

Key Learning in Mathematics – Year 6

Number – number and place value	Number – addition and subtraction	Number – multiplication and division
- Count forwards or backwards in steps of integers, decimals, powers of 10. - Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. - Identify the value of each digit to three decimal places. - Identify, represent and estimate numbers using the number line. - Order and compare numbers including integers, decimals and negative numbers. - Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number. - Round any whole number to a required degree of accuracy. - Round decimals with three decimal places to the nearest whole number or one or two decimal places. - Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. - Use negative numbers in context, and calculate intervals across zero. - 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. - Solve number and practical problems that involve all of the above.	- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). - Select a mental strategy appropriate for the numbers in the calculation. - Recall and use addition and subtraction facts for 1 (with decimals to two decimal places). - Perform mental calculations including with mixed operations and large numbers and decimals. - Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction). - Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - Use knowledge of the order of operations to carry out calculations. - Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. - Solve problems involving all four operations, including those with missing numbers.	- Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method). - Identify common factors, common multiples and prime numbers. - Use partitioning to double or halve any number. - Perform mental calculations, including with mixed operations and large numbers. - Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. - Multiply one-digit numbers with up to two decimal places by whole numbers. - 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. - Use written division methods in cases where the answer has up to two decimal places. - Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - Use knowledge of the order of operations to carry out calculations. - Solve problems involving all four operations, including those with missing numbers.

Key Learning in Mathematics – Year 6

Number – fractions, decimals and percentages	Geometry – properties of shapes	Measurement
- Compare and order fractions, including fractions > 1 (<i>including on a number line</i>). - Use <u>common factors to simplify fractions; use common multiples to express fractions in the same denomination</u>. - Recall and use <u>equivalences between simple fractions, decimals and percentages, including in different contexts</u>. - Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$). - Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). - Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$). - Find simple percentages of amounts. - Solve problems involving fractions. - Solve problems which require answers to be rounded to specified degrees of accuracy. - Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison.	- Compare/classify geometric shapes based on the properties and sizes. - Draw 2-D shapes using <u>given dimensions and angles</u>. - Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. - Recognise, describe and build simple 3-D shapes, including making nets. - Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. - Find unknown angles in any triangles, quadrilaterals, regular polygons.	- Use, read and write standard units of length, mass, volume and time using <u>decimal notation to three decimal places</u>. - Convert between standard units of length, mass, volume and time using decimal notation to three decimal places. - Convert between miles and kilometres. - Recognise that shapes with the same areas can have different perimeters and vice versa. - Calculate the area of parallelograms and triangles. - Recognise when it is possible to use formulae for area and volume of shapes. - Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units (e.g. mm³ and km³). - Calculate differences in temperature, including those that involved a positive and negative temperature. - Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
Ratio and proportion	Geometry – position and direction	Statistics
- Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication/division facts. - Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. - Solve problems involving similar shapes where the scale factor is known or can be found.	- Describe positions on the full coordinate grid (all four quadrants). - Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	- Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes). - Interpret and construct pie charts and line graphs and use these to solve problems. - Solve comparison, sum and difference problems using information presented in all types of graph. - Calculate and interpret the mean as an average.
	Algebra	
	- Use simple formulae. - Generate and describe linear number sequences. - Express missing number problems algebraically. - Find pairs of numbers that satisfy an equation with two unknowns. - Enumerate possibilities of combinations of two variables.	