Scheme of Learning – Long Term Planning

Subject: Further Mathematics A Level | **Key stage: 5**

Year	Autumn Term*	Spring Term*	Summer Term*
12	Autumn 1 **Core Pure Mathematics:** ● Complex Numbers ● Argand Diagrams ● Matrices Topic Assessment: Complex numbers and Argand Diagrams **Decision:** ● Algorithms ● Graph Theory and further Algorithms ● Route Inspection Topic Assessment: Algorithms	Spring 1 **Core Pure Mathematics:** ● Series ● Roots of a Polynomial ● Proof by Induction End of Topic Assessment **Decision:** Full Mock Assessment on Decision Mathematics **Statistics:** ● Discrete Random Variables	Summer 1 **Core Pure Mathematics:** ● Volumes of Revolution FULL Mock Pure exam **Statistics:** ● Hypothesis Testing FULL Mock FS1 exam **Decision:** ● DM1 Revision External AS Examination in Further Mathematics
	Autumn 2 **Core Pure Mathematics:** ● Matrices ● Linear Transformations End of Topic Assessment **Decision:** ● Critical Path Analysis ● Order of an Algorithm ● Linear Programming Topic Assessment: Algorithms on a Network	Spring 2 **Core Pure Mathematics:** ● Vectors Mock Pure Exam – Volumes of Revolution **Statistics:** ● Poisson Distribution ● Binomial Distribution (mean and variance) ● Chi-Squared End of Topic Assessment	Summer 2 **Core Pure Mathematics:** ● Complex Numbers End of Topic Assessment **Decision:** ● Critical Path Analysis – Resource Histograms ● Travelling Salesman ● Floyd's Algorithm ● Route Inspection – Networks with 4+ nodes ● Graphs and Networks (The planarity algorithm) End of Topic Assessment

	Autumn 1 **Core Pure Mathematics:** ● Complex Numbers ● Series: Method of Differences ● Maclaurin Series **Decision:** ● The Simplex Algorithm **Statistics:** ● Geometric and Negative Binomial Distributions ● Hypothesis testing and critical regions for geometric distribution	Spring 1 **Core Pure Mathematics:** ● Polar Co-ordinates ● Methods in Differential Equations ● Volumes of solids of Revolution up to Parametric Definition **Statistics:** ● Central Limit Theorem ● Quality of Tests	Summer 1 **Core Pure Mathematics / Decision / Statistics:** Practice Papers and revision of key topics FULL Applied Mock Examination Identification of areas for improvement and targeted teaching and practice questions.
13	Autumn 2 **Core Pure Mathematics:** ● Series Expansions of compound functions ● Hyperbolic Functions **Decision:** FULL MOCK DM1 paper **Statistics:** ● Goodness of fit tests to geometric distributions ● Probability generating functions Mock Examination: Paper 1: Further Core Pure Y12/13 to date Paper 2: FS1 Y12/13 to date	Spring 2 **Core Pure Mathematics:** ● Modelling with Volumes of Revolution ● Modelling with differential equations Year 2 Mock Pure paper (not including Methods in Calculus) ● Methods in Calculus ● Further Integration using partial fractions Supported Pure revision and practice papers **Statistics:** ● Revision FULL MOCK FS1 paper	Summer 2 External Examination