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Curriculum Overview - Mathematics - Year 5

Skills colour key: Number and ratio | Geometry and measure | Statistics and data | Algebra | General and functional skills

|        | Autumn Term:<br>First Half Term                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Year 5 | <p><b>Topics:</b></p> <p>1. Place value;<br/>2. Multiplication and division in context;<br/>3. Addition and subtraction;<br/>7. Shape, position and direction</p> <p><b>Knowledge:</b></p> <p>Place value is extended to 1,000,000, including decimals, rounding and negative numbers. Pupils build links between powers of ten, factors, multiples, primes, square and cube numbers, and sequences. Formal addition and subtraction are applied alongside coordinate and transformation knowledge.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Read, write, compose, compare and order whole numbers and decimals; round to specified place values and use negative numbers on a number line.</li><li>• Multiply and divide by powers of ten, scale known facts and identify common factors, common multiples, primes, square numbers and cube numbers.</li><li>• Continue number sequences and state term-to-term rules.</li><li>• Use column addition and subtraction with numbers beyond four digits; estimate, use inverse operations and solve multi-step problems.</li><li>• Plot coordinates in the first quadrant and describe or perform translations and reflections.</li></ul> <p><b>Vocabulary:</b></p> <p>place value, integer, decimal, partition, interval, round, negative, factor, multiple, prime, square, cube, sequence, inverse, coordinate, translation, reflection</p> <p><b>Career examples:</b> Game designer</p> | <p><b>Topics:</b></p> <p>5. Fractions - small steps;<br/>4. Multiplication and division - formal methods;<br/>5. Fractions - continued;<br/>6. Area and perimeter</p> <p><b>Knowledge:</b></p> <p>Pupils develop equivalence and the relationship between proper, improper and mixed-number fractions. Formal multiplication and division are secured before fractions are added and subtracted. Perimeter and area are applied to regular, compound and irregular shapes.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Recognise equivalent fractions; convert between improper fractions and mixed numbers; compare and order fractions on number lines.</li><li>• Multiply up to four digits by one or two digits using area and column methods.</li><li>• Use short division and interpret remainders as remainders, fractions or decimals.</li><li>• Add and subtract fractions and mixed numbers, including different denominators.</li><li>• Measure and calculate perimeter, and calculate the area of rectangles, compound shapes and irregular shapes.</li></ul> <p><b>Vocabulary:</b></p> <p>equivalent, numerator, denominator, improper fraction, mixed number, common denominator, product, quotient, divisor, remainder, perimeter, area, compound, rectilinear</p> <p><b>Career examples:</b> Carpenter</p> | <p><b>Topics:</b></p> <p>5. Fractions - continued;<br/>8. Statistics;<br/>9. Decimals and percentages</p> <p><b>Knowledge:</b></p> <p>Fraction knowledge is extended to multiplication and fractions of amounts using bar models. Pupils interpret and present information in graphs, tables and timetables. Decimals are linked to fractions and percentages, including thousandths and equivalence.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Multiply integers by unit, non-unit and mixed-number fractions; represent fractions of amounts with bar models.</li><li>• Read, draw and solve problems using line graphs.</li><li>• Read and interpret tables, two-way tables and timetables, including duration.</li><li>• Read, write, order and compare decimals to thousandths; round to the nearest whole, tenth and hundredth.</li><li>• Write decimals as fractions and identify equivalent fractions, decimals and percentages.</li></ul> <p><b>Vocabulary:</b></p> <p>unit fraction, non-unit fraction, bar model, data, axis, scale, interval, trend, two-way table, timetable, decimal, thousandth, percentage, equivalent</p> <p><b>Career examples:</b> Event planner</p> | <p><b>Topics:</b></p> <p>10. Properties of shape;<br/>11. Decimals - part 2</p> <p><b>Knowledge:</b></p> <p>Pupils classify and reason about angles, polygons and 3D shapes, using angle facts accurately. Decimal fluency is extended through addition, subtraction, complements, sequences and multiplication or division by powers of ten.