Curriculum Map 2021-2022

Subject: A Level Maths

YEAR 12	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content Knowledge Skills	**CORE PURE** **Complex numbers** ● Complex numbers ● Argand Diagrams **DECISION** **Algorithms and Graph Theory** ● Flow charts ● Sorting algorithms ● Graph theory ● Planetary theorem ● Prims and Kruskals ● Flyod's algorithm **DECISION Route Inspection** ● Eulerian graphs ● Route inspection	**CORE PURE Series** ● Natural numbers ● Squares and cubes **CORE PURE Roots of Polynomials** ● Quadratics ● Cubics ● Quartics ● Transformations **DECISION** **Travelling salesman** ● Minimum spanning tree upper and lower bounds ● Nearest neighbour algorithm **DECISION Linear Programming** ● Linear programming problems ● Graphing ● Optimal point	**CORE PURE** **Matrices** ● Matrix multiplication ● Determinants ● Inverting matrices ● Solving systems **CORE PURE Linear Transformations** ● Two dimensions ● Three dimensions ● The inverse **DECISION** **Simplex Algorithm** ● Simplex method ● Two stage simplex ● Big M Method **DECISION Critical Paths Analysis** ● Critical Paths ● Gantt charts ● Resource histograms ● Scheduling diagrams	**CORE PURE** **Vectors** ● Equation of lines and planes in 3D ● Scalar product ● Angles ● Perpendiculars ● Points of intersection **CORE PURE Proof by Induction** ● Mathematical Induction ● Divisibility results ● Matrices **FURTHER MECHANICS** **Momentum and Impulse** ● Conservation of momentum ● Impulse ● Vectors **FURTHER MECHANICS** **Work, Energy & Power** ● Work done ● Kinetics and potential energy ● Work energy	**CORE PURE** **Volumes of Revolution** ● Around the a and y axis ● Adding and subtracting volumes ● Modelling **FURTHER MECHANICS** **Elastic Strings and Springs** ● Hooke's law ● Elastic energy **FURTHER MECHANICS** **Elastic Collision in 1D** ● Direct collisions ● Loss of Kinetic Energy ● Successive impacts **FURTHER MECHANICS** **Elastic Collision in 2D** ● Oblique impacts ● Successive impact **PURE**	**PURE** **Trigonometry** ● Formula ● Trig Identities ● Trig equations ● Parametric equations **PURE Calculus** ● Differentiation ● Integration

				principle ● Conservation of mechanical energy ● Power	**Trigonometry** ● Formula ● Trig Identities	
Key Questions						
Assessment AO1: Use and apply standard techniques. AO2: Reason, interpret and communicate mathematically AO3: Solve problems within mathematics and in other contexts	Summer Transition work Baseline Tests Topic Tests Consolidation exam questions at the end of every lesson	Topic Tests Consolidation exam questions at the end of every lesson	Topic Tests Consolidation exam questions at the end of every lesson	Practice Mocks Topic Tests Consolidation exam questions at the end of every lesson	Practice Mocks Topic Tests Consolidation exam questions at the end of every lesson	End of Year Mocks Topic Tests Consolidation exam questions at the end of every lesson
Literacy/numeracy/SMSC/ Character	Mathematics is a creative and highly interconnected 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.					
Enrichment opportunities and futures	Thanks to the growing importance placed on technology, big data and economic efficiency by all kinds of organizations, expert number crunchers are increasingly in demand. According to the US Bureau of Labour Statistics, between 2012 and 2022, the job market for mathematicians is expected to grow by a whopping 23%, with a predicted median salary of US$110,000 (£87,660). Those who study maths are keen problem solvers, eager to make sense of even the most advanced equations. Academic research is a common career path, but so too are careers in business, economics and banking. This wide range of opportunities comes from the universal need for graduates with strong analytical and problem solving skills – which math graduates should have by the bucket load.					
YEAR 13	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	

Content Knowledge Skills					
Key Questions					
Assessment AO1: Use and apply standard techniques. AO2: Reason, interpret and communicate mathematically AO3: Solve problems within mathematics and in other contexts	Baseline Mock Topic Tests Consolidation exam questions at the end of every lesson	Topic Tests Consolidation exam questions at the end of every lesson	Mock exams Topic Tests Consolidation exam questions at the end of every lesson	Practice Mocks in Statistics and Mechanics Topic Tests Consolidation exam questions at the end of every lesson	External AS Exams: 2 papers in Core Pure, then a minimum of two options: 1 paper in Further Pure, 1 paper in Further Mechanics and 1 paper in Decision
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