MATHEMATICS: Curriculum Overview
Year 12

Half Term	Topic studied	What will I learn?	How will I be assessed?
Year 12 Autumn 1	Algebra (quadratics, Binomial expansion, equations, inequalities), Geometry (line graphs, circles)	- drawing, factorising quadratics, completing the square, use of the discriminant - using combinations to find terms of any binomial expansion - solving linear and quadratic equations and inequalities - equations of straight lines, perpendicular and parallel lines, and finding the equation of a circle, 2 formats. Solving problems involving circles and straight lines	Suitability test in 3rd week. *Informal assessments after each unit*
Year 12 Autumn 2	Algebra (differentiation), Geometry (trigonometry, graphs), Logarithms and Exponentials	- finding gradients of curves - finding turning points - all 3 ratios, sine and cosine rules, identities and trig graphs, area of a scalene triangle formula - solving exponential equations, use of logs to solve equations.	November midterm test *Informal assessments after each unit*
Year 12 Spring 1	Algebra (integration) Geometry (vectors) Statistics and Mechanics	-use of definite integrals to solve area problems - vector notation in 2D with scalars and all notation -data collection and sampling - mean. mode and median, for all data types. Spread; quartiles, range, variance and std deviation -equations of motion (s-u-v-a-t), displacement-time graphs, velocity-time graph. Vertical motion under gravity -	No formal test this half term. *Informal assessments after each unit*
Year 12 Spring 2	Statistics and Mechanics	-drawing and interpreting box plots and cumulative frequency graphs, and histograms. - force diagrams, forces as vectors, using vectors to describe acceleration, 2D motion, connected particles, pulleys.	Midterm test early in March *(plus marking of work throughout the term)*
Year 12 Summer 1	Statistics and Mechanics	-linear correlation; calculation of Product Moment Correlation Coefficient, line of regression, interpreting parameters. -probability; venn and tree diagrams, use of distributions; general and Binomial, including cumulative functions, and hypothesis testing -variable acceleration involving functions of time, using differentiation, max/min problems, using integration, deriving constant acc formulae.	No formal test this half term *Informal assessments after each unit*

Year 12	Algebra (Proof, partial fractions, sequences),	-proof by contradiction, alg/partial fractions, repeated factors, algebraic division	End of Year Exams, involving a full 2 hour Pure paper and a 75 minute Applied paper.
Summer 2		-sequences; arithmetic and geometric are introduced	
		-modulus of a function, using mappings/functions, composite, inverse, modulus functions, as well as combining them.	*Informal assessments after each unit*