. Students are required to select their own weak areas and dedicate independent learning time to improve these skills. At this point they should be working through the exercises and mixed exercises from the textbook or integral.
Spring Term	**7) Differentiation** **8) Coordinate Geometry** **9) Exponentials and Logs** **10) Trigonometry** **11) Statistics – Probability** **12) Mechanics - Forces**	• Differentiation from first principles • Differentiating functions in the form x^n • Exponentials including modelling • Laws of logs and solving equations • Trigonometric identities and equations • Probability • Discrete Distributions • Newtons laws of motion • Problem Solving	Two further formals towards the end of each half term. Each assessment will include a skills check and problem solving.	Encourage independent study. Students find the application of skills learnt to problem solving the most challenging part of the course. Working through a range of questions, without using a mark scheme as a prompt, is beneficial. When stuck, encourage students to come to maths support where we can talk through the thought process required.
Summer Term	**13) Integration** **14) Statistics – Hypothesis Testing** **15) Variable Acceleration** **16) Proof**	• Integrating functions of the form x^n • Hypothesis Testing of the Binomial Distribution • Variable acceleration • Forming proof • Disproof by counter example • Problem Solving	External AS examinations are sat in May for those students not wanting to continue with Maths to A Level. Summer assessments will assess the full content of the AS course. These will be set using past exam questions.	Encourage independent study. Students should be working through past exam papers and using the mark schemes after they have completed questions seeking help from maths support to help develop understanding and problem-solving skills. Where students are finding a topic challenging, we would recommend returning to the exercise in the textbook before attempting exam questions again.

Year 13 Curriculum Overview:
Mathematics (Edexcel)

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**1) Sequences and Series** **2) Algebraic Methods** **3) Functions** **4) Further Trigonometry** **5) Further Differentiation** **6) Parametric Equations** **7) Statistics – Probability** **8) Mechanics – Forces** **9) Mechanics - Moments**	• Series notation and iterative process • Arithmetic Series, Geometric Series • Proof by Contradiction • Partial Fractions • Range, domain and transformations of functions • Modulus Function • Reciprocal trig functions and identities • Small angle approximations • Chain Rule, Product Rule, Quotient Rule • Implicit and parametric equations • Compound angle and double angle formulae • Conditional probability • Moments	Assessment at the start of the year to build on AS content and highlight areas of AS which still require development. Formal assessment in half term 2 made up of skills check and problem-solving questions including topics from year 12.	Encourage students to become independent learners. We will provide a skills breakdown following their AS year. It is essential that any topics found challenging from AS are addressed as soon as possible. Students are required to select their own weak areas and dedicate independent learning time to improve these skills. Working through textbook exercises, integral and AS past papers should form part of their independent study.
Spring Term	**8) Futher Integration** **9) Differentiatial Equations** **10) Vectors** **11) Binomial Expansion** **12) Numerical Methods** **13) Statistics – Normal Distributions** **14) Mechanics – Projectiles** **15) Mechanics – Further Kinematics**	• Standard integrals, Integration by substitution, integration by parts • The Trapezium Rule • Differentiatial Equations • General Binomial Expansion • Iteration • Newton-Raphson Method • Normal Distribution, approximating a Binomial Distribution, Hypothesis testing • Projectiles	Mocks will be set up to replicate the final exams with all content taught through AS and up to January of year 13 on the papers. Students will sit two papers: Paper 1 will assess pure and statistics and paper 2 will assess pure and mechanics.	Encourage independent study. Students find the application of skills learnt to problem solving the most challenging part of the course. Working through a range of questions, without using a mark scheme as a prompt, is beneficial. When stuck, encourage students to come to maths support where we can talk through the thought process required.
Summer Term	**16) Recap and Revision**		External are sat in May and June. We have three papers. Paper 1: Pure Mathematics Paper 2: Pure Mathematics Paper : Statistics and Mechanics Any topic from year 12 and 13 can be assessed with the pure content coming up in any of the first two papers.	Encourage independent study. Students should be working through past exam papers and using the mark schemes after they have completed questions seeking help from maths support to help develop understanding and problem-solving skills. Where students are finding a topic challenging, we would recommend returning to the exercise in the textbook before returning to exam papers.