Mathematics 5 Year Curriculum

Year 7	**Number** Place value, decimals and using scales Factors, muliples, primes, LCM and HCF Four operations with integers and decimals	**Number** Understanding fractions Four operations with fractions Comparing fractions and integers	**Algebra** Identity an equation, formula, identity or expression Solving equations (one step, two step and x on both sides)	**Statistics** Presenting and interpreting data Averages and range calculations from a list of data Pie charts	**Geometry & measures** Problems involving perimeters, including circles Derive and apply formulae to solve area problems	**Algebra** Sequences as pictures Term to term rule and recurrence relations n^{th} term of an arithmetic sequence	**Geometry & measures** Properties of 2D shapes Angles in triangles, quadrilaterals and polygons Angles in parallel lines	**Geometry & measures** Plotting and reading coordinates Horizontal and vertical line equations Rotation, reflection and translation (transformations)	

Year 8	**Number** Understanding percentages Fractions and percentages as operators	**Ratio & proportion** Find equivalent ratios and simplify Share using ratio, when given one part and when given a difference	**Number** Powers, roots and reciprocals Identify sets of Pythagorean triples Order of operations	**Algebra** Simplifying and manipulating algebra Plotting and Interpreting coordinate graphs	**Probability** Introducing probability Calculate using the 'sum' and 'not' rules Calculate using the 'or' rule for mutually exclusive events	**Geometry & measures** Circles and compound area 3D shapes, capacity and volume	**Ratio & proportion** Write ratio in the form 1:n Combine ratios a:b and b:c to a:b:c Proportion, including exchange rates and recipe problems	**Geometry & measures** Constructions and loci Similarity and congruence	**Algebra** Straight line graphs Understand $y = mx + c$ Conversion graphs Solve simultaneous equations graphically	**Probability** Further probability in two way tables and frequency trees Venn diagrams

Year 9 Route 1	**Number** Ordering integers and decimals, including estimation Use of the inequality symbols ≥, >, ≤, < including ≠ Indices, powers, roots and BIDMAS Factors, multiples and primes (with Venn diagrams) Prime factorisation	**Algebra** Algebraic basics, collecting like terms in expressions Substitution and simple rearranging formulae Use index notation and the index laws (× and ÷) Expand and factorise single brackets	**Geometry & measures** Lines of symmetry and order of rotation Recognise acute, obtuse, right and reflex angles Angles on parallel lines Interior and exterior angles of polygons	**Geometry & measures** Pythagoras' theorem Find the length of the hypotenuse and a missing shorter side Apply Pythagoras' theorem on a coordinate grid Trigonometry (SOH CAH TOA) and exact values of sin, cos, tan	**Number** Mixed numbers and improper fractions (+ – × ÷) Percentages and decimal multipliers Simple and compound interest Standard form (+ – × ÷)	**Algebra** Solving equations and inequalities Arithmetic sequences and the Fibonacci sequence	**Ratio & proportion** Write ratio as a fraction Share a quantity in a given ratio, including three-part ratio Best buy problems Direct and inverse proportion problems	**Geometry & measures** Convert time Convert metric measures Area and perimeter of compound shapes Volume of prisms

Year 9 Route 2	**Number** Estimate complex calculations powers, roots and BIDMAS Fractional and negative powers. Prime factorisation, LCM and HCF Standard form (+ – × ÷) Surds	**Algebra** Rearranging and solving equations Expanding and factorising expressions with single brackets Expand double and triple brackets Arithmetic sequences and the Fibonacci sequence	**Geometry & measures** Interior and exterior angles of polygons Angles on parallel lines Apply Pythagoras' theorem Trigonometry (SOH CAH TOA) and exact values of sin, cos, tan	**Ratio & proportion** Mixed numbers and improper fractions (+ – × ÷) Percentages and decimal multipliers Simple and compound interest Reverse percentages Share using ratio, when given one part and when given a difference	**Geometry & measures** Perimeter and area of compound shapes, including trapezium Circles C = πd and A = πr^2 Volume and surface area of cylinders, cones and spheres Accuracy and bounds	**Algebra** Factorising quadratic expressions $ax^2 + bx + c$ Solve using the quadratic formula and by completing the square Solve linear inequalities Simultaneous equations	**Algebra** Graphs including real-life, linear, quadratic, cubic and reciprocal Equation of a circle $x^2 + y^2 = r^2$ Area under graphs using area of triangles and trapezia