

Maths (Year 7)

	Emerging – a student whose understanding of the Y7 Maths skills is still emerging will be able to:	Developing – a student who is developing their Y7 Maths skills will be able to:	Secure – a student who is secure in the skills in the Y7 Maths curriculum will be able to:	Mastered – a student who has mastered the skills in the Y7 Maths curriculum will be able to:
Number	Show negative numbers on a number line. Round to nearest 10, 100. Know square numbers up to 15 x 15 Use place value to recognise what each digit represents. Add and subtract with written methods.	Use inequality symbols. Estimate answers and check if an answer is about right. Order decimals by size. Use negative numbers to solve real-life problems. Round to one decimal place.	Carry out multiplication with negative numbers. Use rounding to estimate answers to complex sums.	A 'Master' in mathematics fully understands the topics taught and can demonstrate full understanding in extensive practice and checks over their work to ensure it is of exemplary standard. They can choose the maths required to solve problems presented in a format they have never seen before. They find their own mistakes, and those of others, and devise strategies to minimise them in the future.
Calculations	Multiply and divide by a single digit. Calculate area of a rectangle. List factors of small numbers. Recall times tables up to 12.	Add and subtract with negative numbers. Understands the correct order of operations (BIDMAS). Use written methods to add, subtract, multiply and divide whole numbers and decimal numbers. Calculate with measurements.	Add, subtract, multiply and divide decimal numbers with other decimal numbers.	
Fractions	Find simple equivalent fractions. Represent fractions on a simple diagram. Find a half, a quarter or three-quarters of a whole number.	Compare fractions with different denominators. Simplify fractions. Add and subtract fractions with same denominators.	Convert between mixed numbers and improper fractions. Add and subtract fractions with different denominators. Including mixed numbers.	

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Proportion	Understand that percentages, decimals and fractions represent part of a whole. Know the decimal and fraction equivalents of 25%, 50% and 75%.	Convert between fractions, decimals and percentages. Find fraction or a percentage of an amount. Work out percentages without a calculator. Use ratio notation to compare quantities. Simplify ratios and see the connection between ratios and fractions.	Use ratio notation with three items. Compare quantities in the ratio 1: n. Work out and solve problems involving percentage change. Use ratios to find totals or missing quantities.	A 'Master' in mathematics fully understands the topics taught and can demonstrate full understanding in extensive practice and checks over their work to ensure it is of exemplary standard. They can choose the maths required to solve problems presented in a format they have never seen before. They find their own mistakes, and those of others, and devise strategies to minimise them in the future.
Algebra	Know that letters represent unknown numbers. Simplify expressions by collecting like terms. Substitute positive whole numbers into expressions. Plot coordinates in the positive quadrant. Work out the next term in a sequence and the term to term rule. Solve one step equations and simple number puzzles.	Work out the rule for a function machine given the input and output. Put numbers into function machines. Generate a sequence from the first term and the term-to-term rule. Plot coordinates in any quadrant and recognise and draw graphs of horizontal and vertical lines. Read values from conversion graphs. Solve two step equations.	Work out the operations in a function machine that uses more than one rule, given input and output values. Write formulae from a worded question. Draw lines of the form $y = mx + c$ and $y + x = a$ Set up and solve an equation for a real-life problem.	

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2D Geometry	<p>Draw, measure and name acute and obtuse angles.</p> <p>Recognise and name different types of triangle and quadrilateral.</p> <p>Find perimeter of a 2D shape.</p> <p>Find the area of a 2D shape by counting squares.</p> <p>Recognise parallel and perpendicular lines.</p> <p>Draw lines of symmetry on 2D shapes.</p>	<p>Work out area of a rectangle using $\text{Area} = \text{length} \times \text{width}$</p> <p>Work out perimeter of a compound shape.</p> <p>Calculate angles at a point, angles on a straight line, vertically opposite angles and angles in a triangle.</p> <p>Work out order of rotational symmetry.</p> <p>Reflect a shape in a horizontal, vertical or diagonal line.</p> <p>Tessellate 2D shapes.</p>	<p>Work out the area of a triangle, parallelogram, trapezium and a compound shape.</p> <p>Describe and use the properties of different quadrilaterals.</p> <p>Calculate angles in parallel lines.</p> <p>Rotate a 2D shape about a centre of rotation.</p>	<p>A 'Master' in mathematics fully understands the topics taught and can demonstrate full understanding in extensive practice and checks over their work to ensure it is of exemplary standard. They can choose the maths required to solve problems presented in a format they have never seen before. They find their own mistakes, and those of others, and devise strategies to minimise them in the future.</p>
Data Handling	<p>Collect data into a tally chart.</p> <p>Construct simple bar charts.</p> <p>Use probability words to describe the chance of things happening.</p> <p>Calculate median, mode and range of a small set of data.</p>	<p>Find mean for a set of data.</p> <p>Know the difference between discrete and continuous data.</p> <p>Use a probability scale marked from 0 to 1.</p> <p>Use equally likely outcomes to calculate probabilities.</p> <p>Compare two simple distributions using median and range.</p> <p>Read data from pie charts.</p> <p>Use charts and diagrams to interpret data.</p>	<p>Calculate probability from experimental data.</p> <p>Understand the difference between theoretical and experimental probability.</p>	

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3D Geometry	<p>Make 3D shapes using cubes. Know the mathematical words for various 3D shapes (cube & cuboid). Build 3D shapes using a net. Visualise 3D shapes.</p>	<p>Name 3D shapes (prisms and pyramids). Draw nets of 3D shapes. Count faces, vertices and edges on a 3D shape.</p>	<p>Find surface area and volume of a cuboid. Describe the relationship between the number of edges, vertices and faces for a 3D shape. Draw 3D shapes on isometric paper.</p>	<p>A 'Master' in mathematics fully understands the topics taught and can demonstrate full understanding in extensive practice and checks over their work to ensure it is of exemplary standard. They can choose the maths required to solve problems presented in a format they have never seen before. They find their own mistakes, and those of others, and devise strategies to minimise them in the future.</p>