

Mulberry Academy Woodside

Mathematics

KS3 Curriculum Overview 2025 - 2026

Curriculum intent statement:

Our Maths curriculum is ambitious, inclusive, and knowledge-rich, making Mathematics accessible and engaging for all students. It fosters curiosity, confidence, and problem-solving skills, while providing appropriate challenge to ensure every learner can achieve their potential. Learners are empowered to build fluency, conceptual depth, and an appreciation for the relevance of Maths in everyday life, careers, and its historical and cultural significance across time and societies.

KS3		AUTUMN TERM		SPRING TERM		SUMMER TERM	
		TERM 1A	TERM 1B	TERM 2A	TERM 2B	TERM 3A	TERM 3B
YEAR 7	KNOWLEDGE	Place value, ordering and rounding, Four operations	Sequences, Algebraic notation and substitution, Expressions & equations, Averages and range	Graphing data, Fractions, decimals and percentages	Directed number, Fractions and percentages of amounts, Perimeter and area	Speed, distance and time, Properties of number	Add and subtract fractions, Angles and polygons, Review & Assessment
	SKILLS	<p>Integers: write in numerals/words, place on a number line, compare and order, add, subtract, multiply, divide.</p> <p>Decimals: place value, number line, compare and order, add, subtract, multiply, divide, rounding (nearest integer, decimal places, powers of 10).</p> <p>Powers of 10 & Standard Form: multiply/divide by 10, 100, 1000, by 0.1 and 0.01, positive and negative powers, numbers greater than 1 and between 0 and 1 in standard form.</p> <p>Four Operations: Add, subtract, multiply and divide integers and decimals, Divide decimals by integers, Divide by a decimal, Order of operations.</p>	<p>Sequences: describe and continue sequences, find the next terms, linear and non-linear sequences, term-to-term rules, find missing terms.</p> <p>Function machines: 1-step (number and algebra), find a function (one step), substitution (one step), 2-step (number and algebra), find a function (two step), substitution (two step).</p> <p>Equations and algebra: equality and equivalence, related facts, like and unlike terms, collect like terms, solve 1-step equations (+/-, x/÷), solve 2-step equations.</p> <p>Averages and range: mode, mean, median, range, solve problems with averages and range.</p>	<p>Graphs and data: pictograms, bar charts (single, dual, composite), coordinates in the first quadrant, scatter graphs, correlation, lines of best fit, time-series graphs, non-linear relationships.</p> <p>Fractions, decimals and percentages: represent tenths and hundredths, number lines with fractions and decimals, tenths, hundredths, fifths, quarters, eighths, thousandths, understand percentages, convert simple fractions/decimals/percentages, fractions as diagrams, fractions on a number line, equivalent fractions, fractions as division, convert fractions/decimals/percentages, values greater than 1.</p>	<p>Directed numbers: number lines, compare and order, calculations that cross zero, zero pairs, add, subtract, multiply and divide, order of operations, calculator use.</p> <p>Fractions and percentages: fraction of an amount, find the whole from a fraction, percentage of an amount (calculator and non-calculator), percentage increase and decrease, find the whole from a percentage, solve problems with values greater than 1.</p> <p>Perimeter and area: perimeter of a polygon, area of a trapezium, area of a parallelogram.</p>	<p>Time and speed: convert between units of time (milliseconds to years), fractions of time, solve problems with tables, timetables and calendars, calculate speed, time and distance, solve speed–distance–time problems, interpret and draw distance–time graphs, calculate speed from graphs.</p> <p>Number properties: multiples, factors, prime numbers, product of prime factors, square, cube and triangular numbers, square and cube roots, higher powers and roots, highest common factor (HCF), lowest common multiple (LCM), HCF and LCM using Venn diagrams, use factors to simplify calculations.</p>	<p>Fractions and algebra: simplify fractions, convert between mixed numbers and improper fractions, add and subtract fractions (same denominator, with integers, common multiples, any denominator, improper and mixed), use equivalence to add and subtract decimals and fractions, add and subtract simple algebraic fractions, substitution and solving equations with fractions.</p> <p>Angles and geometry: draw and measure lines and angles, use geometric notation, angles around a point and on a straight line, vertically opposite angles, recognise and name polygons, angles in triangles and quadrilaterals, solve angle problems, parallel and perpendicular lines, angles in parallel lines and polygons, simple proofs.</p>

