

Maths Descriptors

Strand	Start of Year 7	1	2	3	4	5	6	7/E	Ready to start GCSE
Number		<p>Multiply and divide whole numbers by 10, 100 and 1000</p> <p>Multiply and divide decimals by 10, 100 and 1000</p> <p>Order, add and subtract negative numbers in context</p> <p>Perform calculations with numbers to 2 decimal places</p> <p>Perform calculations using mixed numbers</p> <p>write a whole number as a product of its prime factors</p> <p>Find the lowest common multiple of two numbers</p> <p>Find the highest common factor of two numbers</p> <p>Use BIDMAS to perform operations in the correct order</p> <p>Reduce a fraction to its simplest form</p> <p>Write a ratio in its simplest form</p> <p>Solve a simple problem involving direct proportion</p> <p>Calculate fractions of quantities</p> <p>Calculate percentages of quantities</p> <p>Multiply a 3-digit number by a 2-digit number without a calculator</p> <p>Divide a 3-digit number by a 2-digit number without a calculator</p>	<p>Put decimal numbers into order</p> <p>Evaluate one number as a fraction of another</p> <p>Evaluate one number as a percentage of another</p> <p>Work out percentage increases and decreases</p> <p>Add and subtract fractions</p> <p>Share a quantity into a given ratio</p> <p>Convert between equivalent fractions, decimals and percentages</p>	<p>Round a number to 1 significant figure</p> <p>Understand the effect of multiplying or dividing by a number between 0 and 1</p> <p>Calculate the result of a proportional change</p>		<p>Perform calculations using powers and roots</p> <p>Calculate with numbers in standard form</p> <p>Calculate the result of a repeated proportional change</p> <p>Work out the original quantity, before a repeated proportional change</p> <p>Solve problems involving compound interest</p>			

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Algebra		Construct a simple formula using two operations	Write down a term to term rule for a linear sequence Write down a position to term rule for a linear sequence Formulate linear equations with whole number coefficients Solve linear equations with whole number coefficients Plot the graph of a linear equation using the equation to work out the coordinates of points on the line Substitute values into formulas	Calculate the n th term of a quadratic sequence Multiply two brackets of the form $(x + n)$ together, and simplify the result by collecting like terms Solve two linear simultaneous equations graphically Solve two linear simultaneous equations algebraically Solve simple inequalities		Substitute any kind of number into an algebraic formula Manipulate algebraic fractions confidently, factorising expressions and cancelling out common factors Understand and use the difference of two squares Solve linear inequalities in two variables Sketch quadratic functions Recognise cubic and reciprocal functions			
Shape		Use and interpret co-ordinates in all four quadrants Measure and draw angles to the nearest degree Construct a perpendicular bisector of a line Name the different types of angles Remember what the angles in a triangle add up to Remember what the angles around a point add up to Identify reflection and rotational symmetries in two-dimensional shapes Use rough metric equivalents of common imperial units Convert one metric unit into another metric unit	Recognise common 2D representations of 3D objects Draw the net of a cube Classify different quadrilaterals by their properties Solve angle problems involving polygons Understand angle properties of intersecting parallel lines Calculate bearings Find the circumference of a circle Find the area of a circle Calculate areas of triangles, parallelograms and trapeziums Find the volume of a cuboid Enlarge a shape by a positive whole number scale factor Interpret a distance-time graph	Understand and use Pythagoras' Theorem Calculate volumes of prisms Enlarge a shape by a fractional scale factor Understand what it means when two shapes are 'similar' Solve a simple loci problem Calculate upper and lower bounds for whole numbers Understand and use compound measures, such as speed and density		Understand and use congruence and similarity Use sin, cos and tan in right-angled triangles Distinguish between formulas for perimeter, area and volume by considering dimensions			

	Use the formula for the area of a rectangle			
Data & probability	<p>Calculate the mean of a discrete set of data</p> <p>Use the range to compare two sets of data</p> <p>Calculate the median and mode of a discrete set of data</p> <p>Interpret a pie chart</p> <p>Understand the probability scale from 0 to 1</p> <p>Calculate probabilities using equally likely outcomes</p> <p>Calculate probabilities using an experiment</p>	<p>Collect and record continuous data, using appropriate class intervals of equal size, in a frequency table</p> <p>Construct a pie chart</p> <p>Find the median and range from a stem and leaf diagram</p> <p>Draw a scatter diagram</p> <p>Describe the correlation on the scatter diagram</p> <p>Identify the possible outcomes of two combined experiments</p> <p>Use my knowledge that the total probability of all the mutually exclusive outcomes of an experiment = 1 to solve a problem</p>	<p>Test a hypothesis, taking into account any possible bias</p> <p>Determine the modal class of a set of data</p> <p>Estimate the mean, median and range of a set of grouped data</p> <p>Select the most appropriate average in a given situation</p> <p>Use frequency polygons to compare two distributions</p> <p>Use a boxplot to compare two distributions</p> <p>Draw a line of best fit on a scatter diagram and describe the correlation</p> <p>Understand relative frequency as an estimate of a probability</p>	<p>Construct a cumulative frequency graph</p> <p>Estimate the median and quartiles from a cumulative frequency graph</p> <p>Understand how to calculate the probability of a compound event</p>
Processes	<p>Identify and obtain the necessary information to solve a problem</p> <p>Show I understand a situation by describing it mathematically</p> <p>Draw simple conclusions, explain reasoning</p>	<p>Solve a complex task by breaking it down into smaller tasks</p>	<p>Justify your solution to a problem, showing some insight into the mathematical structure of the problem</p>	<p>Use a range of mathematical techniques to develop and follow alternative approaches when solving a problem</p>