

MATHEMATICS

Step	Strand 1 Number <i>(Equal weighting)</i>	Strand 2 Algebra <i>(Equal weighting)</i>	Strand 3 Ratio and proportion <i>(Equal weighting)</i>	Strand 4 Geometry and measure <i>(Equal weighting)</i>	Strand 5 Probability and statistics <i>(Equal weighting)</i>
9	All of the below and... <ul style="list-style-type: none"> can solve multi-step complex problems. develops an understanding of exponential growth. 	All of the below and... <ul style="list-style-type: none"> can solve multi-step complex problems. can use reciprocal and exponential graphs. can simplify algebraic fractions. can manipulate complex formulae. 	All of the below and... <ul style="list-style-type: none"> can solve multi-step complex problems. can solve problems using exponential relationships. 	All of the below and... <ul style="list-style-type: none"> can solve multi-step complex problems. can solve more complex geometrical problems, including proof, showing a step-by-step deduction. 	All of the below and... <ul style="list-style-type: none"> can interpret complex distributions and make inferences regarding the probability of events occurring.
8	All of the below and... <ul style="list-style-type: none"> knows and can use index laws with a combination of fractional and negative powers. understands and can use upper and lower bounds in context. 	All of the below and... <ul style="list-style-type: none"> can solve quadratic equations using a variety of methods. can solve simultaneous equations with one linear and one quadratic. 	All of the below and... <ul style="list-style-type: none"> understands and can use direct and inverse proportion; solve problems involving inverse proportion (including inverse squares and so on) using algebraic methods. 	All of the below and... <ul style="list-style-type: none"> can use trigonometric relationships in non-right-angled triangles to solve problems. 	All of the below and... <ul style="list-style-type: none"> can compare two or more distributions and make inferences, using the shape of the distributions and measures of average and spread, including median and quartiles.
7	All of the below and... <ul style="list-style-type: none"> knows and can use the index laws with fractional and negative powers. 	All of the below and... <ul style="list-style-type: none"> can solve linear and quadratic simultaneous equations graphically and algebraically. can factorise quadratic expressions. 	All of the below and... <ul style="list-style-type: none"> understands and can use direct and indirect proportion problems using algebraic methods. 	All of the below and... <ul style="list-style-type: none"> can solve problems involving right-angle triangles, using Pythagoras' Theorem, trigonometric relationships (also including bearings). Calculate missing angles in circles. 	All of the below and... <ul style="list-style-type: none"> can compare distributions of grouped, discrete or continuous data by calculating mean, mode, median and range.
6	All of the below and... <ul style="list-style-type: none"> know and can use the index laws for multiplication and division of integer powers. 	All of the below and... <ul style="list-style-type: none"> expand two or more brackets. solve linear simultaneous equations graphically and algebraically. construct graphs (linear and quadratic). 	All of the below and... <ul style="list-style-type: none"> solve problems involving direct and inverse proportion including graphical and algebraic methods. 	All of the below and... <ul style="list-style-type: none"> understand and can use formulae for the volume of prisms, including cylinders to solve problems. understand and can use Pythagoras' Theorem to find the hypotenuse of right-angled triangles. 	All of the below and... <ul style="list-style-type: none"> compare and analyse distributions of ungrouped and grouped discrete and continuous data by constructing appropriate graphs and charts.
5	All of the below and... <ul style="list-style-type: none"> can use rounding to make estimates and to give solutions to problems to an appropriate degree of accuracy. can convert numbers between ordinary and standard form (positive and negative indices). can solve problems involving percentages including reverse percentages. <p>Perform four rules with negatives and mixed number fractions</p>	All of the below and... <ul style="list-style-type: none"> can construct and solve linear equations and inequalities with unknowns on both sides. can manipulate formulae to change the subject. can find the equation of a straight line by working out the gradient and y-intercept. can work out the nth term of linear and non-linear sequence. 	All of the below and... <p>Understand and can use proportionality and calculate the result of any proportional change using multiplicative methods.</p>	All of the below and... <ul style="list-style-type: none"> can use side and angle properties to solve geometrical problems (congruence and similarity) can construct angle and line bisectors and perpendiculars to given lines. can solve problems involving circles, arcs and sectors. <p>can calculate the surface area of prisms including cylinders.</p>	All of the below and... <ul style="list-style-type: none"> can calculate the probability of independent combined events using sample space diagrams or tree diagrams. <p>can draw and interpret scatter graphs by drawing a line of best fit to make predictions.</p>