YEAR 8	KNOWLEDGE	Ratio, Proportion and scale, Algebraic manipulation	Coordinates and graphs, Multiply and divide fractions, Symmetry and reflection	Area, volume and density, Equations and inequalities, Percentages	Indices, Standard form, Interpret and represent data	Angles in parallel lines and polygons, Tables and probability	Circles, Graphs and Charts, Sequences, Review & Assessment
	SKILLS	<p>Ratios: understand and simplify ratios, express in 1:n or n:1 form, compare with fractions, solve ratio problems.</p> <p>Proportion and scale: direct proportion and graphs, conversion graphs and currencies, similar shapes, metric unit conversions, scale diagrams, interpret maps with scale/ratios.</p> <p>Algebra: form and simplify expressions, use formulae/identities/equations, directed number and substitution, expand and factorise single brackets, expand double brackets, factorise quadratics.</p>	<p>Coordinates and graphs: plot in all quadrants, parallel lines, tables of values, $y=x$ and $y=mx$, gradients (positive/negative), lines of the form $y=x+c$ and $y=mx+c$, midpoints, problem solving with graphs, quadratic graphs</p> <p>Fractions: multiply and divide fractions (including integers, unit fractions, mixed numbers, algebraic fractions), understand reciprocals.</p> <p>Symmetry and reflection: line and rotational symmetry, reflections in horizontal, vertical, diagonal lines or given equations, describe reflections.</p>	<p>Shapes and measures: 2-D and 3-D shapes, area and volume (including compound and similar shapes), prisms, mass/density/volume problems, unit conversions.</p> <p>Equations and inequalities: solve linear and fractional equations, unknowns on both sides, form and solve equations, inequalities and number lines.</p> <p>Percentages: calculate amounts, convert with decimals, use multipliers, percentage increase/decrease, express one number as a fraction/percentage of another, percentage change, find original values, choose methods for problems.</p>	<p>Indices: add and subtract expressions, multiply and divide expressions, laws of indices (addition, subtraction, combined), powers of powers, negative indices, fractional indices</p> <p>Standard form: positive and negative powers of 10, numbers greater than 1, numbers between 0 and 1, use of calculators.</p> <p>Data and averages: types of data, outliers and errors, averages and range, choosing appropriate averages, compare distributions, averages from frequency tables, represent and interpret grouped discrete and continuous data, mean and mode from grouped frequency tables.</p>	<p>Angles and geometry: angle rules and notation, angles in parallel lines (alternate, corresponding, co-interior), solve complex angle problems, properties of quadrilaterals and diagonals, sides and angles in quadrilaterals, exterior and interior angles of polygons, interior angles in regular polygons, prove simple geometric facts.</p> <p>Probability: vocabulary and probability scale, single events, sum of probabilities = 1, probability experiments, sample spaces (one or more events), probabilities from diagrams, two-way tables, frequency trees.</p>	<p>Circles and compound shapes: circle vocabulary, pi as a ratio, circumference and area of circles, perimeter and area of parts of circles, perimeter and area of compound shapes with circles.</p> <p>Graphs and charts: pictograms, bar charts, vertical line charts, pie charts (draw and interpret), line graphs, choose appropriate graphs, compare distributions, identify misleading graphs.</p> <p>Sequences: generate and describe sequences from word or algebraic rules, nth term of linear sequences, generate sequences from complex rules.</p>

YEAR 9	KNOWLEDGE	Properties of number, Percentages, Area and volume	Equations, inequalities and formulae, Rates, Standard form	Maths and money, Straight line graphs, Ratio and proportion	Constructions and congruence, Similarity, Algebraic manipulation	Pythagoras' theorem, Non-linear graphs, Sets and probability	Transformations, Review and Assessment
	SKILLS	<p>Number and factors: factors, multiples and primes, product of prime factors, HCF and LCM (including Venn diagrams), integers, real and rational numbers, introduction to surds.</p> <p>Percentages and interest: percentage increase/decrease, express changes as percentages, find original values, solve problems (calculator and non-calculator), repeated percentage change, simple and compound interest.</p> <p>Area, surface area and volume: nets, area of 2-D shapes, area and circumference of circles, surface area of cubes, cuboids, prisms and cylinders, volume of prisms, cylinders, cones, pyramids and spheres, convert metric units of area and volume.</p>	<p>Equations and formulae: solve equations and inequalities, equations and inequalities with brackets, inequalities with negative numbers, unknowns on both sides, problem solving, substitute into formulae and equations, change the subject of a formula (one-step, two-step, complex).</p> <p>Rates and compound units: speed, distance and time, distance-time graphs, flow problems and graphs, rates of change and their units, convert compound units.</p> <p>Standard form: numbers in standard form, compare and order, multiply and divide, add and subtract</p>	<p>Financial literacy: understand a bank account, spending, ways to pay, ways to save, jobs and pay, investing, borrowing (house and loans), running a house or business, budgeting, spending overseas, insurance.</p> <p>Linear graphs: lines parallel to the axes, $y=x$ and $y=-x$, explore gradients and intercepts, $y=mx+c$, rearrange equations, find equations from graphs, interpret gradient and intercepts in real-life graphs, graph inequalities.</p> <p>Proportion and ratio: direct proportion, conversion graphs, inverse proportion, inverse proportion graphs, ratio problems, solve problems with ratio and algebra.</p>	<p>Constructions and congruence: draw and measure angles, construct and interpret scale drawings, construct triangles (ASA, SAS, SSS), angle bisectors, perpendicular bisectors, perpendiculars from or to a point, construct complex polygons, identify congruent figures, congruent triangles.</p> <p>Similarity and triangles: recognise enlargement and similarity, calculate unknown lengths and angles in similar shapes, solve problems with similar triangles, ratio in right-angled triangles.</p> <p>Algebraic manipulation: expand and simplify single brackets, factorise into a single bracket, expand double brackets, use identities, factorise quadratic expressions, solve quadratic equations, expand triple brackets.</p>	<p>Pythagoras and right-angled triangles: solve equations with squares and square roots, identify the hypotenuse, determine right-angled triangles, apply Pythagoras theorem to find sides, use on coordinate axes, proofs of Pythagoras, extend to 3-D shapes.</p> <p>Quadratic and other graphs: substitute into quadratic expressions, draw and interpret quadratic graphs, reciprocal and exponential graphs, cubic graphs, interpret roots, intercepts and turning points.</p> <p>Sets and probability: identify and represent sets, intersections, unions, complements, probability of single events, use diagrams, relative frequency, expected outcomes, independent events, probabilities from Venn diagrams.</p>	<p>Transformations: enlargement (positive, fractional, negative scale factors, from a point), describe enlargements, rotation about a point, describe rotations, translation, describe translations, reflection, result of a series of transformations.</p>