**This progression of skills document details how each key skill develops sequentially in Mathematics throughout school.**

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| **Areas of study** | **EYFS** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Number and Place Value** | - Have a deep understanding of number to 10, including the composition of each number.  - Subitise (recognise quantities without counting) up to 5.  - Verbally count beyond 20, recognising the pattern of the counting system  - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity | - count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.  - Count numbers to 100 in numerals; count in multiples of 2, 5 and 10.  - identify and represent numbers using objects and pictorial representations  - read and write numbers to 100 in numerals  - read and write numbers from 1 to 20 in numerals and words  - given a number, identify one more and one less.  - use the language of: equal to, more than, less than (fewer), most, least. | - 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 words.  - identify, represent and estimate numbers using different representations, including the number line.  - recognise the place value of each digit in a two-digit number (tens, ones)  - partition numbers in different ways  - compare and order numbers from 0 up to 100; use < > and = signs  - find 1 or 10 more or less than a given number  - use place value and number facts to solve problems. | - count from 0 in multiples of 4, 8, 50 and 100; find 1, 10 or 100 more or less than a given number  - read and write numbers up to 1000 in numerals and in words.  - identify, represent and estimate numbers using different representations  - recognise the place value of each digit in a three-digit number (hundreds, tens, ones)  - compare and order numbers up to 1000  - partition numbers in different ways  - round numbers to at least 1000 to the nearest 10 or 100.  - solve number problems and practical problems involving these ideas. | - count in multiples of 6,7,9,25 and 1000  - count backwards through zero to include negative numbers  - read and write numbers to 10 000  - identify, represent and estimate numbers using different representations  - read Roman numerals to 100 (1 to C) and know that over time, the numeral system changed to include the concept of zero and place value  - find 0.1, 1, 10, 100 or 1000 more or less than a given number  - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)  - order and compare numbers beyond 1000  - round any number to the nearest 10, 100 or 1000  - solve number and practical problems that involve all of the above and with increasingly large positive numbers | - count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.  - count forwards and backwards with positive and negative whole numbers, including through zero.  - read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit  - read Roman numbers to 1000 (M) and recognise years written in Roman numerals  - interpret negative numbers in context.  - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000  - find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number  - solve number and practical problems that involve all of the above | - read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.  - round and whole number to a required degree of accuracy  - use negative numbers in context, and calculate intervals across zero  - 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 |
| **Addition and Subtraction** | Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts | - read, write and interpret mathematical statements involving, +, - and = 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.  - solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations  - solve missing number problems such as 7 = □ - 9 | - recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.  - show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.  - add and subtract numbers using concrete objects, pictorial representations, and mentally, including:  - a 2 digit number and ones  - a 2 digit number and tens  - two 2 digit numbers  - adding three 1 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:  - using concrete objects and pictorial representations, including those involving numbers, quantities and measures  - applying their increasing knowledge of mental and written methods. | - recall/use addition and subtraction facts for 100  - estimate the answer to a calculation and use inverse operations to check answers  - add and subtract numbers mentally, including:   * a 3 digit number and ones * a 3 digit number and tens * a 3 digit number and hundreds   - add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction  - solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction | - estimate and use inverse operations to check answers to a calculation  - recall and use addition and subtraction facts for 100.  - add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate  - solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | - use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy  - 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  - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why  - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign  - solve addition and subtraction problems involving missing numbers | - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy  - add and subtract whole numbers and decimals using formal written methods  - perform mental calculations, including with mixed operations and large numbers  - use their knowledge of the order of operations to carry out calculations involving the four operations  - 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 |
