Year 13 A Level ~ Curriculum Map for Maths

	What are the intended aims for this year's curriculum? To extend on the A Level knowledge learnt in year one of the A Level course. To revise the year 12 content in preparation for their exam.					
	Term 1	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
	Topic(s): Pure Maths & Applied: Statistics	Topic(s): Pure Maths & Applied: Mechanics	Topic(s): Pure Maths	Topic(s): Pure Maths	Topic(s): Revision	Topic(s): Revision
'Big idea(s)' / fundamental concepts	<u>Pure</u> Proof Trigonometry Sequences and Series <u>Applied</u> The binomial distribution The normal distribution Conditional probability Venn & Tree Diagrams Hypothesis Testing	<u>Pure</u> Differentiation Trigonometric Functions Further Algebra <u>Applied</u> Kinematics Forces and Motion Moments of Rigid Forces Projectiles Friction	<u>Pure</u> Functions Trigonometric Identities Further Differentiation Integration Parametric Equations	<u>Pure</u> Vectors Differential Equations Numerical Methods Revision Pure and Applied	Revision papers in class to prepare students for their upcoming exams on 5th, 12th and 14th June.	Revision papers in class to prepare students for their upcoming exams on 5th, 12th and 14th June.
Knowledge to be learnt	<u>Pure</u> Methods of proof: proof by contradiction, proof by exhaustion etc. Radians Circular measure Small angle approximations Arithmetic sequences and series Geometric sequences and series <u>Applied</u> The probability of events from two experiments Conditional probability Discrete random variables The normal distribution Interpreting sample data using the normal distribution Bivariate data: correlation and association	<u>Pure</u> The shape of curves The chain rule Connected rates of change The product and quotient rules Reciprocal trigonometric functions Trigonometric equations and identities Solving equations involving radians <u>Applied</u> Motion in two or three dimensions for kinematics Forces in equilibrium Finding resultant forces Newton's second law in two dimensions Rigid bodies Equations for projectile motion Projectile problems The path of a projectile A model for friction	<u>Pure</u> Composite functions Inverse functions The modulus functions Understand the language of functions Compound angle formulae Double angle formulae The forms rcosΘ and rsinΘ Differentiating exponentials and logarithms Differentiating trigonometric functions Implicit differentiation Finding areas by integrating Integration by substitution Integration involving natural logarithm Integration by parts Graphs from parametric equations Finding the equation by eliminating Parametric differentiation Parametric integration	<u>Pure</u> Vector notation Using vectors to solve problems First order differential equations Solving differential equations by separating the variables. Solving equations numerically The Newton-Raphson method Numerical integration Revision for Pure and Applied Topics to include: Coordinate Geometry The sine and cosine rules Equations Inequalities Surds and indices Exponentials and logarithms Polynomials	Revision of all year 12 and 13 content Exam papers to be completed in class.	Revision of all year 12 and 13 content Exam papers to be completed in class.
Key vocabulary	Contradiction, counter-example, deduction, exhaustion, sine, cosine, radians, sector, arithmetic, geometric, periodic, mutually exclusive, independent, trials, discrete, continuous, uniform, continuity correction, null, alternative, critical value.	Tangent, normal, stationary, inflection, chain rule, product rule, quotient rule, reciprocal, radians, identities, partial fraction, displacement, distance, velocity, speed, acceleration, equilibrium, resultant, rigid, centre of mass, projectile, friction.	Degree, one-to-many, many-to-one, many-to-many, composite, inverse, modulus, identity, compound angle, double angle, implicit, indefinite, definite, parameter, cartesian, parametric, turning points.	Scalar, vector, parallel, component, order, particular solution, general solution, position, interval bisection, root, solution, numerical method, iteration, staircase and cobweb diagrams, Newton-Raphson method, trapezium rule, upper bound, lower bound.	All of the key vocab used so far this year.	All of the key vocab used so far this year.
The role of reading and comprehension	Decoding exam questions that are set for homework and starters to decide what method to use.	Decoding exam questions that are set for homework and starters to decide what method to use.	Decoding exam questions that are set for homework and starters to decide what method to use.	Decoding exam questions that are set for homework and starters to decide what method to use.	Decoding exam questions that are set for homework and starters to decide what method to use.	Decoding exam questions that are set for homework and starters to decide what method to use.
The role of independent extended writing	N/A	N/A	N/A	N/A	N/A	N/A
The role of maths/ numeracy	Embedded	Embedded	Embedded	Embedded	Embedded	Embedded
Links to careers/ aspirations	Statistician, Carpenter, Maths Teacher, Statistical Analyst, Actuary, Data Scientist, Market researcher.	Quantum Mechanics, Mechanics, Naval Career, Nuclear Scientist, Oceanographer, Operational Research.	Mathematics Teacher/Lecturer, Medical Scientists, Aerospace Engineers, Safety Engineers.	Fluid dynamics, Financial Modelling.	All of the previous careers/aspirations	All of the previous careers/aspirations
Core skills *A skill is a performance built on what a person knows*	<u>Pure</u> Proof Trigonometry Sequences and Series <u>Applied</u> The binomial distribution	<u>Pure</u> Differentiation Trigonometric Functions Further Algebra <u>Applied</u> Kinematics	<u>Pure</u> Functions Trigonometric Identities Further Differentiation Integration Parametric Equations	<u>Pure</u> Vectors Differential Equations Numerical Methods Revision Pure and Applied	Revision papers in class to prepare students for their upcoming exams on 5th, 12th and 14th June.	Revision papers in class to prepare students for their upcoming exams on 5th, 12th and 14th June.

	The normal distribution Conditional probability Venn & Tree Diagrams Hypothesis Testing	Forces and Motion Moments of Rigid Forces Projectiles Friction				
Dept. enrichment activities	UKMT Senior Maths Challenge	Optional Kent University Sessions on Saturday mornings	N/A	University Lecturer Talk	Revision Sessions	Revision Sessions
Home learning opportunities	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.	Extended study/practise of topics covered in class. Exam solutions website could be used to see model solutions for exam questions.