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.*

Mathematics

Key Learning in Mathematics – Year 6

Number – fractions, decimals and percentages	Geometry – properties of shapes	Measurement
▪ Compare and order fractions, including fractions > 1 (*including on a number line*). ▪ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ▪ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. ▪ 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 given dimensions and angles. ▪ 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 decimal notation to three decimal places. ▪ 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 (cm^3) and cubic metres (m^3), and extending to other units (e.g. mm^3 and km^3). ▪ *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.
•	**Geometry – position and direction**	•
•	• 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.	•
Ratio and proportion	**Algebra**	**Statistics**

Key Learning in Mathematics – Year 6

• 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.	• 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.	• *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.