Curriculum Plan Mathematics

Year 12 FM A level	Knowledge *(Topics covered, NC links)*	Subject Skills	Literacy and Numeracy	School values *(Attitude / Achievement / Community / Endeavour)*	Extra curricular opportunities	Personal development *(Character, SMSC, Fundamental British values, Careers guidance, healthy living, Citizenship, equality and diversity, financial capability, preparation for next stage)*
Cycle 1	Pure: Complex Numbers	Algebraic manipulation.	Keywords and definitions critical to efficient communication and understanding.	Complex nature of the course develops a strong sense of Endeavour and Achievement	Wider reading of Maths non-fiction. Use of software to support and develop mathematical understanding such as Desmos.	Pure Maths: Scientific based careers and research including finance. Develops strong analytical skills which can be applied to careers, research and societal development.
	Pure: Argand Diagrams	Using equations, graphs and loci.				
	Pure: Roots of Polynomials	Algebraic manipulation. Solving equations.				
	Pure: Matrices	Use of trigonometry and transformations				
	Statistics: Discrete Random Variables	Mean, variance. Probability	Interpreting and evaluating using statistics and its			Statistics: Applications in sciences and humanities. Furthers the understanding of social issues through the use of statistics and probability.

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			applications to real world scenarios			
	Decision: Algorithms	Logic, flow diagrams, basic computer programming	Interpreting real world scenarios and the application of decision maths			Decision: Applications across many fields with its analysis and solutions to network and optimisation problems. Strong link to Computer Science.

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Cycle 2	Pure: Linear transformations	Transformations, coordinates, equations of lines				
	Pure: Series	Use of formulas. Algebraic manipulation.				
	Pure: Proof by Induction	Algebraic manipulation. Iteration. The principle of showing if something is true.				

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	Statistics: Poisson Distribution	Model real world scenarios. Critically comment. Use probability and distributions. Mean and Variance. Approximate.				
	Decision: Graphs and Networks	Model scenarios. Draw sketches. Use tables.				
	Decision: Algorithms on Graphs	Follow multi step decision processes. Use an algorithm. Interpret real world scenarios.				
	Decision: Route Inspection	Follow multi step decision processes. Use an algorithm. Interpret real world scenarios.				

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Cycle 3	Pure: Vectors	Vectors, algebra, coordinate geometry.				
	Pure: Volumes of Revolution	Integration, volume, modelling, interpreting solutions.				

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	Statistics: Hypothesis Testing	Interpreting real world scenarios. Use probability distribution.				
	Statistics: Chi-Squared Tests	Use formulas and series. Apply results to different probability distributions				
	Decision: Linear Programming	Form equations from real world scenarios. Solve simultaneous equations and inequalities. Plot equations of straight lines. Find optimal solutions.				
	Decision:Critical Path Analysis	Modelling real world scenarios involving time based organisational problems to find optimal solutions. Use diagrams and tables to support.				