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Recognise, compare, estimate, measure and draw acute, right, obtuse and reflex angles.</li><li>• Calculate angles on a straight line, around a point and within shapes.</li><li>• Describe regular and irregular polygons and reason about properties of 3D shapes.</li><li>• Add and subtract decimals with the same or different numbers of decimal places, including totals greater than one.</li><li>• Find complements to one, continue decimal sequences, and multiply or divide decimals by 10, 100 and 1,000.</li></ul> <p><b>Vocabulary:</b></p> <p>acute, obtuse, reflex, degree, protractor, polygon, parallel, perpendicular, face, edge, decimal place, complement, exchange, sequence, power of ten</p> <p><b>Career examples:</b> Architect</p> | <p><b>Topics:</b></p> <p>12. Converting units;<br/>13. Volume;<br/>14. Roman numerals</p> <p><b>Knowledge:</b></p> <p>Metric measures, approximate imperial equivalents and time conversions are consolidated. Pupils understand volume as the space occupied by a solid and capacity as the amount a container can hold. Roman numerals are read and written to 1,000.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Convert between metric units and use approximate metric-imperial equivalents.</li><li>• Convert between minutes and hours and read timetables.</li><li>• Explain, compare and estimate volume and capacity; find volume by counting cubes.</li><li>• Read and write Roman numerals to 1,000.</li></ul> <p><b>Vocabulary:</b></p> <p>convert, equivalent, metric, imperial, duration, timetable, volume, capacity, cubic unit, layer, estimate, Roman numeral, symbol, value</p> <p><b>Career examples:</b> Chef</p> | <p><b>Topics:</b></p> <p>Consolidation, revisiting, investigations and Money Matters</p> <p><b>Knowledge:</b></p> <p>Learning from across the year is revisited and applied through investigations, reasoning and real-life financial contexts. Teaching is responsive to assessed gaps and prepares pupils for Year 6.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Consolidate the four operations, fractions, decimals, measures and geometry through mixed problem solving.</li><li>• Select efficient methods, explain reasoning and use mathematical vocabulary accurately.</li><li>• Use bar models and diagrams to represent multi-step calculations.</li><li>• Plan a budget and explore saving, spending, pricing and value for money.</li><li>• Revisit class and individual priorities identified through assessment.</li></ul> <p><b>Vocabulary:</b></p> <p>investigation, strategy, reasoning, represent, budget, income, spending, saving, cost, value, estimate, check</p> <p><b>Career examples:</b> Entrepreneur / business founder</p> |



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## Curriculum Overview - Mathematics - Year 6

Skills colour key: **Number and ratio** | **Geometry and measure** | **Statistics and data** | **Algebra** | General and functional skills

|                                       | Autumn Term:<br>First Half Term                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| <b>Y<br/>e<br/>a<br/>r<br/><br/>6</b> | <p><b>Topics:</b><br/>1. Place value and core four; 2. Factors, multiples and indices; 3. Fraction skills</p> <p><b>Knowledge:</b><br/>Place value is extended from hundredths to 10 million and applied through all four operations. Pupils deepen knowledge of factors, multiples, prime decomposition, powers and roots. Fraction equivalence, simplification, ordering and fractions of amounts are linked to decimal notation.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Compose, decompose, compare and calculate with whole numbers and decimals to 10 million; multiply and divide by powers of ten.</b></li><li>• <b>Use formal addition, subtraction, multiplication and division, including decimals, remainders and multi-step word problems.</b></li><li>• <b>Read and write Roman numerals to 3,000.</b></li><li>• <b>Find factors, HCF, multiples, LCM, primes and prime factors; use squares, cubes, roots and index notation.</b></li><li>• <b>Find, simplify and order equivalent fractions; find fractions of amounts and money; convert fractions to decimals.