***YEARLY OVERVIEW OF MATHS 2018 - 2019***

***Year 1***

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| **Number - Number and Place Value**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s * given a number, identify 1 more and 1 less * identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least * read and write numbers from 1 to 20 in numerals and words | * 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 0 * solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? − 9 | * 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 |
| **Fractions**  Pupils will be taught to: | **Geometry - Properties of Shapes**  Pupils will be taught to: | **Geometry - Position and Direction**  Pupils will be taught to: |
| * recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity * recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity | * recognise and name common 2-D and 3-D shapes, including:   + 2-D shapes [for example, rectangles (including squares), circles and triangles]   + 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] | * describe position, direction and movement, including whole, half, quarter and three-quarter turns |
| **Measurement**  Pupils will be taught to: | | |
| * 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] * measure and begin to record the following:   + lengths and heights   + mass/weight   + capacity and volume   + time (hours, minutes, seconds)   + recognise and know the value of different denominations of coins and notes   + sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] * recognise and use language relating to dates, including days of the week, weeks, months and years * tell the time to the hour and half past the hour and draw the hands on a clock face to show these times | | |

***YEAR 2***

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| **Number – Number, Place Value and Counting**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * To count in steps of 2, 3 and 5 from zero; and count in tens from any number forwards and backwards. * To recognise the place value of each digit in a two digit number (tens,ones). * To identify, represent and estimate numbers using different representations, including the number line. * To compare and order numbers from 0 to 100; use < > = signs. * To read and write numbers to at least 100 in numerals and words. * To use place value and number facts to solve problems. | * To solve problems with addition and subtraction: -using concrete objects and pictorial representations, including those involving numbers, quantities and measures; -applying their increasing knowledge of mental and written methods. * To recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. * To add and subtract using concrete objects, pictorial representations and mentally including: 2 digit number and ones, a 2 digit number and tens, 2 two digit numbers, adding three 1 digit numbers. * To show that addition can be done in any order (commutative) and subtraction cannot. * To recognise and use the inverse relationship between addition and subtraction and use this to check calculation and missing number problems. | * To recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. * To calculate the mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equal signs. * To recognise and use the inverse relationship between multiplication and division in calculations. * To show that multiplication of two numbers can be done in any order (commutative) and division for one number by another cannot. * To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in context. |
| **Fractions**  Pupils will be taught to: | **Geometry - Properties of Shapes/Position and Direction**  Pupils will be taught to: | **Statistics**  Pupils will be taught to: |
| * To recognise, find, name and write fractions for a third, quarter, two quarters and three quarters. * To write simple fractions for example 1/2 of 6 = 3 * Recognise the equivalence of two quarters and one half. | * To identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. * To identify and describe the properties of 3D shapes including the number of edges, vertices and faces. * To identify 2D shapes on the surface of 3D shapes, for example a circle on a cylinder and a triangle on a pyramid. * To compare and sort common 2D and 3D shapes and everyday objects. * To order and arrange combinations of mathematical objects in patterns. * To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (both clockwise and anticlockwise) and movement in a straight line. | * To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. * To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. * To ask and answer questions about totalling and compare categorical data. |
| **Measurement**  Pupils will be taught to: | | |
| * To compare and sequence intervals of time. * To 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. * To choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm/mm); mass (kg/g), temperature (°C); volume and capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. * To compare and order lengths, mass, volume/capacity and record the results using < > = * To recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. * To find different combinations of coins to equal the same amount of money. * To solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. | | |

***YEAR 3***

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| **Number - Number and Place Value**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number * recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) * compare and order numbers up to 1,000 * identify, represent and estimate numbers using different representations * read and write numbers up to 1,000 in numerals and in words * solve number problems and practical problems involving these ideas | Pupils should be taught to:   * add and subtract numbers mentally, including:   + a three-digit number and 1s   + a three-digit number and 10s   + a three-digit number and 100s * add and subtract numbers with up to 3 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. | * recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables * 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 * solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects |
| **Fractions**  Pupils will be taught to: | **Geometry**  Pupils will be taught to: | **Statistics**  Pupils will be taught to: |
| * count up and down in tenths; recognise that tenths arise from dividing an object 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, 5/7+ 1/7= 6/7] * compare and order unit fractions, and fractions with the same denominators * 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 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 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 | * 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 |
| **Measurement**  Pupils will be taught to: | | |
| * measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) * measure the perimeter of simple 2-D shapes * add and subtract amounts of money to give change, using both £ and p in practical contexts * 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 and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, am/pm, morning, afternoon, noon and 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] | | |

