	Intent: Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.		
Mathematics			
Year 13	**Pure**	**Statistics**	**Mechanics**
Knowledge (facts, information, concepts and key terminology)	Proof, Algebraic and Partial Fractions, Functions and Modelling, Sequences and Series, The Binomial Theorem, Parametric Equations, Differentiation, Integration, Numerical Methods, Vectors	Regression and Correlation, Probability, The Normal Distribution.	Moments, Forces at any Angle, Applications of Kinematics, Application of Forces, Further Kinematics.
Understanding (ability to connect and synthesise knowledge within a context)	The fundamental skills required to solve the most complex mathematical problems. That different topic areas can support one another when building an in-depth solution.	Mathematical models can be used to represent bivariate data. How further information given or requested can alter a probability calculation. Common distributions used for continuous data and similarities and differences with the binomial distribution.	How techniques met in Year 12 have developed to allow for a more sophisticated model. The impact of turning forces when factored into real-life situations. Pure mathematical techniques can be applied to complex mechanical calculations.
Skills (successful application of knowledge and understanding to a specific task)	To read information, identify the relevant mathematical topic and fluently apply the correct procedure to solve contextual problems.	Create statistical models for a given set of data. Use models to predict outcomes and evaluate the accuracy and likelihood of such outcomes. Apply formulae to calculate probabilities. Use key statistics to model real-world problems using the normal distribution and calculate probabilities using the model.	Select appropriate methods to solve multi-stage problems in a context. Draw and develop force diagrams, using them to model real-life situations. Critique and refine mathematical models based upon understanding of mechanical principles.
Formal Assessments (those done by all/vast majority of the cohort)	2 x Mock Assessments Assessed homeworks		

By the end of the year students on course for at least a grade C will be able

• Recall or recognise many of the mathematical facts, concepts, techniques and standard models required and sometimes select appropriate ones to use in a variety of contexts.

• Manipulate mathematical expressions with few errors and sometimes use graphs, sketches and diagrams appropriately.

• Sometimes use mathematical language and notation with confidence.

• Sometimes construct extended arguments and proofs.

• Sometimes make correct deductions and inferences, and sometimes draw correct conclusions and recognise incorrect reasoning.

• Sometimes devise and implement a solution strategy in previously unseen unstructured problems.

• Occasionally notice and correct errors made in calculations or logic.

• Recall or recognise many of the standard models and sometimes select appropriate ones to apply to a variety of familiar situations in the real world.

• Sometimes refer the results of problem solving back to the given context and, as required, sometimes make interpretations, comments, evaluations or predictions and note limitations.

• Sometimes make reasoned, sometimes correct comments on modelling assumptions, outcomes and limitations, evaluate and suggest possible refinements to the model.

Term 1	Term 2	Term 3
- Proof - Algebraic and Partial Fractions - Trigonometry - Differentiation - Functions and Modelling - Sequences and Series - The Binomial Theorem - Parametric Equations - Integration	- Differentiation - Numerical Methods - Vectors - Regression and Correlation - Probability - The Normal Distribution - Integration - Moments - Forces at any angle - Applications of kinematics	- Applications of Forces - Further Kinematics - Revision and preparation for final assessments