**National Curriculum Key Learning Mathematics – Year 1**

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| * **Number – number and place value** | * **Number – addition and subtraction** | * **Number – multiplication and division** |
| * Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * Count in multiples of twos, fives and tens * Read and write numbers to 100 in numerals * Read and write numbers from 1 to 20 in numerals and words * *Begin to recognise the place value of numbers beyond 20 (tens and ones)* * Identify and represent numbers using objects and pictorial representations including the number line * Use the language of: equal to, more than, less than (fewer), most, least * Given a number, identify one more and one less * *Recognise and create repeating patterns with numbers, objects and shapes* * *Identify odd and even numbers linked to counting in twos from 0 and 1* * *Solve problems and practical problems involving all of the above* | * Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs * Represent and use number bonds and related subtraction facts within 20 * Add and subtract one-digit and two-digit numbers to 20, including zero *(using concrete objects and pictorial representations)* * Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9 | * *Recall and use doubles of all numbers to 10 and corresponding halves* * Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher |
| * **Measurement** |
| * Measure and begin to record: * - lengths and heights, *using non-standard and then manageable  standard units (m/cm)  -* mass/weight, *using non-standard and then manageable standard   units (kg/g)* * - capacity and volume *using non-standard and then manageable   standard units (litres/ml)*   + time (hours/minutes/seconds) * *within children’s range of counting competence* * Compare, describe and solve practical problems for: * - lengths and heights (for example, long/short, longer/shorter,   tall/short, double/half)   + mass/weight (for example, heavy/light, heavier than, lighter than) * - capacity and volume (for example, full/empty, more than, less than,   half, half full, quarter)   + time (for example, quicker, slower, earlier, later) * Recognise and use language relating to dates, including days of the week, weeks, months and years * Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening * Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times * Recognise and know the value of different denominations of coins and notes |
| * **Number – fractions** | * **Geometry – properties of shapes** |
| * *Understand that a fraction can describe part of a whole* * *Understand that a unit fraction represents one equal part of a whole* * Recognise, find and name a half as one of two equal parts of an object shape or quantity *(including measure)* * Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity *(including measure)* | * Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles * Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres |
| * **Geometry – position and direction** |
| * Describe movement, including whole, half, quarter and three-quarter turns * *Recognise and create repeating patterns with objects and shapes* * Describe position and direction |
| * **Statistics** |
| * *Sort objects, numbers and shapes to a given criterion and their own* * *Present and interpret data in block diagrams using practical equipment* * *Ask and answer simple questions by counting the number of objects in each category* * *Ask and answer questions by comparing categorical data* |

**National Curriculum Key Learning Mathematics – Year 2**

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| * **Number – number and place value** | * **Number – addition and subtraction** | * **Number – multiplication and division** |
| * Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward * Read and write numbers to at least 100 in numerals and in words * Recognise the place value of each digit in a two-digit number (tens, ones) * Identify, represent and estimate numbers using different representations, including the number line * *Partition numbers in different ways (e.g. 23 = 20 + 3 and 23 = 10 + 13)* * Compare and order numbers from 0 up to 100; use <, > and = signs * *Find 1 or 10 more or less than a given number* * *Round numbers to at least 100 to the nearest 10* * *Understand the connection between the 10 multiplication table and place value* * *Describe and extend simple sequences involving counting on or back in different steps* * Use place value and number facts to solve problems | * *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting)* * *Select a mental strategy appropriate for the numbers involved in the calculation* * Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot * *Understand subtraction as take away and difference (how many more, how many less/fewer)* * Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 * *Recall and use number bonds for multiples of 5 totalling 60 (to support telling time to nearest 5 minutes)* * Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:   + a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers * Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems * Solve problems with addition and subtraction *including with missing numbers:* - using concrete objects and pictorial representations, including those   involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods | * *Understand multiplication as repeated addition* * *Understand division as sharing and grouping and that a division calculation can have a remainder* * Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot * Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers * *Derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10)* * *Derive and use halves of simple two-digit even numbers (numbers in which the tens are even)* * Calculate mathematical statements for multiplication *using repeated addition)* and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs * Solve problems involving multiplication and division *(including those with remainders)*, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts |
| * **Number – fractions** |
| * *Understand and use the terms numerator and denominator* * *Understand that a fraction can describe part of a set* * *Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be* * Recognise, find, name and write fractions , , and of a length, shape, set of objects or quantity * Write simple fractions for example, of 6 = 3 and recognise the equivalence of and * *Count on and back in steps of and* |
| * **Measurement** |
| * **Geometry – properties of shapes** | * Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity and volume (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels * Compare and order lengths, mass, volume/capacity and record the results using >, < and = * Recognise and use symbols for pounds (£) and pence (p) * Combine amounts to make a particular value * Find different combinations of coins that equal the same amounts of money * Compare and sequence intervals of time * Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times * Know the number of minutes in an hour and the number of hours in a day * Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change *and measures (including time)* |
| * Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line * Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces * Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] |
| * **Geometry – position and direction** |
| * Order/arrange combinations of mathematical objects in patterns/sequences * Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) |
| * **Statistics** |
| * Compare and sort *objects, numbers and* common 2-D and 3-D shapes and everyday objects * Interpret and construct simple pictograms, tally charts, block diagrams and simple tables * Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity * Ask and answer questions about totalling and comparing categorical data |

