

Year 12 A Level ~ Curriculum Map for Maths

What are the intended aims for this year's curriculum? To begin the A Level Maths two-year course. To extend the idea's learnt at GCSE and introduce new concepts and ideas.						
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
	Topic(s): Pure Maths	Topic(s): Pure Maths	Topic(s): Pure Maths	Topic(s): Pure Maths	Topic(s): Applied Maths	Topic(s): Applied Maths
'Big idea(s)' / fundamental concepts	Problem Solving Surds and Indices Quadratic Functions Equations and Inequalities	Coordinate Geometry Trigonometry Polynomials Graphs and Transformations	The Binomial Expansion Differentiation Integration	Vectors Exponentials and Logarithms Revision Pure Topics	Data Collection Data processing, presentation and interpretation Probability Kinematics	The Binomial Distribution Statistical Hypothesis Testing Forces and Newtons laws of motions Variable acceleration
Knowledge to be learnt	Solving problems whilst writing mathematics Proofs Using and manipulating surds Working with negative and fractional indices Quadratic Graphs and equations The completed square form The quadratic formula Simultaneous equations Inequalities, drawing, solving quadratic	Working with coordinates The equation of a straight line The intersection of two lines The circle The intersection of a circle and a line Trigonometric functions Solving equations using trig functions Triangles without right angles The area of a triangle Polynomial expressions Dividing polynomials Polynomial equations The shapes of curves Using transformations to sketch curves The equation of a transformed curve	Binomial expansions Selections from binomial expansions The gradient of a tangent as a limit Differentiation using standard results Tangents and normal Increasing and decreasing functions Turning points Sketching gradient functions Higher order derivatives Finding the gradient from first principles Using integration to find areas Areas below the x axis Further integration between curves and straight lines.	Working with vectors Vector geometry Exponential functions Logarithms and their rules The natural logarithm Modelling curves using exponentials and logs Revision of all of the previous pure content.	Using statistics to solve problems Sampling methods Presenting different types of data Ranked data Discrete numerical data Continuous numerical data Bivariate data Standard deviation Working with probability Probability distributions The language of motion Speed and velocity Acceleration Using area's to find distances and displacements The constant acceleration formulae	Binomial distribution properties and uses The principles and language of hypothesis tests Using basic hypothesis tests for binomial situations Force diagrams Force and motion Forces and pulleys Applying Newton's second law along a line Newton's second law for connected objects Using differentiation for variable acceleration Using integration The constant acceleration formulae revisited.
Key vocabulary	Contradiction, counter-example, deduction, exhaustion, rational, irrational, turning point, stationary, quadratic, cubic.	Circle, parallel, perpendicular, sine, cosine, identities, stretch, factor theorem, line segment.	Uniform, probability, tangent, normal, stationary, inflection, indefinite, definite, pascals triangle.	Scalar, vector, parallel, component, natural logarithm, exponent, base,	mutually exclusive, independent, trials, displacement, distance, velocity, speed, acceleration,	discrete, continuous, uniform, continuity correction, null, alternative, critical value.
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	Actuaries, air traffic controllers, architects, computer engineers and analysts, economists, market research analysts, dietitians and nutritionists, engineers.	Carpenter, electrical engineer, architect, structural engineer.	Fluid dynamics, Financial Modelling.	Quantum Mechanics, Mechanics, Naval Career, Nuclear Scientist, Oceanographer, Operational Research.	Statistician, Carpenter, Maths Teacher, Statistical Analyst, Actuary, Data Scientist, Market researcher. Quantum Mechanics, Mechanics, Naval Career, Nuclear Scientist, Oceanographer, Operational Research.	Statistician, Carpenter, Maths Teacher, Statistical Analyst, Actuary, Data Scientist, Market researcher. Quantum Mechanics, Mechanics, Naval Career, Nuclear Scientist, Oceanographer, Operational Research.
Core skills <i>A skill is a performance built on what a person knows</i>	Solving problems whilst writing mathematics Proofs Using and manipulating surds Working with negative and fractional indices Quadratic Graphs and equations The completed square form The quadratic formula Simultaneous equations Inequalities, drawing, solving quadratic	Working with coordinates The equation of a straight line The intersection of two lines The circle The intersection of a circle and a line Trigonometric functions Solving equations using trig functions Triangles without right angles The area of a triangle Polynomial expressions Dividing polynomials Polynomial equations The shapes of curves Using transformations to sketch curves The equation of a transformed curve	Binomial expansions Selections from binomial expansions The gradient of a tangent as a limit Differentiation using standard results Tangents and normal Increasing and decreasing functions Turning points Sketching gradient functions Higher order derivatives Finding the gradient from first principles Using integration to find areas Areas below the x axis Further integration between curves and straight lines.	Working with vectors Vector geometry Exponential functions Logarithms and their rules The natural logarithm Modelling curves using exponentials and logs Revision of all of the previous pure content.	Using statistics to solve problems Sampling methods Presenting different types of data Ranked data Discrete numerical data Continuous numerical data Bivariate data Standard deviation Working with probability Probability distributions The language of motion Speed and velocity Acceleration Using area's to find distances and displacements The constant acceleration formulae	Binomial distribution properties and uses The principles and language of hypothesis tests Using basic hypothesis tests for binomial situations Force diagrams Force and motion Forces and pulleys Applying Newton's second law along a line Newton's second law for connected objects Using differentiation for variable acceleration Using integration The constant acceleration formulae revisited.
Dept. enrichment activities	UKMT Senior Maths Challenge	Optional Kent University Sessions on Saturday mornings	N/A	University Lecturer Talk	Revision Sessions	Revision Sessions