</b></li></ul> <p><b>Vocabulary:</b><br/>place value, integer, decimal, quotient, divisor, remainder, factor, HCF, multiple, LCM, prime factor, index, square root, equivalent, simplify, bar model</p> <p><b>Career examples:</b> Software engineer; cybersecurity analyst; pharmacist</p> | <p><b>Topics:</b><br/>4. Displaying and interpreting data; 5. Converting units; 6. Understanding angles; 7. Percentages</p> <p><b>Knowledge:</b><br/>Data is collected, represented and interpreted using charts and averages. Measurement and time conversion are linked to decimal place value and perimeter. Angle facts are established and percentages are connected to hundredths, fractions and decimals.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Plan surveys and represent or interpret data in pictograms, bar graphs and line graphs; calculate mean, median, mode and range.</b></li><li>• <b>Multiply and divide decimals by 10, 100 and 1,000; measure accurately and convert metric units.</b></li><li>• <b>Calculate perimeter and read or convert 12-hour and 24-hour timetables.</b></li><li>• <b>Measure and draw angles, including reflex angles; use facts for straight lines, opposite angles and angles around a point.</b></li><li>• <b>Recall FDP equivalents, find percentages of amounts and solve percentage-change problems.</b></li></ul> <p><b>Vocabulary:</b><br/>survey, frequency, mean, median, mode, range, convert, millimetre, perimeter, duration, protractor, reflex, opposite angles, percentage, per hundred, equivalent</p> <p><b>Career examples:</b> Sport statistician; civil engineer; air traffic controller; marketing analyst</p> | <p><b>Topics:</b><br/>8. Negatives, decimals and rounding; 9. Qualities of 2D shapes; 10. Perimeter, area and volume; 11. Ratio and proportion; 12. Displaying and interpreting data 2</p> <p><b>Knowledge:</b><br/>Number fluency is strengthened with positive and negative values, decimals, money, rounding and estimation. Shape properties, symmetry, circle language, perimeter and area are developed. Algebraic unknowns lead into ratio, scale factor and direct proportion, while data work extends to line graphs and pie charts.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Order positive and negative integers and decimals; find differences, double and halve, use money, round and estimate.</b></li><li>• <b>Classify 2D shapes; compare quadrilaterals and triangles; identify line and rotational symmetry and label circle parts.</b></li><li>• <b>Calculate perimeter and area of squares, rectangles, triangles, parallelograms, compound shapes and, where appropriate, trapeziums.</b></li><li>• <b>Represent perimeter and area with algebraic expressions.</b></li><li>• <b>Solve one- and two-unknown problems; express, simplify and use ratios, scale factors and direct proportion.</b></li><li>• <b>Construct and interpret line graphs, bar graphs and simple pie charts.</b></li></ul> <p><b>Vocabulary:</b><br/>negative, decimal place, estimate, quadrilateral, symmetry, radius, diameter, circumference, perimeter, area, parallelogram, expression, ratio, scale factor, direct proportion, sector</p> <p><b>Career examples:</b> Meteorologist; graphic designer; architect; chef; data journalist</p> | <p><b>Topics:</b><br/>13. Fraction skills 2; 14. Core four with negatives and sequences; 15. Calculating angles; 16. Coordinates</p> <p><b>Knowledge:</b><br/>All four operations with fractions are developed alongside FDP conversion and comparison. Pupils calculate with negative numbers and use BIDMAS, sequence rules and nth-term notation. Rounding and angle facts are applied before coordinates and transformations are extended across four quadrants.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Add, subtract, multiply and divide fractions and mixed numbers; simplify, compare and convert between fractions, decimals and percentages.</b></li><li>• <b>Calculate with positive and negative numbers and use BIDMAS.</b></li><li>• <b>Continue negative and decimal sequences; state term-to-term rules and use nth-term rules.</b></li><li>• <b>Round whole numbers and decimals, then calculate missing angles in triangles, quadrilaterals and combined diagrams.</b></li><li>• <b>Plot coordinates and translate or reflect shapes in four quadrants.</b></li></ul> <p><b>Vocabulary:</b><br/>common denominator, simplest form, benchmark, negative, BIDMAS, sequence, nth term, rounding, interior angle, coordinate, origin, quadrant, translation, reflection</p> <p><b>Career examples:</b> Medical researcher; robotics programmer; surveyor; game designer</p> | <p><b>Topics:</b><br/>17. Displaying and interpreting data 3; 18. Interpreting scales and converting units; 19. Extension topics to begin, interleave or revisit</p> <p><b>Knowledge:</b><br/>Pupils compare data displays and interpret pie charts and time-distance graphs. Scale reading, metric conversion and volume are consolidated. KS3 readiness is developed through algebraic simplification, equations and more complex fraction-decimal equivalence.