**National Curriculum Key Learning Mathematics – Year 3**

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| * **Number – number and place value** | * **Number – addition and subtraction** | * **Number – multiplication and division** |
| * Count from 0 in multiples of 4, 8, 50 and 100 * Count up and down in tenths * Read and write numbers up to 1000 in numerals and in words * *Read and write numbers with one decimal place* * Identify, represent and estimate numbers using different representations *(including the number line)* * Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) * *Identify the value of each digit to one decimal place* * *Partition numbers in different ways (e.g. 146 = 100+ 40+6 and 146 = 130+16)* * Compare and order numbers up to 1000 * *Compare and order numbers with one decimal place* * Find *1,* 10 or 100 more or less than a given number * *Round numbers to at least 1000 to the nearest 10 or 100* * *Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer* * *Describe and extend number sequences involving counting on or back in different steps* * *Read Roman numerals from I to XII* * Solve number problems and practical problems involving these ideas | * *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* * *Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context* * *Recall/use addition/subtraction facts for 100 (multiples of 5 and 10)* * *Derive and use addition and subtraction facts for 100* * *Derive and use addition and subtraction facts for multiples of 100 totalling 1000* * Add and subtract numbers mentally, including:   + a three-digit number and ones   + a three-digit number and tens   + a three-digit number and hundreds * Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction * Estimate the answer to a calculation and use inverse operations to check answers * Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | * *Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)* * *Understand that division is the inverse of multiplication and vice versa* * *Understand how multiplication and division statements can be represented using arrays* * *Understand division as sharing and grouping and use each appropriately* * Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables * *Derive and use doubles of all numbers to 100 and corresponding halves* * *Derive and use doubles of all multiples of 50 to 500* * Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods * *Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy* * Solve problems, including missing number problems, involving multiplication and division *(and interpreting remainders),* including positive integer scaling problems and correspondence problems in which n objects are connected to m objects |
| * **Measures** |
| * **Number – fractions** | * **Geometry – properties of shapes** | * Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) * *Continue to estimate and measure temperature to the nearest degree (°C) using thermometers* * *Understand perimeter is a measure of distance around the boundary of a shape* * Measure the perimeter of simple 2-D shapes * Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks * Estimate/read time with increasing accuracy to the nearest minute * Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o’clock, a.m./p.m., morning, afternoon, noon, midnight * Know the number of seconds in a minute and the number of days in each month, year and leap year * Compare durations of events [for example to calculate the time taken by particular events or tasks] * *Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence* * *Recognise that ten 10p coins equal £1 and that each coin is of £1* * Add and subtract amounts of money to give change, using both £ and p in practical contexts * *Solve problems involving money and measures and simple problems involving passage of time* |
| * *Show practically or pictorially that a fraction is one whole number divided by another (e.g. can be interpreted as 3 ÷ 4)* * *Understand that finding a fraction of an amount relates to division* * Recognise that tenths arise from dividing objects into 10 equal parts and in dividing one-digit numbers or quantities by 10 * Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators * Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators * Recognise and show, using diagrams, equivalent fractions with small denominators * Add and subtract fractions with the same denominator within one whole [for example, + = ] * Compare and order unit fractions, and fractions with the same denominators *(including on a number line)* * *Count on and back in steps of , and* * Solve problems that involve all of the above | * Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them * Recognise angles as a property of shape or a description of a turn * Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle * Identify horizontal and vertical lines and pairs of perpendicular and parallel lines |
| * **Geometry – position and direction** |
| * *Describe positions on a square grid labelled with letters and numbers* |
| * **Statistics** |
| * *Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects* * Interpret and present data using bar charts, pictograms and tables * Solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables |

