

| Year 9 | Number | Algebra | Ratio and Proportion (including FDP) | Geometry | Data Handling and Probability |
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| Emerging | Understand and use factors, multiples and primes. Explore the 100 grid. Work with directed number. Solve problems with integers and decimals. Use squares and square roots. | Understand and identify lines equations of lines parallel to the axes. Solve one-step equations and inequalities. | Use the equivalence of fractions, decimals and percentages. Solve problems with direct proportion. | Know names of 2D and 3D shapes. Recognise prisms, including the language of edges, faces and vertices. Find areas of 2D shapes. Draw and measure angles. Construct and interpret scale drawings. Identify the order of rotational symmetry of a shape. Identify the hypotenuse of a right-angled triangle. Recognise enlargement and similarity. | Use single event probability. |
| Developing | Find the HCF and LCM. Explore integers, real and rational numbers. Solve problems with bills and bank statements. | Solve equations and inequalities with brackets. Identify and use equations of lines $y=x$ and $y=-x$. Use a table of values. Know the difference between formulae and equations. | Add, subtract, multiply and divide fractions. Express a change as a percentage. Calculate percentage increase and decrease. Use direct proportion with conversion graphs. Solve ratio problems given the whole or a part. | Sketch, use and recognise the nets of cuboids and other 3D shapes. Draw plans and elevations of 3D shapes. Construct triangles from given information. Find and use angles in parallel lines. Compare and contrast rotational and line symmetry. Determine whether a triangle is right-angled. Enlarge a shape by a positive integer scale factor. | Explore relative frequency. |
| Securing | Solve problems that involve: true/false questions, always, sometimes, never questions and 'show that' questions. Calculate wages and taxes. | Explore inequalities with negative numbers. Solve equations and inequalities with unknowns on both sides. Compare gradients and intercepts of straight line graphs. Rearrange 1 and 2-step formulae. Test conjectures involving algebra. Expand a pair of binomials. Solve angle problems with algebra. Interpret reciprocal graphs. | Solve problems with fractions. Recognise and solve percentage problems both with and without a calculator. Calculate simple interest and compound interest. Solve problems with Value Added Tax (VAT). Solve problems with exchange rates. Solve problems with inverse proportion. Solve speed, distance and time problems with and without a calculator. Use distance-time graphs. Solve problems with density, mass and volume. | Find the surface area of cubes, cuboids and triangular prisms. Find volumes of cubes, cuboids and prisms. Construct a perpendicular bisector of a line, from a point to a line and through a point on a line. Find the locus of distance from a point, a straight line, from two points and from two lines. Solve angle problems using chains of reasoning. Solve angle problems with algebra. Rotate a shape about a point. Translate points and shapes by a given vector. Calculate sides of right-angled triangles. Use Pythagoras' Theorem on a coordinate axes. Enlarge a shape by a positive integer scale factor from a point. | Explore independent events. Explore expected outcomes. Interpret piece-wise graphs. |
| Advancing | Test conjectures involving number. | Understand and use $y=mx+c$. Find the equation of a line from a graph. Interpret gradients and intercepts of real-life graphs. Explore inequalities and equations in other mathematical contexts. Represent inequalities on number lines and graphically. Draw and interpret quadratic graphs. | Solve reverse percentage problems. Solve unit pricing problems. Find missing sides and angles in similar shapes. Solve best buy problems. Solve 'flow problems' and their graphs. Use rates of change. Convert between compound units. | Find the surface area of a cylinder. Find the volume of a cylinder. Identify congruent figures. Construct an angle bisector. Test conjectures with shapes and angles. Compare rotation and reflection of shapes. Explore proofs of Pythagoras' Theorem. Find missing sides and angles in similar shapes. Enlarge a shape by a positive fractional scale factor. | Use diagrams to work out probabilities. |
| Mastering | Understand and use Surds. | Rearrange to write an equation in the form $y=mx+c$. Model real-life graphs involving inverse proportion. Explore perpendicular lines. Rearrange complex formulae. Expand three binomials. Use graphs of inverse relationships. Solve problems involving ratio and algebra. Investigate graphs of simultaneous equations. | Solve problems with repeated percentage change. Solve problems with similar triangles. Explore ratios in right-angled triangles. Solve problems involving ratio and algebra. | Explore volumes of cones, pyramids and spheres. Explore and identify congruent triangles. Link constructions and geometrical reasoning. Find the result of a series of transformations. Use Pythagoras' Theorem in 3D shapes. Enlarge a shape by a negative scale factor. Solve problems with similar triangles. Explore ratios in right-angled triangles. | Use tree diagrams. Use tree diagrams to solve without replacement problems. |