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Compare data represented in different ways, including missing data; interpret pie charts and time-distance graphs.</b></li><li>• <b>Read time accurately, convert durations and calculate time differences.</b></li><li>• <b>Read varied scales and convert mass, length and distance units.</b></li><li>• <b>Calculate the volume of cubes and cuboids and solve volume problems.</b></li><li>• <b>Collect like terms, use indices in expressions and find values satisfying equations with two unknowns.</b></li><li>• <b>Revisit division by fractions and complex fraction-decimal equivalents in money contexts.</b></li></ul> <p><b>Vocabulary:</b><br/>representation, time-distance graph, duration, scale, interval, metric, volume, cuboid, cubic unit, expression, variable, like terms, index, satisfy, monetary value</p> <p><b>Career examples:</b> Transport planner; aerospace engineer; economist</p> | <p><b>Topics:</b><br/>20. SATs review, investigations and KS3 preparation</p> <p><b>Knowledge:</b><br/>Following statutory assessments, pupils revisit priority knowledge through investigations and prepare for KS3 number and algebra. Financial literacy is developed through Money Matters.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Complete SATs and GL assessments and respond to identified areas for consolidation.</b></li><li>• <b>Use reasoning and problem solving in investigations such as tessellations and orienteering.</b></li><li>• <b>Prepare for KS3 sequences, expressions, substitution and equations.</b></li><li>• <b>Apply number, fraction and reasoning skills in unfamiliar contexts.</b></li><li>• <b>Explore saving, spending, budgeting and managing money.</b></li></ul> <p><b>Vocabulary:</b><br/>investigation, tessellation, hypothesis, assumption, conclusion, sequence, nth term, expression, equation, substitute, budget, finance</p> <p><b>Career examples:</b> Entrepreneur / business founder</p> |

Year 6 - concise website overview; full detail is contained in the 2026-27 scheme of work and medium-term plans.



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## Curriculum Overview - Mathematics - Year 7

**Skills colour key:** **Number and ratio** | **Geometry and measure** | **Statistics and data** | **Algebra** | General and functional skills

|               | Autumn Term:<br>First Half Term                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| <b>Year 7</b> | <p><b>Topics:</b><br/>Measures, perimeter and area; Fractions, decimals and percentages; Expressions and formulae; Graphs and calculator methods</p> <p><b>Knowledge:</b><br/>Year 7 begins with secure measurement and number foundations before moving into formal algebraic notation and graphical representation. Pupils connect perimeter, area and volume with FDP fluency, expressions, formulae, coordinates and calculator use.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Convert units, calculate with time, read scales and find perimeter and area; extend to surface area and volume where secure.</li><li>• Compare, order and convert fractions, decimals and percentages; add and subtract fractions and find fractions or percentages of amounts.</li><li>• Use algebraic notation, collect like terms, substitute, write formulae and expand simple brackets.</li><li>• Plot coordinates, draw and interpret line graphs and connect tables, rules and graphs.</li><li>• Use BIDMAS, calculators, rounding and estimation accurately.</li></ul> <p><b>Vocabulary:</b><br/>convert, perimeter, area, surface area, volume, equivalent, percentage change, term, coefficient, expression, formula, substitute, coordinate, gradient, intercept, BIDMAS</p> <p><b>Career examples:</b> Quantity surveyor; sports performance analyst; software developer; transport planner</p> | <p><b>Topics:</b><br/>Statistics; Whole-number calculations and BIDMAS; Angles and 2D shapes</p> <p><b>Knowledge:</b><br/>Pupils learn to collect, organise and evaluate data, then consolidate efficient mental and written calculation. Geometric reasoning develops through accurate angle work and properties of triangles, quadrilaterals and polygons.