Mathematics Long Term Overview 2024 to 25

Year 5

Counting, properties of numbers and number sequences	Place Value and Ordering and rounding	Rapid recall of addition and subtraction facts	Pencil and paper procedures (+ and -)
Recognise and extend number sequences formed by counting from any number in steps of constant size, extending beyond zero when counting back into negative numbers. E.g: count on in steps of 25 to 1000, and then back; count on or back in steps of 0.1, 0.2, 0.3… Make general statements about odd or even numbers, including the outcome of sums and differences. Know and apply tests of divisibility by 2, 4, 5, 10 or 100. **Recognise multiples of 3, 4, 5, 6, 7, 8, 9, up to the 10th multiple.** **Identify factors, including finding all factor pairs of a number, and common factors of two numbers** **Read, write and use Roman Numerals to 1000** **Establish whether a number up to 100 is a prime number and recall prime numbers to 19** **Recognise and use squared and cubed numbers, using the correct notation** **Solve problems involving multiplication and division including use of factors, multiples, prime, square and cubed numbers.** **Pupils use and explain the equals sign to indicate equivalence, including in missing number problems (for example, 13 + 24 = 12 + 25; 35 = 5 x ?)**	- **Read, write and order numbers to at least 1,000,000 and determine the value of each digit** **- Count forward or backwards in steps of powers of 10 for any given number up to 1,000,000** - **Multiply and divide any positive integer up to 10000 by 10 or 100 and 1000 and understand the effect. Relate to conversion of measures (e.g. 9900 ÷ 10, 737 ÷ 10, 2060 ÷ 100).** - Use the vocabulary of comparing and ordering numbers, including symbols such as <, >, , , - Give one or more numbers lying between two given numbers. Order a set of integers less than 1 million. - **Interpret negative numbers in context and count forwards and backwards with positive and negative whole numbers, including through zero** - Use the vocabulary of estimation and approximation. Make and justify estimates of large numbers, and estimate simple proportions such as one third, seven tenths. - **Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000** - Order a given set of positive and negative integers (e.g. on a number line, on a temperature scale). Calculate a temperature rise or fall across 0 °C. - **Solve number problems and practical problems involving all of the above**	Derive quickly or continue to derive quickly: decimals that total 1 (e.g. 0.2 + 0.8) or 10 (e.g. 6.2 + 3.8); all two-digit pairs that total 100 (e.g. 43 + 57); all pairs of multiples of 50 with a total of 1000 (e.g. 350 + 650). **Add and subtract numbers mentally with increasingly large numbers**	Use informal and formal pencil and paper methods to support, record or explain additions and subtractions. **Extend written methods to: column addition/ subtraction of whole numbers with more than 4 digits.** Addition or subtraction of a pair of decimals, both with one or both with two decimal places (e.g. £29.78 + £53.34) **Use rounding to check answers to calculations and determine the levels of accuracy.** **Solve multi-step addition and subtraction problems in multiple contexts deciding which operations and methods to use and why.**

Year 5			
Understanding multiplication and division	**Rapid recall of multiplication and division facts**	**Pencil and paper procedures (÷ and x)**	**Checking results of calculations**
Understand the effect of and relationships between the four operations, and the principles (not the names) of the arithmetic laws as they apply to multiplication. Begin to use brackets. Begin to express a quotient as a fraction, or as a decimal when dividing a whole number by 2, 4, 5 or 10, or when dividing £.p. Round up or down after division, depending on the context	Know by heart all multiplication facts up to 10 x 10. Derive quickly or continue to derive quickly: division facts corresponding to tables up to 12 x 12 doubles of all whole numbers 1 to 100 (e.g. 78 x 2); doubles of multiples of 10 to 1000 (e.g. 670 x 2); doubles of multiples of 100 to 10 000 (e.g. 6500 x 2); and the corresponding halves **Multiply and divide numbers mentally drawing upon known facts** **Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000**	- Use formal and informal pencil and paper methods to support, record or explain multiplications and divisions. - **Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication** - **Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainder's appropriately according to the context.** - Pupils use multiplication and division as inverses to support the introduction of ratio in year 6, for example, by multiplying and dividing by powers of 10 in scale drawings or by multiplying and dividing by powers of a 1000 in converting between units such as kilometres and metres. - Understand the terms factor, multiple and prime, square and cube numbers and use them to construct equivalence statements (for example, 4 x 35 = 2 x 2 x 35; 3 x 270 = 3 x 3 x 9 x 10 = 92 x 10). -	Check the sum of several numbers by adding in the reverse order. Check with an equivalent calculation.

