

## Mathematics

### Key Learning Indicators of Performance: Year 6



Number – number and place value	Number – addition and subtraction	Number – multiplication and division
<ul style="list-style-type: none"> <li>▶ <u>Count forwards or backwards in steps of integers, decimals, powers of 10.</u></li> <li>▶ <u>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</u></li> <li>▶ Identify the value of each digit to three decimal places.</li> <li>▶ <u>Identify, represent and estimate numbers using the number line.</u></li> <li>▶ <u>Order and compare numbers including integers, decimals and negative numbers.</u></li> <li>▶ <u>Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number.</u></li> <li>▶ Round any whole number to a required degree of accuracy.</li> <li>▶ <u>Round decimals with three decimal places to the nearest whole number or one or two decimal places.</u></li> <li>▶ <u>Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</u></li> <li>▶ Use negative numbers in context, and calculate intervals across zero.</li> <li>▶ <u>Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal.</u></li> <li>▶ Solve number and practical problems that involve all of the above.</li> </ul>	<ul style="list-style-type: none"> <li>▶ <u>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</u></li> <li>▶ <u>Select a mental strategy appropriate for the numbers in the calculation.</u></li> <li>▶ <u>Recall and use addition and subtraction facts for 1 (with decimals to two decimal places).</u></li> <li>▶ Perform mental calculations including with mixed operations and large numbers <u>and decimals.</u></li> <li>▶ <u>Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction).</u></li> <li>▶ Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>▶ Use knowledge of the order of operations to carry out calculations.</li> <li>▶ Solve addition and subtraction multi-step problems in contexts, <u>deciding which operations and methods to use and why.</u></li> <li>▶ Solve problems involving all four operations, <u>including those with missing numbers.</u></li> </ul>	<ul style="list-style-type: none"> <li>▶ <u>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</u></li> <li>▶ Identify common factors, common multiples and prime numbers.</li> <li>▶ <u>Use partitioning to double or halve any number.</u></li> <li>▶ Perform mental calculations, including with mixed operations and large numbers.</li> <li>▶ <u>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</u></li> <li>▶ <u>Multiply one-digit numbers with up to two decimal places by whole numbers.</u></li> <li>▶ <u>Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</u></li> <li>▶ <u>Use written division methods in cases where the answer has up to two decimal places.</u></li> <li>▶ Use estimation <u>and inverse</u> to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> <li>▶ Use knowledge of the order of operations to carry out calculations.</li> <li>▶ <u>Solve problems involving all four operations, including those with missing numbers.</u></li> </ul>

## Mathematics

### Key Learning Indicators of Performance: Year 6



Number – fractions, decimals and percentages	Geometry – properties of shapes	Measurement
<ul style="list-style-type: none"> <li>▶ Compare and order fractions, including fractions <math>&gt; 1</math> (including on a number line).</li> <li>▶ Use common factors to simplify fractions; use common multiples to express fractions in the same denominator.</li> <li>▶ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> <li>▶ Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and <math>\frac{3}{8}</math>).</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 (e.g. <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>).</li> <li>▶ Divide proper fractions by whole numbers (e.g. <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>).</li> <li>▶ Find simple percentages of amounts.</li> <li>▶ Solve problems involving fractions.</li> <li>▶ Solve problems which require answers to be rounded to specified degrees of accuracy.</li> <li>▶ Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Compare/classify geometric shapes based on the properties and sizes.</li> <li>▶ Draw 2-D shapes using given dimensions and angles.</li> <li>▶ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</li> <li>▶ Recognise, describe and build simple 3-D shapes, including making nets.</li> <li>▶ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> <li>▶ Find unknown angles in any triangles, quadrilaterals, regular polygons.</li> </ul> <p><b>Geometry – position and direction</b></p> <ul style="list-style-type: none"> <li>▶ Describe positions on the full coordinate grid (all four quadrants).</li> <li>▶ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places.</li> <li>▶ Convert between standard units of length, mass, volume and time using decimal notation 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>▶ Calculate the area of parallelograms and triangles.</li> <li>▶ Recognise when it is possible to use formulae for area and volume of shapes.</li> <li>▶ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units (e.g. mm<sup>3</sup> and km<sup>3</sup>).</li> <li>▶ Calculate differences in temperature, including those that involved a positive and negative temperature.</li> <li>▶ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</li> </ul>
Ratio and proportion	Algebra	Statistics
<ul style="list-style-type: none"> <li>▶ Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication/division facts.</li> <li>▶ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> <li>▶ Solve problems involving similar shapes where the scale factor is known or can be found.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Use simple formulae.</li> <li>▶ Generate and describe linear number sequences.</li> <li>▶ Express missing number problems algebraically.</li> <li>▶ Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>▶ Enumerate possibilities of combinations of two variables.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes).</li> <li>▶ Interpret and construct pie charts and line graphs and use these to solve problems.</li> <li>▶ Solve comparison, sum and difference problems using information presented in all types of graph.</li> <li>▶ Calculate and interpret the mean as an average.</li> </ul>