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Plan data collection and represent information in tables, bar charts, pictograms, pie charts and frequency tables.</li><li>• Calculate and compare mean, median, mode and range; discuss bias and reliability.</li><li>• Use efficient mental and formal methods for all four operations, round appropriately and solve multi-step problems.</li><li>• Apply BIDMAS, estimation, inverse operations and calculator checks.</li><li>• Measure and draw angles; use angle facts at a point, on a line, in triangles, quadrilaterals and parallel lines.</li></ul> <p><b>Vocabulary:</b><br/>primary data, secondary data, frequency, mean, median, mode, range, bias, estimate, inverse, power, BIDMAS, supplementary, alternate, corresponding, polygon</p> <p><b>Career examples:</b> Data analyst; accountant; architect</p> | <p><b>Topics:</b><br/>Factors and multiples; Equations; Transformations and symmetry</p> <p><b>Knowledge:</b><br/>Number structure is explored through factors, multiples, primes and roots. Algebra develops from inverse operations to constructing and solving equations. Transformation language becomes increasingly formal.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Find factors and multiples; identify primes, squares and roots; use divisibility tests and prime factor decomposition.</li><li>• Use HCF and LCM to solve problems where secure.</li><li>• Solve one- and two-step equations, construct equations from contexts and check by substitution.</li><li>• Reflect, translate and rotate shapes and identify line or rotational symmetry.</li><li>• Recognise tessellations and extend to enlargement from a point where secure.</li></ul> <p><b>Vocabulary:</b><br/>factor, multiple, prime, square root, divisibility, decomposition, HCF, LCM, equation, inverse, coefficient, substitution, reflection, rotation, translation, scale factor</p> <p><b>Career examples:</b> Cryptographer; robotics engineer; animator</p> | <p><b>Topics:</b><br/>Revisit FDP; Everyday Maths and investigation; Constructions and 3D shapes</p> <p><b>Knowledge:</b><br/>Teaching responds to assessment by revisiting fractions, decimals and percentages and applying them in functional problems. Pupils then develop accurate geometric construction and interpret 2D representations of 3D objects.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Consolidate FDP conversion, calculation and problem solving at the level needed by the class.</li><li>• Apply mathematics to real-life, multi-step and investigative contexts and explain reasoning.</li><li>• Construct triangles, perpendicular bisectors and angle bisectors accurately.</li><li>• Use scale drawings and interpret or draw nets, plans, elevations and isometric representations.</li><li>• Recognise 3D-shape properties and explore volume.</li></ul> <p><b>Vocabulary:</b><br/>equivalent, percentage, functional, construction, bisector, perpendicular, compass, scale drawing, net, plan, elevation, isometric, prism, volume</p> <p><b>Career examples:</b> Product designer</p> | <p><b>Topics:</b><br/>Probability; Sequences; Ratio and proportion</p> <p><b>Knowledge:</b><br/>Pupils compare theoretical and experimental probability, generalise numerical patterns and apply proportional reasoning. Sequences are connected to algebra, while ratio is used in scale and real-life contexts.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Use probability language and scales; compare equally likely and mutually exclusive outcomes.</li><li>• Express and compare probability as fractions, decimals and percentages; use Venn diagrams where appropriate.</li><li>• Continue sequences, describe term-to-term rules and generate terms.</li><li>• Connect sequences to algebraic expressions and nth-term rules where secure.</li><li>• Express and simplify ratios, divide in a given ratio and solve direct-proportion problems.</li></ul> <p><b>Vocabulary:</b><br/>probability, outcome, mutually exclusive, theoretical, experimental, sample space, sequence, term-to-term rule, nth term, ratio, proportion, scale factor, unitary method</p> <p><b>Career examples:</b> Game designer; music producer; pharmacist</p> | <p><b>Topics:</b><br/>Decimal calculations and calculator fluency; Everyday Maths; Money Matters</p> <p><b>Knowledge:</b><br/>Decimal fluency and accurate calculator use are applied to money, best value and functional contexts. Pupils plan and evaluate budgets and communicate mathematical decisions.