Year 5			
Fractions including decimals and percentages	**Reasoning and generalising and numbers or shapes**	**Problems involving 'real life' money and measures**	**Solving problems and making decisions**
-Count up and down in tenths -**compare and order fractions, including on a number line, whose denominators are all multiples of the same number** - **identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths** - **recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5** - **add and subtract fractions with the same denominator and denominators that are multiples of the same number** - **multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams** - **read and write decimal numbers as fractions [for example, 0.71 = 71/100]** - **recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents** - **round decimals with 2dp to the nearest whole number and to 1dp** - **read, write, order and compare numbers with up to 3dp** - **solve problems involving number up to 3dp recognise the per cent symbol (%) and - understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal** - **solve problems which require knowing percentage and decimal equivalents of ½ ¼ 1/5 2/5 4/5 and those fractions with a denominator of a multiple of 10 or 25**	Explain methods and reasoning, orally and in writing. Solve mathematical problems or puzzles, recognise and explain patterns and relationships, generalise and predict. Suggest extensions asking 'What if…? Make and investigate a general statement about familiar numbers or shapes by finding examples that satisfy it Explain a generalised relationship (formula) in words	Use all four operations to solve simple word problems involving numbers and quantities based on 'real life', money and measures (including time), using one or more steps, including making simple conversions of pounds to foreign currency and finding simple percentages. Utilise problem solving strategies using all four operations, including finding all possibilities, working backwards, finding rules and describing patterns, and making a table or list **Solve problems involving multiplication and division, including scaling by simple fractions (ration and proportion) and problems involving simple rates** **E.g If a car travels 300 miles in 6 hours, how far would we expect it to travel in 2 hours?**	Choose and use appropriate number operations to solve problems, and appropriate ways of calculating: mental, mental with jottings, written methods for multistep problems involving all four operations using knowledge of factors and multiples, squares and cubes Utilise problem solving strategies using all four operations, including finding all possibilities, working backwards, finding rules and describing patterns, and making a table or list

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Statistics	**Measurement - mass, length, capacity and time**	**Measurement - area, perimeter and volume**	**Geometry - properties of shapes and position and direction**
Solve problems by representing and interpreting data in tables, charts, graphs and diagrams, including those generated by a computer, for example: bar line charts, vertical axis labelled in 2s, 5s, 10s, 20s or 100s, first where intermediate points have no meaning (e.g. scores on a dice rolled 50 times), then where they may have meaning (e.g. room temperature over time). **Solve comparison, sum and difference problems using of a set of data and using line graphs.** **Complete, read and interpret information in a variety of tables, graphs and diagrams, including timetables, line graphs, bar charts Venn and Carroll diagrams**	Use, read and write standard metric units (km, m, cm, mm, kg, g, l, ml), including their abbreviations, and relationships between them. **Convert between different units of metric measure (e.g. km to m, m to cm or mm, kg to g, l to ml) and vice versa by multiplying and dividing by 10,100 and 100** **Understand and use approximate equivalences between metric and imperial units such as miles, pints, pounds and gallons** Suggest suitable units and measuring equipment to estimate or measure length, mass or capacity. Measure and draw lines to the nearest millimetre. Record estimates and readings from scales to a suitable degree of accuracy. **Use all four operations to solve problems and problem solve involving measures and conversion, including scaling.** Use units of time; read the time on a 24-hour digital clock and use 24-hour clock notation, such as 19:53. Use timetables. **Solve problems involving converting between units of time.**	Measure and understand area measured in square centimetres (cm2) Understand and use the formula in words 'length ´ breadth' for the area of a rectangle. Calculate and compare the perimeter of composite rectilinear shapes in cm and Calculate the area from scale drawings using given measurements **Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres** **Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes** **Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes) and capacity [for example, using water]**	- Classify triangles (isosceles, equilateral, scalene), using criteria such as equal sides, equal angles, lines of symmetry. - **Know angles are measured in degrees; estimate, measure, draw and compare acute, obtuse and reflex angles** - **Visualise 3-D shapes from 2-D representations, including nets** - Recognise reflective symmetry in regular polygons: for example, know that a square has four axes of symmetry and an equilateral triangle has three. - **know angles are measured in degrees** **- draw given angles and measure them in degrees** **- Identify , estimate and compare acute, obtuse and reflex angles**. - **Identify angles at a point (one whole turn) on a straight line, 180 degree turn and other multiples of 90** - Calculate missing angles in polygons and on a straight line by deducing related facts and missing angles - **Use the properties of polygons, including rectangles and squares, to deduce facts and missing lengths and angles.** **Position and direction** **- identify, describe and represent where a shape will be after a translation and know the shape has not changed.** - Recognise positions and directions: read and plot co-ordinates in the first quadrant; recognise perpendicular and parallel lines. - **identify, describe and represent where a shape will be after reflection in a mirror line**