***YEAR 4***

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| **Number - Number and Place Value**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * count in multiples of 6, 7, 9, 25 and 1,000 * find 1,000 more or less than a given number * count backwards through 0 to include negative numbers * recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) * order and compare numbers beyond 1,000 * identify, represent and estimate numbers using different representations * round any number to the nearest 10, 100 or 1,000 * solve number and practical problems that involve all of the above and with increasingly large positive numbers * read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value | * add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate * estimate and 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 | * recall multiplication and division facts for multiplication tables up to 12 × 12 * use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers * recognise and use factor pairs and commutativity in mental calculations * multiply two-digit and three-digit numbers by a one-digit number using formal written layout * solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects |
| **Fractions**  Pupils will be taught to: | **Geometry - Properties of Shapes**  Pupils will be taught to: | **Statistics**  **Pupils will be taught to:** |
| * recognise and show, using diagrams, families of common equivalent fractions * count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 * 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 * add and subtract fractions with the same denominator * recognise and write decimal equivalents of any number of tenths or hundreds * recognise and write decimal equivalents to 1/4, 1/2, 3/4 * find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths * round decimals with 1 decimal place to the nearest whole number * compare numbers with the same number of decimal places up to 2 decimal places * solve simple measure and money problems involving fractions and decimals to 2 decimal places | **Position of shapes**   * compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes * identify acute and obtuse angles and compare and order angles up to 2 right angles by size * 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   **Position and direction**   * describe positions on a 2-D grid as coordinates in the first quadrant * describe movements between positions as translations of a given unit to the left/right and up/down * plot specified points and draw sides to complete a given polygon | * interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs * solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs |
| **Measurement**  Pupils will be taught to: | | |
| * convert between different units of measure [for example, kilometre to metre; hour to minute] * measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres * find the area of rectilinear shapes by counting squares * estimate, compare and calculate different measures, including money in pounds and pence * read, write and convert time between analogue and digital 12- and 24-hour clocks * solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days. | | |

***YEAR 5***

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| **Number - Number and Place Value**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit * count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 * interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 * round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 * solve number problems and practical problems that involve all of the above * read Roman numerals to 1,000 (M) and recognise years written in Roman numerals | * add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) * add and subtract numbers mentally with increasingly large numbers * 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 | * identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 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 * 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 * multiply and divide numbers mentally, drawing upon known facts * 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 * multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 * recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) * solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes * 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 |
| **Fractions (Including decimals and percentages)**  Pupils will be taught to: | **Geometry**  Pupils will be taught to: | **Statistics**  Pupils will be taught to: |
| * compare and order fractions 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 2 decimal places to the nearest whole number and to 1 decimal place * read, write, order and compare numbers with up to 3 decimal places * solve problems involving number up to 3 decimal places * recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction * solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5and those fractions with a denominator of a multiple of 10 or 25 | **Properties of shapes**   * identify 3-D shapes, including cubes and other cuboids, 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 1 whole turn (total 360°)   + angles at a point on a straight line and half a turn (total 180°)   + other multiples of 90°   + use the properties of rectangles to deduce related facts and find missing lengths and angles   + distinguish between regular and irregular polygons based on reasoning about equal sides and angles   **Geometry: Positon and direction.**   * 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. | * solve comparison, sum and difference problems using information presented in a line graph * complete, read and interpret information in tables, including timetables |
| **Measurement**  Pupils will be taught to: | | |
| * convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and   millilitre]   * understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints * measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres * calculate and compare the area of rectangles (including squares), 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] * solve problems involving converting between units of time * use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | | |

