

Year 5 – Mathematics Programme of study

Number – number and place value	Date	Number – addition and subtraction	Date	Number – multiplication and division	Date
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 <i>Count forwards and backwards in decimal steps</i> - 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 <i>Identify the value of each digit to three decimal places</i> <i>Identify represent and estimate numbers using the number line</i> <i>Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number</i> - 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 <i>Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal</i> - 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) <i>Select a mental strategy appropriate for the numbers involved in the calculation</i> <i>Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)</i> <i>Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</i> - 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 <i>Use partitioning to double or halve any number, including decimals to two decimal places</i> - 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 <i>Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy</i> - 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 To know and have rapid recall of all tables to 12 x 12 including related division facts.	

Year 5 – Mathematics Programme of Study 2

Number – fractions, decimals and percentages	Date	Geometry – properties of shapes	Date	Measurement	Date
- 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 (<i>including on a number line</i>) - 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 (<i>using diagrams</i>) - 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		- 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°		- 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	Date		
		- 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	Date		
		- Complete and interpret information in a variety of sorting diagrams (<i>including those used to sort properties of numbers and shapes</i>) - Complete, read and interpret information in tables and timetables - Solve comparison, sum and difference problems using information presented in <i>all types of graph including</i> a line graph - Calculate and interpret the mode, median and range			