

# Key Learning in Mathematics – Year 5

| Number – number and place value   | Number – addition and subtraction   | Number – multiplication and division  |
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| <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 (²) and cube (³) 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> |
| <h3>Number – fractions, decimals and percentages</h3>   | <h3>Geometry – properties of shapes</h3>  | <h3>Measurement</h3>  |
| <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><i>Count on and back in mixed number steps such as <math>1\frac{1}{2}</math></i></li> <li>Compare and order fractions whose denominators are all multiples of the same number (<i>including on a number line</i>)</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 (<i>using diagrams</i>)</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><i>Solve problems involving fractions and decimals to three places</i></li> <li>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \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>  | <ul style="list-style-type: none"> <li><i>Use, read and write standard units of length and mass</i></li> <li>Estimate (and calculate) volume ((e.g., using 1 cm³ blocks to build cuboids (including cubes)) and capacity (e.g. using water)</li> <li><i>Understand the difference between liquid volume and solid volume</i></li> <li><i>Continue to order temperatures including those below 0°C</i></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 (cm²) and square metres (m²) and estimate the area of irregular shapes</li> <li><i>Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks</i></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>  |
| <h3>Statistics</h3>   | <h3>Geometry – position and direction</h3>  | <h3>Measurement</h3>  |
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