**National Curriculum Key Learning Mathematics – Year 4**

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| **Number – number and place value** | **Number – addition and subtraction** | **Number – multiplication and division** |
| * Count in multiples of 6, 7, 9, 25 and 1000 * Count backwards through zero to include negative numbers * Count up and down in hundredths * *Read and write numbers to at least 10 000* * *Read and write numbers with up to two decimal places* * Recognise the place value of each digit in a four-digit number * *Identify the value of each digit to two decimal places* * *Partition numbers in different ways (e.g. 2.3 = 2+0.3 & 1+1.3)* * Identify, represent and estimate numbers using different representations *(including the number line)* * Order and compare numbers beyond 1000 * *Order and* compare numbers with the same number of decimal places up to two decimal places * Find *0.1, 1, 10, 100 or* 1000 more or less than a given number * Round any number to the nearest 10, 100 or 1000 * Round decimals (one decimal place) to the nearest whole number * Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer * *Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps* * Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value * Solve number and practical problems that involve all of the above and with increasingly large positive 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)* * *Select a mental strategy appropriate for the numbers involved in the calculation* * *Recall and use addition and subtraction facts for 100* * *Recall and use +/- facts for multiples of 100 totalling 1000* * *Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)* * *Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place* * Add and subtract numbers with up to 4 digits *and decimals with one decimal place* using the formal written methods of columnar addition and subtraction where appropriate * Estimate; use inverse operations to check answers to a calculation * Solve addition and subtraction two-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)* * Recognise and use factor pairs and commutativity in mental calculations * Recall multiplication and division facts for multiplication tables up to 12 × 12 * *Use partitioning to double or halve any number, including decimals to one decimal place* * Use place value, known and derived facts to multiply and divide mentally, including:   - multiplying by 0 and 1  - dividing by 1  - multiplying together three numbers   * Multiply two-digit and three-digit numbers by a one-digit number using formal written layout * *Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context* * *Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy* * Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, *division (including interpreting remainders),* integer scaling problems and harder correspondence problems such as n objects are connected to m objects |
| **Geometry – properties of shapes** |
| * Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes * Identify lines of symmetry in 2-D shapes presented in different orientations * Complete a simple symmetric figure with respect to a specific line of symmetry * *Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines* * Identify acute and obtuse angles and compare and order angles up to two right angles by size |
| **Number – fractions and decimals** |
| * *Understand that a fraction is one whole number divided by another (e.g. can be interpreted as 3 ÷ 4)* * *Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators* * Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten * *Count on and back in steps of unit fractions* * *Compare and order unit fractions and fractions with the same denominators (including on a number line)* * Recognise and show, using diagrams, families of common equivalent fractions * Recognise and write decimal equivalents of any number of tenths or hundredths * Recognise and write decimal equivalents to , , * Add and subtract fractions with the same denominator *(using diagrams)* * Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number * Solve simple measure and money problems involving fractions and decimals to two decimal places |
| **Measurement** |
| * Estimate, compare and calculate different measures, including money in pounds and pence * *Order temperatures including those below 0°C* * Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres * *Know area is a measure of surface within a given boundary* * Find the area of rectilinear shapes by counting squares * Convert between different units of measure [e.g. kilometre to metre; hour to minute] * Read, write and convert time between analogue and digital 12- and 24-hour clocks * *Write amounts of money using decimal notation* * *Recognise that one hundred 1p coins equal £1 and that each coin is of £1* * Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days *and problems involving money and measures* |
| **Geometry – position and direction** |
| * Describe positions on a 2-D grid as coordinates in the first quadrant * Plot specified points and draw sides to complete a given polygon * Describe movements between positions as translations of a given unit to the left/right and up/down |
| **Statistics** |
| * *Use a variety of sorting diagrams to* compare and classify *numbers and* geometric shapes based on their properties and sizes * Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs * Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs |

**National Curriculum Key Learning 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* |

**National Curriculum Key Learning Mathematics – Year 6**

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| **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* |
| **Number – fractions, decimals and percentages** | **Geometry – properties of shapes** |
| * 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 ) * 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. x = ) * Divide proper fractions by whole numbers (e.g. ÷ 2 = ) * *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 |
| **Measurement** |
| **Geometry – position and direction** | * 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 (cm3) and cubic metres (m3), and extending to other units (e.g. mm3 and km3) * *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 |
| * 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 |
| **Statistics** |
| * *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 |
| **Ratio and proportion** |
| * 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 | **Algebra** |
| * 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 |