

## Key Learning in Mathematics – Year 5

Number – number and place value	Number – addition and subtraction	Number – multiplication and division
<ul style="list-style-type: none"> <li>▪ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li>▪ <i>Count forwards and backwards in decimal steps.</i></li> <li>▪ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> <li>▪ Read, write, order and compare numbers with up to 3 decimal places.</li> <li>▪ <i>Identify the value of each digit to three decimal places.</i></li> <li>▪ <i>Identify represent and estimate numbers using the number line.</i></li> <li>▪ <i>Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number.</i></li> <li>▪ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li>▪ Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>▪ Multiply/divide whole numbers and decimals by 10, 100 and 1000.</li> <li>▪ Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero.</li> <li>▪ <i>Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal.</i></li> <li>▪ Read Roman numerals to 1000 (M); recognise years written as such.</li> <li>▪ Solve number and practical problems that involve all of the above.</li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</i></li> <li>▪ <i>Select a mental strategy appropriate for the numbers involved in the calculation.</i></li> <li>▪ <i>Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place).</i></li> <li>▪ <i>Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places).</i></li> <li>▪ Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places.</li> <li>▪ Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction).</li> <li>▪ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li>▪ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li>▪ <i>Solve addition and subtraction problems involving missing numbers.</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</i></li> <li>▪ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li>▪ Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</li> <li>▪ Establish whether a number up to 100 is prime and recall prime numbers up to 19.</li> <li>▪ Recognise and use square (<math>^2</math>) and cube (<math>^3</math>) numbers, and notation.</li> <li>▪ <i>Use partitioning to double or halve any number, including decimals to two decimal places.</i></li> <li>▪ Multiply and divide numbers mentally drawing upon known facts.</li> <li>▪ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</li> <li>▪ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li>▪ Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> <li>▪ <i>Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy.</i></li> <li>▪ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</li> <li>▪ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li> </ul>

## Key Learning in Mathematics – Year 5

Number – fractions, decimals and percentages	Geometry – properties of shapes	Measurement
<ul style="list-style-type: none"> <li>▪ Recognise mixed numbers and improper fractions and convert from one form to the other.</li> <li>▪ Read and write decimal numbers as fractions (e.g. <math>0.71 = \frac{71}{100}</math>).</li> <li>▪ Count on and back in mixed number steps such as <math>1\frac{1}{2}</math>.</li> <li>▪ Compare and order fractions whose denominators are all multiples of the same number (including on a number line).</li> <li>▪ Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</li> <li>▪ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li>▪ Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams).</li> <li>▪ Write statements <math>&gt; 1</math> as a mixed number (e.g. <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}</math>).</li> <li>▪ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li> <li>▪ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> <li>▪ Solve problems involving fractions and decimals to three places.</li> <li>▪ Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> <li>▪ Use the properties of rectangles to deduce related facts and find missing lengths and angles.</li> <li>▪ Identify 3-D shapes from 2-D representations.</li> <li>▪ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li>▪ Draw given angles, and measure them in degrees (°).</li> <li>▪ Identify:               <ul style="list-style-type: none"> <li>- angles at a point and one whole turn (total 360°).</li> <li>- angles at a point on a straight line and half a turn (total 180°).</li> <li>- other multiples of 90°.</li> </ul> </li> </ul> <p><b>Geometry – position and direction</b></p> <ul style="list-style-type: none"> <li>▪ Describe positions on the first quadrant of a coordinate grid.</li> <li>▪ Plot specified points and complete shapes.</li> <li>▪ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use, read and write standard units of length and mass.</li> <li>▪ Estimate (and calculate) volume (e.g., using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)) and capacity (e.g. using water).</li> <li>▪ Understand the difference between liquid volume and solid volume.</li> <li>▪ Continue to order temperatures including those below 0°C.</li> <li>▪ Convert between different units of metric measure.</li> <li>▪ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li>▪ Measure/calculate the perimeter of composite rectilinear shapes.</li> <li>▪ Calculate and compare the area of rectangle, use standard units square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li>▪ Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks.</li> <li>▪ Solve problems involving converting between units of time.</li> <li>▪ Use all four operations to solve problems involving measure using decimal notation, including scaling.</li> </ul>
		<p><b>Statistics</b></p> <ul style="list-style-type: none"> <li>▪ Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).</li> <li>▪ Complete, read and interpret information in tables and timetables.</li> <li>▪ Solve comparison, sum and difference problems using information presented in all types of graph including a line graph.</li> <li>▪ Calculate and interpret the mode, median and range.</li> </ul>