The English Martyrs Catholic School and Sixth Form College

Year 12 Maths	Module 1	Module 2	Module 3
Topic Theme and Intent	Module 1 focuses on deepening the students' algebraic knowledge as this is an important part of the course.	Students cover the majority of the Statistics Year 1 content in this module.	Students cover the majority of the Mechanics Year 1 content in this module.
Knowledge	- Recap on the trigonometric ratios and how to apply correctly. - Know how to solve problems involving equation of a straight line $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ and the uses of the discriminant. - Graph transformations and their uses. - Know how to expand brackets with a higher power using the Binomial expansion, solve equations/inequalities graphically (and by using their calculator). - Study Circle and straight line geometry both algebraically and graphically. - Put indices in a specific form which will allow students to differentiate and integrate.	- How to calculate, the mean, variance and standard deviation from a set of data. - The definitions of qualitative and quantitative data and a knowledge of the sampling methods. The definition of Mutually exclusive events and independent events. - Understand when a Binomial distribution is appropriate. Know the difference between P(X=a) and P(X<a). - Be able to perform a Hypothesis Testing with the Binomial Distribution.	- Use the base SI units most commonly used in Mechanics. - Know the difference between a vector and a scalar - Know the definitions of distance/displacement/speed/velocity - Velocity is the rate of change of displacement - Acceleration is the rate of change of velocity - SUVAT equations - Know that gravity= 9.8 m/s^2 to 1dp.
Skills	- How to use a graphical calculator to find roots/intersections etc. - How to use their calculator to solve polynomials and inequalities, find the mean and standard devation, how to solve linear simultaneous equations.	- How to use the 'chose' button on the calculator and what this actually gives you. - How to use the Distributions key on the 991- the difference between Binomial Probability and Cumulative Distribution.	- How to use the calculator to find the area under a curve - How to plot a graph on a graphical calculator and use this to find the area underneath
Literacy Links	**Reading Skills** Always check the question to make sure all solution given are appropriate. **Writing Skills** Write the Binomial Expansion in ascending power unless told otherwise.	**Reading Skills** Interpret the information in the text which allows you to form your null and alternative hypothesis **Writing Skills** Use the correct units when giving the mean and standard deviation	**Reading Skills** Scan the text for the key information which will allow the SUVAT equations to be used. Select the correct equation from the formula booklet. **Writing Skills** Make sure to give the correct units for acceleration, force, velocity, displacement.
Essential Vocabulary	Base/index, Expression, Equation, Rationalise, Conjugate pairs, Range, Discriminant, Solutions, Translation, Asymptote, Coefficient	Estimate, Mean, Midpoint, Standard deviation, Median, Counter example, Coefficient, Approximation, Region, Resultant	Velocity, Acceleration, Displacement, Distance, Speed, Starting/Final velocity, Units, Vector, Weight, Gravity, Mass, Force, Pulley, Motion

Disciplinary Reading   **Reading for Pleasure**
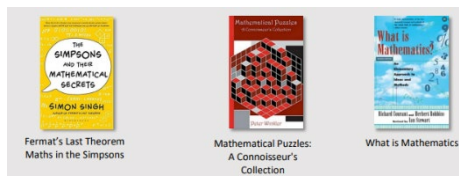
Fermat's Last Theorem
Maths in the Simpsons

Mathematical Puzzles:
A Connoisseur's
Collection

What is Mathematics