

Key Stage 3 Curriculum Overview

Year 7: Foundations

Students secure numeracy, basic algebra and geometric understanding. The focus is on fluency and mathematical language.

Unit	Focus	Key Learning
C - Indices Plus	Algebra foundations, factors, multiples, expressions and equations	Factors, multiples, HCF and LCM; algebraic notation; expressions and substitution; function machines; equivalence; solving one and two-step equations.
D - Equations & Formulae	Solving equations and algebraic reasoning	Forming expressions; solving equations; understanding inverse operations; introducing formulae and algebraic relationships.
A - Calculations	Fractions, decimals, percentages and number fluency	Four operations; fractions of amounts; equivalent fractions; decimals and percentages; FDP conversions; order of operations; mental and written calculation strategies.
H - Transformations	Coordinates, reflections and rotations	Plotting and reading coordinates; reflections; rotations; describing transformations accurately.
B - Number Systems	Number properties and fractions	Place value; negative numbers; factors and multiples; primes, squares and cubes; ordering and comparing numbers; fractions and decimals.
E - Proportion	Ratio, proportion and multiplicative reasoning	Ratio notation; equivalent ratios; simplifying ratios; sharing in a ratio; direct proportion; best-buy problems; conversion graphs.
K - Data Handling	Representing and analysing data	Pictograms; bar charts; pie charts; averages from lists; interpreting data displays and simple statistical comparisons.
J - Probability	Chance, frequency and outcomes	Probability vocabulary; probability scale; single-event probability; frequency trees; two-way tables; expected outcomes.

Year 8: Connections

Students begin connecting mathematical ideas across strands, seeing how proportionality, algebra and geometry interact.

Unit	Focus	Key Learning
A - Calculations	Percentages, standard form and numerical fluency	Percentage increase and decrease; multipliers; compound interest; standard form; estimation; calculator methods.
B - Number Systems	Directed numbers and prime factorisation	Directed number calculations; prime factorisation; HCF and LCM using prime factors; roots and powers; rounding and estimation.
C - Indices Plus	Index laws and algebraic manipulation	Index laws; algebraic terms with powers; expanding double brackets; factorising; simplifying algebraic expressions.
D - Equations & Formulae	Rearranging, factorising and solving equations	Solving equations with unknowns on both sides; changing the subject; expanding and factorising; forming equations from contexts.
H - Transformations	Enlargements and transformational geometry	Translations, reflections, rotations and enlargements; describing transformations; introducing similarity.
E - Proportion	Rates, ratio and proportional relationships	Direct and inverse proportion; rates of change; compound measures; speed-distance-time; density; conversion graphs.
F - Mensuration	Circles, area, volume and compound measures	Circumference and area of circles; compound measures; area and volume calculations; metric conversions.
G - Graphs & Sequences	Gradient, linear graphs and sequences	Linear sequences; nth term rules; coordinates; gradient; straight-line graphs; using and interpreting $y = mx + c$.
I - Angles	Angles, bearings and geometric reasoning	Interior and exterior angles; parallel line angles; bearings; angle reasoning and geometric problem solving.
J - Probability	Sample spaces and experimental probability	Sample space diagrams; frequency trees; relative frequency; experimental probability; expected outcomes.
K - Data Handling	Statistical diagrams and averages	Scatter graphs; grouped data; estimated mean; histograms; choosing and interpreting averages.

Year 9: Generalisation

Students develop abstract thinking, formal methods and GCSE-style problem solving, preparing for Stage 4 pathways.

Unit	Focus	Key Learning
A - Calculations	Advanced percentage methods	Reverse percentages; percentage change; compound interest; error intervals; upper and lower bounds.
B - Number Systems	Standard form, bounds and error intervals	Standard form calculations; negative powers; roots; estimation; bounds and accuracy; calculator methods.
C - Indices Plus	Algebraic manipulation and proof	Algebraic indices; expanding and factorising expressions; proof; algebraic reasoning; introduction to higher-order algebra.
D - Equations & Formulae	Simultaneous equations and quadratics	Solving simultaneous equations; factorising quadratics; solving quadratic equations; inequalities; graphical solutions.
E - Proportion	Direct and inverse proportion	Algebraic proportionality; direct and inverse variation; ratio tables; proportional graphs and applications.
H - Transformations	Similarity and transformational geometry	Similar shapes; scale factors; enlargement; transformational reasoning; links between geometry and algebra.
F - Mensuration	Surface area, volume and Pythagoras	Surface area of prisms; cylinders; spheres and cones; Pythagoras' theorem; coordinate geometry applications.
G - Graphs & Sequences	Linear and non-linear relationships	Equations of lines; gradients; graphical interpretation; non-linear graphs; sequences and patterns.
K - Data Handling	GCSE-style statistical analysis	Grouped frequency tables; histograms; box plots; cumulative frequency; interpreting distributions and comparisons.
I - Angles	Trigonometry, bearings, congruence and similarity	Bearings; congruence and similarity; right-angled trigonometry; geometric reasoning and proof.
J - Probability	Tree diagrams, Venn diagrams and conditional probability	Tree diagrams; dependent and independent events; Venn diagrams; set notation; conditional probability.
L - Constructions & Loci	Constructions, loci and geometric accuracy	Triangle constructions; angle and line bisectors; loci from points and lines; scale drawings and map problems.

