



Mathematics

Key Stage 3 (Years 7 to 9)

Unit	Topic	What students learn	Term
Year 7			
Unit 1	Analysing and displaying data	Mode, median and range; displaying data; grouping data; averages and comparing data; line graphs and more bar charts; spreadsheets.	Autumn
Unit 2	Number skills	Mental maths; addition and subtraction; multiplication; division; time and money; negative numbers; factors, multiples and primes; square and triangle numbers.	Autumn
Unit 3	Expressions, functions and formulae	Functions; simplifying expressions; writing expressions; substituting into formulae; writing formulae.	Autumn
Unit 4	Decimals and measures	Decimals and rounding; length, mass and capacity; scales and coordinates; working with decimals mentally; working with decimals; perimeter; area; more units.	Autumn
Unit 5	Fractions	Comparing fractions; simplifying fractions; working with fractions; fractions and decimals; understanding percentages; percentages of amounts.	Spring
Unit 6	Probability	The language of probability; calculating probability; more probability calculations; experimental probability; expected outcomes.	Spring
Unit 7	Ratio and proportion	Direct proportion; writing ratios; using ratios; scales and measures; proportions and fractions; proportions and percentages.	Spring
Unit 8	Lines and angles	Lines, angles and triangles; estimating, measuring and drawing angles; drawing triangles accurately; calculating angles; angles in a triangle; quadrilaterals.	Summer
Unit 9	Sequences and graphs	Sequences; pattern sequences; coordinates; extending sequences; straight-line graphs; position-to-term rules.	Summer
Unit 10	Transformations	Congruency and enlargements; symmetry; reflection; rotation; translations and combined transformations.	Summer
Year 8			
Unit 1	Number	Calculations; calculating with negative integers; powers and roots; powers, roots and brackets; multiples and factors.	Autumn
Unit 2	Area and volume	Area of a triangle; area of a parallelogram and trapezium; volume of cubes and cuboids; 3D shapes; surface area of cubes and cuboids; problems and measures.	Autumn
Unit 3	Statistics, graphs and charts	Pie charts; using tables; stem and leaf diagrams; comparing data; scatter graphs; misleading graphs.	Autumn

Unit	Topic	What students learn	Term
Unit 4	Expressions and equations	Algebraic powers; expressions and brackets; factorising expressions; one-step equations; two-step equations; the balancing method.	Autumn
Unit 5	Real-life graphs	Conversion graphs; distance-time graphs; line graphs; complex line graphs; graphs of functions; more real-life graphs.	Spring
Unit 6	Decimals and ratio	Ordering decimals and rounding; place-value calculations; calculations with decimals; ratio and proportion with decimals; using ratios.	Spring
Unit 7	Lines and angles	Quadrilaterals; alternate angles and proof; geometrical problems; exterior and interior angles; solving geometric problems.	Spring
Unit 8	Calculating with fractions	Adding and subtracting fractions; multiplying fractions; fractions, decimals and reciprocals; dividing fractions; calculating with mixed numbers.	Summer
Unit 9	Straight-line graphs	Direct proportion on graphs; gradients; equations of straight lines; direct proportion problems.	Summer
Unit 10	Percentages, decimals and fractions	Fractions and decimals; equivalent proportions; writing percentages; percentages of amounts; solving problems.	Summer
Year 9			
Unit 1	Indices and standard form	Indices; calculations and estimates; more indices; standard form.	Autumn
Unit 2	Expressions and formulae	Substituting into expressions; writing expressions and formulae; using formulae; rules of indices and brackets; expanding double brackets.	Autumn
Unit 3	Dealing with data	Planning a survey; collecting data; calculating averages; display and analyse data; writing a report.	Autumn
Unit 4	Multiplicative reasoning	Enlargement; negative and fractional scale factors; percentage change; rates of change; problem-solving.	Autumn
Unit 5	Constructions	Using scales; basic constructions; constructing triangles; loci.	Spring
Unit 6	Equations, inequalities and proportionality	Solving equations; using equations; trial and improvement; using and solving inequalities; proportion; simultaneous equations.	Spring
Unit 7	Circles, Pythagoras and prisms	Circumference of a circle; area of a circle; Pythagoras' theorem; prisms and cylinders; errors and bounds.	Spring
Unit 8	Sequences and graphs	n th term of arithmetic sequences; non-linear sequences; graphing rates of change; using $y = mx + c$; more straight-line graphs; more simultaneous equations; graphs of quadratic functions; non-linear graphs.	Summer
Unit 9	Probability	Calculating probabilities; experimental probability; probability diagrams; independent events.	Summer
Unit 10	Comparing shapes	Congruent and similar shapes; ratios in triangles; the tangent ratio; the sine ratio; the cosine ratio.	Summer