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• Multiply and divide decimals using mental and written methods.</li><li>• Use calculator functions and BIDMAS accurately and check answers by estimation.</li><li>• Compare unit prices, proportional deals and best value.</li><li>• Interpret bills, tickets, timetables and data and select efficient methods for multi-step problems.</li><li>• Plan budgets and explore income, expenditure, saving, profit, loss and financial choices.</li></ul> <p><b>Vocabulary:</b><br/>decimal, product, quotient, estimate, accuracy, calculator display, unit price, best value, budget, income, expense, profit, loss, investment, transaction</p> <p><b>Career examples:</b> Event planner; entrepreneur / business founder</p> |



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## Curriculum Overview - Mathematics - Year 8

Skills colour key: **Number and ratio** | **Geometry and measure** | **Statistics and data** | **Algebra** | General and functional skills

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| <b>Y<br/>e<br/>a<br/>r<br/><br/>8</b> | <p><b>Topics:</b><br/>Whole numbers, decimals, rounding and error bounds; Expressions and formulae</p> <p><b>Knowledge:</b><br/>Year 8 strengthens number structure, accuracy and bounds before extending algebraic manipulation. Pupils connect factors, powers and rounding with inequalities, then simplify, expand, factorise and use formulae.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Compare and order positive and negative numbers, decimals and fractions; revisit the four operations.</b></li><li>• <b>Use factors, multiples, primes, HCF, LCM, prime factor decomposition, roots and indices.</b></li><li>• <b>Round and estimate using decimal places and significant figures; interpret upper and lower bounds.</b></li><li>• <b>Use inequality notation and represent intervals on number lines.</b></li><li>• <b>Collect like terms, simplify expressions, expand brackets, factorise and substitute into formulae.</b></li><li>• <b>Write and rearrange formulae, extending to algebraic fractions where secure.</b></li></ul> <p><b>Vocabulary:</b><br/>integer, prime factor, HCF, LCM, index, significant figure, upper bound, lower bound, inequality, interval, coefficient, simplify, expand, factorise, formula, rearrange</p> <p><b>Career examples:</b> Cybersecurity specialist; software engineer</p> | <p><b>Topics:</b><br/>Angles and 2D shapes; Measures, perimeter, area and circles; Statistics; Sequences</p> <p><b>Knowledge:</b><br/>Geometric reasoning develops through angle facts, polygon properties, congruence and circle measures. Pupils construct and evaluate statistical representations and extend sequences from term-to-term rules to nth-term generalisation.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Calculate angles in lines, triangles, quadrilaterals, parallel lines and polygons; use congruence and proof where secure.</b></li><li>• <b>Convert units and calculate perimeter and area of polygons and compound shapes.</b></li><li>• <b>Calculate circumference and area of circles and convert between units of area.</b></li><li>• <b>Plan data collection; construct and interpret diagrams; calculate averages and spread; evaluate bias and reliability.</b></li><li>• <b>Use scatter diagrams, correlation and grouped data where appropriate.</b></li><li>• <b>Generate sequences from rules and find nth-term rules, including graphical and geometric sequences.</b></li></ul> <p><b>Vocabulary:</b><br/>alternate, corresponding, co-interior, congruent, proof, circumference, radius, diameter, pi, grouped data, scatter diagram, correlation, outlier, position-to-term rule, nth term, recursive</p> <p><b>Career examples:</b> Structural engineer; quantity surveyor; sport statistician; animation designer</p> | <p><b>Topics:</b><br/>Fractions, decimals, percentages and standard form; Mental calculations; Constructions</p> <p><b>Knowledge:</b><br/>FDP fluency includes all four fraction operations, percentage change and standard form. Pupils choose efficient mental methods and use powers of ten before applying accurate construction, bearings and scale drawings.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Order FDP values and complete all four operations with fractions.</b></li><li>• <b>Find fractions and percentages of amounts and calculate percentage increase or decrease.</b></li><li>• <b>Write and interpret numbers in standard form using powers of ten.