

Curriculum Map Year 13: A LEVEL MATHEMATICS

Topic Name	Term	Skills developed with link to NC Subject content	Reflection on previous link in the curriculum	Progress to future link in the curriculum
Pure Maths: Functions and graphs	<i>Autumn HT1</i>	<ul style="list-style-type: none"> • The modulus function • Functions and mappings • Composite functions • Inverse functions • Combining transformations • Solving modulus problems 	<i>Year 12: Graphs and transformations</i>	<i>Year 13: Parametric equations</i>
Pure Maths: Sequences and series	<i>Autumn HT1</i>	<ul style="list-style-type: none"> • Arithmetic sequences and series • Geometric sequences and series • Sum to infinity • Sigma notation • Recurrence relationships • Modelling with series 	<i>GCSE: Sequences Year 12: Logarithms</i>	<i>Examination practice</i>
Pure Maths: Binomial expansion	<i>Autumn HT1</i>	<ul style="list-style-type: none"> • Expanding $(1 + x)^n$ • Expanding $(a + bx)^n$ • Using partial fractions 	<i>Year 12: Binomial Expansion</i>	<i>Examination practice</i>
Statistics: Regression, correlation and hypothesis testing	<i>Autumn HT1</i>	<ul style="list-style-type: none"> • Exponential models • Measuring correlation • Hypothesis testing for zero correlation 	<i>Year 12: Correlation</i>	<i>Examination practice</i>
Statistics: Normal distribution	<i>Autumn HT1</i>	<ul style="list-style-type: none"> • The normal distribution • Finding probabilities for normal distributions • The inverse normal distribution function • The standard normal distribution • Approximating a binomial distribution • Hypothesis testing with a normal distribution 	<i>Year 12: Statistical distributions</i>	<i>Examination practice</i>
Pure Maths: Radians	<i>Autumn HT2</i>	<ul style="list-style-type: none"> • Radian measure • Arc length • Areas of sectors and segments • Solving trigonometric equations • Small angle approximations 	<i>Year 12: Trigonometric ratios</i>	<i>Year 13: Trigonometric functions</i>
Pure Maths: Trigonometric functions	<i>Autumn HT2</i>	<ul style="list-style-type: none"> • Sec, cosec and cot functions • Graphs of sec x, cosec x and cot x • Using sec x, cosec x and cot x • Trigonometric identities • Inverse trigonometric functions 	<i>Year 12: Trigonometric ratios</i>	<i>Year 13: Trigonometry and modelling</i>
Pure Maths: Trigonometry and modelling	<i>Autumn HT2</i>	<ul style="list-style-type: none"> • Addition formulae • Using the angle addition formulae • Double angle formulae • Solving trigonometric equations • Simplifying $a \cos x + b \sin x$ • Proving trigonometric identities • Modelling with trigonometric functions 	<i>Year 13: Trigonometric functions</i>	<i>Examination practice</i>
Mechanics: Moments	<i>Autumn HT2</i>	<ul style="list-style-type: none"> • Moments • Resultant moments • Equilibrium • Centres of mass • Tilting 	<i>Year 12: Forces in motion</i>	<i>Examination practice</i>

Mechanics: Forces and friction	<i>Autumn HT2</i>	<ul style="list-style-type: none"> Resolving forces Inclined planes Friction 	<i>Year 12: Forces in motion</i>	<i>Examination practice</i>
Pure Maths: Parametric Equations	<i>Spring HT3</i>	<ul style="list-style-type: none"> Parametric equations Using trigonometric identities Curve sketching Points of intersection Modelling with parametric equations 	<i>Year 13: Functions and graphs</i>	<i>Year 13: Differentiation</i>
Pure Maths: Differentiation	<i>Spring HT3</i>	<ul style="list-style-type: none"> Differentiating $\sin x$ and $\cos x$ Differentiating exponentials and logarithms Chain rule, product rule and quotient rule Differentiating trigonometric functions Parametric differentiation Implicit differentiation Using second derivatives Rate of change 	<i>Year 12: Differentiation Year 13: Parametric equations</i>	<i>Examination practice</i>
Mechanics: Applications of forces	<i>Spring HT3</i>	<ul style="list-style-type: none"> Static particles Modelling with statics Friction and static particles Static rigid particles Dynamics and inclined planes Connected particles 	<i>Year 13: Forces and friction</i>	<i>Year 13: Projectiles</i>
Mechanics: Projectiles	<i>Spring HT3</i>	<ul style="list-style-type: none"> Horizontal projection Horizontal and vertical components Projection at an angle Projectile motion formulae 	<i>Year 12: Constant acceleration</i>	<i>Examination practice</i>
Pure Maths: Numerical Methods	<i>Spring HT4</i>	<ul style="list-style-type: none"> Locating roots Iteration Newton-Raphson method Applications to modelling 	<i>Year 13: Differentiation</i>	<i>Examination practice</i>
Pure Maths: Integration	<i>Spring HT4</i>	<ul style="list-style-type: none"> Integrating standard functions Integrating $f(ax + b)$ Using trigonometric identities Reverse chain rule Integration by substitution Integration by parts Partial Fractions Finding areas The trapezium rule Solving differential equations Modelling with differential equations Integration as the limit of a sum 	<i>Year 12: Integration</i>	<i>Examination practice</i>
Pure Maths: Vectors	<i>Spring HT4</i>	<ul style="list-style-type: none"> 3D coordinates Vectors in 3D Solving geometric problems Applications to mechanics 	<i>Year 12: Vectors</i>	<i>Examination practice</i>
Mechanics: Further Kinematics	<i>Spring HT4</i>	<ul style="list-style-type: none"> Vectors in kinematics Vector methods with projectiles Variable acceleration in one dimension Differentiating vectors Integrating vectors 	<i>Year 12: Variable acceleration</i>	<i>Examination practice</i>