**Key Learning in Mathematics – Year 5**

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| **Number – number and place value** | **Number – addition and subtraction** | **Number – multiplication and division** |
| * Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 * *Count forwards and backwards in decimal steps* * Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit * Read, write, order and compare numbers with up to 3 decimal places * *Identify the value of each digit to three decimal places* * *Identify represent and estimate numbers using the number line* * *Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number* * Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 * Round decimals with two decimal places to the nearest whole number and to one decimal place * Multiply/divide whole numbers and decimals by 10, 100 and 1000 * Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero * *Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal* * Read Roman numerals to 1000 (M); recognise years written as such * 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 involved in the calculation* * *Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)* * *Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)* * Add and subtract numbers mentally with increasingly large numbers *and decimals to two decimal places* * 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) * Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy * Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why * *Solve addition and subtraction problems involving 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 multiples and factors, including finding all factor pairs of a number, and common factors of two numbers * Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers * Establish whether a number up to 100 is prime and recall prime numbers up to 19 * Recognise and use square (2) and cube (3) numbers, and notation * *Use partitioning to double or halve any number, including decimals to two decimal places* * Multiply and divide numbers mentally drawing upon known facts * Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes * 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 * 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 * *Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy* * Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign * Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates |
| **Geometry – properties of shapes** |
| * Distinguish between regular and irregular polygons based on reasoning about equal sides and angles * Use the properties of rectangles to deduce related facts and find missing lengths and angles * Identify 3-D shapes from 2-D representations * Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles * Draw given angles, and measure them in degrees (°) * Identify:   - angles at a point and one whole turn (total 360°)  - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90° |
| **Number – fractions, decimals and percentages** |
| * Recognise mixed numbers and improper fractions and convert from one form to the other * Read and write decimal numbers as fractions (e.g. 0.71 = * *Count on and back in mixed number steps such as 1* * Compare and order fractions whose denominators are all multiples of the same number *(including on a number line)* * Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths * Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * Add and subtract fractions with denominators that are the same and that are multiples of the same number *(using diagrams)* * Write statements > 1 as a mixed number (e.g. + = =1 ) * Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams * 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 * *Solve problems involving fractions and decimals to three places* * Solve problems which require knowing percentage and decimal equivalents of , , , , and fractions with a denominator of a multiple of 10 or 25 |
| **Measurement** |
| * *Use, read and write standard units of length and mass* * Estimate *(and calculate)* volume ((e.g., using 1 cm3 blocks to build cuboids (including cubes)) and capacity (e.g. using water) * *Understand the difference between liquid volume and solid volume* * *Continue to order temperatures including those below 0°C* * Convert between different units of metric measure * Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints * Measure/calculate the perimeter of composite rectilinear shapes * Calculate and compare the area of rectangle, use standard units square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes * *Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks* * Solve problems involving converting between units of time * Use all four operations to solve problems involving measure using decimal notation, including scaling |
| **Geometry – position and direction** |
| * *Describe positions on the first quadrant of a coordinate grid* * *Plot specified points and complete shapes* * 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 |
| **Statistics** |
| * *Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)* * Complete, read and interpret information in tables and timetables * Solve comparison, sum and difference problems using information presented in *all types of graph including*  a line graph * *Calculate and interpret the mode, median and range* |