</b></li><li>• <b>Use BIDMAS and efficient mental strategies in multi-step problems and justify method choice.</b></li><li>• <b>Construct triangles, perpendiculars, bisectors and loci using ruler, compass and protractor.</b></li><li>• <b>Use scale drawings and bearings in map-based problems.</b></li></ul> <p><b>Vocabulary:</b><br/>reciprocal, common denominator, percentage change, multiplier, standard form, exponent, order of magnitude, BIDMAS, strategy, construction, locus, bearing, congruent</p> <p><b>Career examples:</b> Financial analyst; air traffic controller; surveyor</p> | <p><b>Topics:</b><br/>Graphs; Written and calculator methods; Equations and inequalities</p> <p><b>Knowledge:</b><br/>Graphs are used to represent algebraic and real-life relationships. Accurate written and calculator methods support increasingly complex equations, inequalities and trial-and-improvement approaches.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Plot coordinates and draw or interpret linear, real-life, time-series and conversion graphs.</b></li><li>• <b>State or interpret equations of lines and extend to gradients and quadratic graphs where secure.</b></li><li>• <b>Use formal written methods, BIDMAS and calculators with decimals and negative values.</b></li><li>• <b>Estimate and check results for reasonableness.</b></li><li>• <b>Solve one-step, two-step and multi-step equations, including brackets and fractions where appropriate.</b></li><li>• <b>Construct equations, use trial and improvement, and represent inequality solutions on number lines.</b></li></ul> <p><b>Vocabulary:</b><br/>linear, gradient, intercept, equation of a line, conversion graph, quadratic, significant figure, equation, inequality, coefficient, solution set, trial and improvement</p> <p><b>Career examples:</b> Game designer; pharmacist; aerospace engineer</p> | <p><b>Topics:</b><br/>Ratio, proportion and compound units; Transformations and symmetry; Probability</p> <p><b>Knowledge:</b><br/>Proportional reasoning is applied through ratios, direct and inverse proportion, rates and compound units. Transformations are combined and described formally, while probability is represented systematically using diagrams.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Simplify and compare ratios, divide quantities in a ratio and find unknowns in direct proportion.</b></li><li>• <b>Explore inverse proportion and use rates and compound units such as speed, density and unit price.</b></li><li>• <b>Reflect, rotate, translate and enlarge shapes; combine transformations.</b></li><li>• <b>Describe congruent and similar shapes using centres and scale factors.</b></li><li>• <b>List outcomes systematically and calculate theoretical and experimental probabilities.</b></li><li>• <b>Use tree diagrams and Venn diagrams and compare experimental results with theory.</b></li></ul> <p><b>Vocabulary:</b><br/>direct proportion, inverse proportion, rate, unit rate, compound unit, speed, density, scale factor, centre of enlargement, congruent, similar, sample space, tree diagram, Venn diagram</p> <p><b>Career examples:</b> Sports nutritionist; game artist; risk analyst</p> | <p><b>Topics:</b><br/>3D shapes; Algebraic manipulation; Functional investigations and compound-unit applications; Money Matters</p> <p><b>Knowledge:</b><br/>Pupils connect 3D representations with surface area, volume and capacity. Core algebra, number and proportional reasoning are consolidated through investigations and financial applications in preparation for upper school.</p> <p><b>Skills:</b></p> <ul style="list-style-type: none"><li>• <b>Identify 3D-shape properties and interpret isometric drawings, plans and elevations.</b></li><li>• <b>Use nets and calculate surface area and volume of cuboids and prisms.</b></li><li>• <b>Revisit simplifying, expanding, factorising, substitution and equation solving.</b></li><li>• <b>Apply fractions, decimals, percentages, ratio, calculators and compound units in investigations.</b></li><li>• <b>Explore budgeting, saving, borrowing, interest, repayment, investment and financial decisions.</b></li><li>• <b>Use interleaved problem solving to prepare for the next stage of the curriculum.</b></li></ul> <p><b>Vocabulary:</b><br/>prism, cross-section, net, isometric, plan, elevation, surface area, volume, capacity, variable, factorise, unit cost, rate, income, expenditure, interest, credit, repayment</p> <p><b>Career examples:</b> Architect; entrepreneur / business founder</p> |