



Mathematics

Key Learning Indicators of Performance: Year 5

Number – number and place value	Number – addition and subtraction	Number – multiplication and division
<ul style="list-style-type: none"> ▶ Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. ▶ 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. ▶ 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. ▶ 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. 	<ul style="list-style-type: none"> ▶ 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. 	<ul style="list-style-type: none"> ▶ Multiply/divide whole numbers and decimals by 10, 100 and 1000. ▶ 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.
Statistics		
<ul style="list-style-type: none"> ▶ 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. 		
Number – fractions	Geometry – properties of shapes	Measurement
<ul style="list-style-type: none"> ▶ Read, write, order and compare numbers with up to 3 decimal places. ▶ Round decimals with two decimal places to the nearest whole number and to one decimal place. ▶ Recognise mixed numbers and improper fractions and convert from one form to the other. ▶ Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$). ▶ Count on and back in mixed number steps such as $1\frac{1}{2}$ ▶ 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. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$). ▶ 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 $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and fractions with a denominator of a multiple of 10 or 25. 	<ul style="list-style-type: none"> ▶ 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: <ul style="list-style-type: none"> - 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°. 	<ul style="list-style-type: none"> ▶ 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 rectangles, including squares, 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		
<ul style="list-style-type: none"> ▶ 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. 		