***Year 6***

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| **Number - Number and Place Value**  Pupils will be taught to: | **Addition and Subtraction**  Pupils will be taught to: | **Multiplication and Division**  Pupils will be taught to: |
| * To read, write, order and compare numbers at least to 10,000.000 and determine the value of each digit. * To round any whole number to a required degree of accuracy. * To use negative numbers in context and calculate intervals across zero. * To solve number problems and practical problems that involve all of the above. | * To perform mental calculation including with mixed operations and large numbers. * To solve addition and subtraction multistep problems in contexts deciding which operations and methods to use and why. * To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. | * To perform mental calculations, including with mixed operations and large numbers. * To identify common factors, common multiples and prime numbers. * To solve problems involving multiplication and division. * To use estimation to check answers. * To multiply multi-digit numbers up to 4 digit numbers by a 2 digit whole number using the efficient written method of long multiplication. * To divide numbers, up to 4 digits, by a 2 digit whole number using the efficient written method of long division, and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. * To identify the value of each digit to three decimal places, and multiply and divide numbers by 10, 100 and 1000 where the answers are up to 3 decimal places. * To solve problems which require answers to be rounded to specified degrees of accuracy. * To use their knowledge of the order of operations to carry out calculations involving the operations. * To multiply one digit numbers with up to 2 decimal places by whole numbers. * To use written division methods in cases where the answer has up to 2 decimal places. |
| **Fractions**  Pupils will be taught to: | **Geometry - Properties of Shapes**  Pupils will be taught to: | **Geometry - Position and Direction**  Pupils will be taught to: |
| * To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. * To associate a fraction with division to calculate decimal fraction equivalents (0.375) for a simple fraction 3/8. * To multiply simple pairs of proper fractions, writing the answer in its simplest form (1/4 ÷1/2 = 1/8) * To divide proper fractions by whole numbers (1/3 ÷2 = 1/6) * To solve problems involving the calculation of percentages of whole numbers or measures (such as 15% of 360) and the use of percentages for comparison. * To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. * To use common factors to simplify fractions; use common multiples to express fractions in the same denomination. * To compare and order fractions, including fractions >1 | * To illustrate and name parts of circles, including radius, diameter and circumference. * To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. * To draw 2D shapes using given dimensions and angles. * To compare and classify geometric shapes based on their properties and sizes; and find unknown angles in any triangles, quadrilateral and regular polygons. * To recognise, describe and build simple 3D shapes, including making nets. | * To describe positions on the full coordinate grid (all four quadrants) * To draw and translate simple shapes on the coordinate plane, and reflect them in the axis. |
| **Measurement**  Pupils will be taught to: | **Algebra:**  **Pupils will be taught to:** | **Statistics:**  **Pupils will be taught to:** |
| * To solve problems involving the calculation and conversion of units of measure, using decimal notation to 3 decimal places where appropriate. * To use, read, write and covert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit of measure, and vice versa using decimal natation to 3 decimal places. * To convert between miles and kilometers. * To recognise that shapes with the same area can have different perimeters and vice versa. * To calculate the area of parallelograms and triangles. * To recognise when it is necessary to use the formulae for area and volume of shapes. * To calculate, estimate and compare volume of cubes and cuboids, using standard units, including cm cubed (cm³) and cubic meters (m³) and extending to others units such as mm³ and km³. | * To express missing number problems algebraically. * To use simple formulae expressed in words. * To find pairs of number that satisfies number sentences involving two unknowns. * To enumerate all possibilities of combinations of two variables. * To generate and describe linear number sequences. | * To interpret and construct pie charts and line graphs, and use these to solve problems. * To calculate and interpret the mean as an average. |
| **Ratio and proportion**  ***Pupils will be taught:*** | | |
| * **To solve problems involving the relative size of two quantities, where missing values can be found by using integer multiplication and division facts.** * **To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.** * **To solve problems involving similar shapes where the scale factor is known or can be found.** | | |

***Updated by KL (September 2018)***