



## Year 6 Programme of Study

Mathematics Mastery is fully aligned to the National Curriculum. Our Programmes of Study outline the objectives taught throughout the year in Mathematics Mastery lessons\*.

\*Some National Curriculum objectives are also further embedded during Maths Meetings, see Maths Meeting termly guidance [here](#).

<b>Autumn</b>	<b>1. Integers &amp; Decimals (2 weeks)</b>	<ul style="list-style-type: none"> <li>• read, write, order and compare numbers up to 10,000,000 and determine the value of each digit</li> <li>• round any whole number to a required degree of accuracy</li> <li>• solve problems involving addition and subtraction</li> <li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> </ul>
	<b>2. Multiplication and division (3 weeks)</b>	<ul style="list-style-type: none"> <li>• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1.000 giving answers up to three decimal places</li> <li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>• multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</li> <li>• divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</li> <li>• use written division methods in cases where the answer has up to two decimal places</li> <li>• identify common factors, common multiples and prime numbers</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• solve problems which require answers to be rounded to specified degrees of accuracy</li> </ul>
	<b>3. Calculation problems (2 weeks)</b>	<ul style="list-style-type: none"> <li>• find pairs of numbers that satisfy an equation with two unknowns</li> <li>• enumerate possibilities of combinations of two variables</li> <li>• use knowledge of the order of operations to carry out calculations involving the four operations</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• solve problems involving addition, subtraction, multiplication and division</li> </ul>
	<b>4. Fractions and decimals (3 weeks)</b>	<ul style="list-style-type: none"> <li>• use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> <li>• compare and order fractions, including fractions <math>&gt; 1</math></li> <li>• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>]</li> <li>• recall and use equivalences between simple fractions and decimals, including in different contexts</li> <li>• generate and describe linear number sequences (with fractions)</li> <li>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>• multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>]</li> <li>• divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>]</li> <li>• recall and use equivalences between simple fractions and decimals, including in different context</li> </ul>



<b>Autumn</b>	<p><b>5. Percentages (with fractions and decimal equivalence)</b></p> <p><b>(1 week)</b></p>	<ul style="list-style-type: none"> <li>recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> <li>solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li> </ul>
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<b>Spring</b>	<p><b>6. Decimals and measures</b></p> <p><b>(3 weeks)</b></p>	<ul style="list-style-type: none"> <li>solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to three decimal places</li> <li>convert between miles and kilometres</li> <li>recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>recognise when it is possible to use formulae for area and volume of shapes</li> <li>use simple formulae</li> <li>calculate the area of parallelograms and triangles</li> <li>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units [for example, <math>\text{mm}^3</math> and <math>\text{km}^3</math>]</li> <li>generate and describe linear number sequences (with decimals)</li> </ul>
	<p><b>7. Missing angles and lengths</b></p> <p><b>(1 week)</b></p>	<ul style="list-style-type: none"> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> <li>express missing number problems algebraically</li> <li>compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> </ul>
	<p><b>8. Coordinates and shape</b></p> <p><b>(2 weeks)</b></p>	<ul style="list-style-type: none"> <li>use negative numbers in context, and calculate intervals across zero</li> <li>describe positions on the full coordinate grid (all four quadrants)</li> <li>draw 2-D shapes using given dimensions and angles</li> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> <li>recognise, describe and build simple 3-D shapes, including making nets</li> <li>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>solve number and practical problems that involve all of the above</li> </ul>
	<p><b>9. Statistics</b></p> <p><b>(1 week)</b></p>	<ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>calculate and interpret the mean as an average</li> </ul>
	<p><b>10. Proportion problems</b></p> <p><b>(2 weeks)</b></p>	<ul style="list-style-type: none"> <li>solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>solve problems involving similar shapes where the scale factor is known or can be found</li> <li>solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li> </ul>
	<p><b>9. Percentages and statistics</b></p> <p><b>(2 weeks)</b></p>	<ul style="list-style-type: none"> <li>recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> <li>solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li> </ul>