



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	Baseline test in 4 th Week <i>Informal assessments after each unit</i>
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 <i>Informal assessments after each unit</i>
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. <i>Informal assessments after each unit</i>
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 <i>(plus marking of work throughout the term)</i>
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 <i>Informal assessments after each unit</i>

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