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4	<p>All of the below and...</p> <ul style="list-style-type: none"> can multiply and divide whole numbers and decimals by 0.1, 0.01. can use a formal method to divide a 3-digit by a 2-digit whole number. can find and use the prime factor decomposition of a number. can solve problems involving percentage change. Use four rules with fractions 	<p>All of the below and...</p> <ul style="list-style-type: none"> can factorise algebraic expressions. Can expand two brackets to form a simple quadratic can solve linear equations with integer coefficients and unknowns on both sides. can plot and interpret graphs for simple real-life situations. Find the nth term of a linear sequence. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can use scale factors, scale diagrams and maps. Can calculate compound measures 	<p>All of the below and...</p> <ul style="list-style-type: none"> can visualise 3D shapes from nets and use simple plans and elevations. can calculate angles in regular polygons and parallel lines. knows and can use the formulae for the area of a parallelogram and trapezium. knows and can use the formula for the area and circumference of a circle. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can calculate probabilities for combined experiments by constructing sample space diagrams. can use tables, grids and Venn diagrams to solve problems. can estimate the mean for grouped data.
3	<p>All of the below and...</p> <ul style="list-style-type: none"> can use a formal method to multiply a 3-digit by a 2-digit whole number. can multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect. can perform the four rules of number on both positive and negative integers. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can simplify algebraic expressions (including those with single brackets) by collecting like terms. can construct and solve simple linear equations, such as $2x - 7 = 11$ can write and use expressions and formulae. can generate terms of a linear sequence. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can convert between metric units, and simple metric to imperial units. can solve problems involving ratio and direct proportion. Can covert and use FDP's to solve problems 	<p>All of the below and...</p> <ul style="list-style-type: none"> can transform and describe 2D shapes by rotating about a given point, enlarging on a coordinate grid. can construct triangles accurately given three sides or two sides and an angle. knows and can use formula for the area of a triangle and volume of cuboids can calculate perimeters and areas of composite shapes. Know and use angle facts about a point, in triangles and quadrilaterals. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can explain the results of an experiment using probability. identify the modal class for grouped data. construct and interpret graphs and diagrams to represent ungrouped discrete data including bar graphs, pie charts and frequency tables.
2	<p>All of the below and...</p> <ul style="list-style-type: none"> can multiply and divide whole numbers by 10, 100 and 1000. can multiply a simple decimal by a single digit. Describe and use all properties of number 	<p>All of the below and...</p> <ul style="list-style-type: none"> understands algebraic notation, such as ab, $2a$. can use formulae expressed in words. can continue and describe sequences from patterns or practical contexts. Understand and use lines parallel to the axes and $y=x$ and $y = -x$ 	<p>All of the below and...</p> <ul style="list-style-type: none"> can write a smaller whole number as a fraction of a larger one. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can transform 2D shapes by reflecting in a given line including diagonal. can enlarge a shape on a given grid. can measure and draw acute and obtuse angles. can find the perimeter and area of rectangles and composite shapes made of rectangles. 	<p>All of the below and...</p> <ul style="list-style-type: none"> can understand and use the probability scale from 0 to 1. can find the mean, median, mode and range for small sets of discrete data. can construct and interpret simple tables, graphs and diagrams.
1	<p>Can...</p> <ul style="list-style-type: none"> perform simple calculations mentally. use decimal notation in everyday contexts, such as money. 	<p>Can...</p> <ul style="list-style-type: none"> plot and write coordinates in all quadrants. describe and continue simple linear sequences. 	<p>Can...</p> <ul style="list-style-type: none"> calculate simple unit fractions of an amount. 	<p>Can...</p> <ul style="list-style-type: none"> classify basic 2D shapes. identify and estimate the size of acute, obtuse and reflex angles. find perimeters and areas of shapes by counting squares. 	<p>Can...</p> <ul style="list-style-type: none"> describe the chance of an event occurring by using words such as: impossible, likely, equally likely, fair, unfair, certain. use information in simple tables and graphs.

