

Year 13 Further Maths A Level

Subject and Year Group	Autumn 1 Year 13	Autumn 2 Year 13	Spring 1 Year 13	Spring 2 Year 13	Summer 1 Year 13
Topic/Unit to be studied	- Series - Complex numbers - Polar Coordinates	- Complex numbers - Hyperbolic Functions - AS to A2 Decision	- Methods in Calculus - AS to A2 Mechanics	- Differential equations - Modelling with DE	- Volume of Revolution - Review of key topics and year 12 content. - Exam preparation.
Core Knowledge and skills	- The Method of Differences - Maclaurin Series - Series expansion of compound functions - Exponential Form $x \div$ of complex - Coordinate form - Equations (polar form) - Sketch graph. - Area of Polar Curves. - Tangents to Curves.	- De Moivre's Theorem - Trig Identity - Sum of series nth Roots - Graphs of $\sinh$, $\cosh$, $\tanh$, sech, cosech, $\coth$ - Inverse Hyperbolics - Identities and solving Equations - Differentiating - Integrating. - Planarity Algorithm - Networks with 4+ Nodes - Travelling Salesman Problem - The Simplex Algorithm - Critical Path Analysis - - Resource Histograms - Scheduling Histograms.	- Improper Integrals - Mean Value - Diff. Inverse trig. - Int. Inverse trig. - Int. Partial Fractions - Momentum in 2D,3D - Hooke's Law - Elastic Potential Energy - Oblique Impacts in 2D - Sphere on Sphere collisions. - Law of restitution $V_b - V_a = -e(U_b - U_a)$	1st Order DE 2nd Order homogenous 2nd Order non-homogenous. - Using Boundary conditions to move from general to particular solutions. - Modelling using 1st Order - Simple Harmonic Motion (SHM) - Damped and Forced SHM. - Coupled 1st Order DE.	- Vol around x & y axis - Vol of parametrically defined functions. - Modelling for real world applications. (e.g. Volume of a functional form cut on a lathe.)
Assessment for and of learning	Unit assessments	Unit assessments	Unit assessments Mock exam	Unit assessments	Unit assessments Final exams