| **Multiplication and Division**  **Multiplication and Division (cont.)** | - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. | - 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. | - recall and use multiplication and division facts for to 2, 5 and 10 times tables, including recognise odd and even numbers  - derive and use doubles of simple two-digit 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)  - show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot  - calculate mathematical statements for multiplication and division within the multiplication tables and write them using the x, ÷ and = signs  - solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. | - 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  - 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 methods  - solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects and connected to m objects. | - recall multiplication and division facts for multiplication tables up to 12 x12  - 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  -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  - divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders  - solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. | - 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 numbers up to 100 is prime and recall prime numbers up to 19  - recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)  - 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  - multiply and divide whole numbers and those involving decimals, by 10, 100 and 1000  - solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.  - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates  - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign | - identify common factors, common multiples and prime numbers  - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy  - 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 method of long or short division, and interpret remainders as whole number remainders, fractions, or by rounding  - perform mental calculations, including with mixed operations and large numbers  - use written division methods in cases where the answer has up to two decimal places  - solve problems involving all four operations, including those with missing numbers  - use knowledge of the order of operations to carry out calculations involving the four operations |
| **Fractions, Decimals and Percentages**  **Fractions, Decimals and Percentages (cont.)** |  | - recognise, find and name a half as one of two equal parts of an object, shape or quantity  - recognise, find and name a quarter as one of four equal parts of an object, shape or quantity | - recognise, find, name and write fractions 1/3, ½, 2/4, and ¾ of a length, shape, set of objects or quantity  - recognise the equivalence of 2/4 and ½  - write simple fractions for example ½ of 6 = 3 | - 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 objected; unit fractions and no-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  - compare and order unit fractions, and fractions with the same denominators  - add and subtract fractions with same denominator within one whole.  - solve problems that involve all of the above | - count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten  - recognise and show, using diagrams, families of common equivalent fractions  - add and subtract fractions with the same denominator  - 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  - recognise and write decimal equivalents of any number of tents or hundredths  - recognise and write decimal equivalents to ¼, ½, 1/3  - round decimals with one decimal place to the nearest whole number  - compare numbers with the same number of decimal places up to two decimal places  - 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  - solve simple measure and money problems involving fractions and decimals to two decimal places | - 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 e.g. 2/5 + 4/5 = 6/5 = 11/5  - compare and order fractions whose denominators are all multiples of the same number  - 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 (e.g. 0.71 = 71/100)  - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents  - round decimals with two decimal places to the nearest whole number and to one decimal place  - read, write, order and compare numbers with up to three decimal places  - solve problems involving numbers up to three decimal places  - 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 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 | - use common factors to simplify fractions; use common multiples to express fractions in the same denomination  - compare and order fractions, including fractions > 1  - 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. ¼ x ½ = 1/8)  - divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6)  - identify the value of each digit in numbers give to three decimal places  - round decimals with 3 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  - multiply one-digit numbers with up to two decimal places by whole numbers  - use written division methods in cases where the answer has up to two decimal places  - solve problems which require answers to be rounded to specified degrees of accuracy  - associate a fraction with division and calculate decimal fraction equivalents for a simple fraction  - recall and use equivalences between simple fractions, decimals and percentages including in different contexts  - find simple percentages of amounts  - solve problems involving the calculation of percentages and the use of percentages for comparison. |
| **Ratio and Proportion** |  |  |  |  |  |  | - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and 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. |
| **Measurement**  **Measurement**  **(cont.)** |  | - compare, describe and solve practical problems for:  - lengths and heights  - mass and weight  - capacity and volume  - time  - measure and begin to record the following:  - lengths and heights  - mass and weight  - capacity and volume  - time  - recognise and know the value of different denominations of coins and notes  - sequence events in chronological order using language  -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 | - choose and use appropriate standard units to estimate and measure length/height in any direction; mass; temperature; capacity 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; combine amounts to make a particular value  - find different combinations of coins that equal the same amounts of money  - solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change and measures  - 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 | - 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 using thermometers  - 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 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/a.m./p.m., 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  - measure the perimeter of simple 2D shapes | - convert between different units of measure (e.g. km to m, hour to minute)  - estimate, compare and calculate different measures, including pound and pence  - order temperatures including those below 0  - 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  - write amounts of money using decimal notation  - measure and calculate the perimeter of rectilinear figure in cm and m  - find the area of rectilinear shapes by counting squares | - convert between different units of metric measure  - understand and use approximate equivalences between metric units and common imperials units such as inches, pounds and pints  - use all four operations to solve problems involving measure, using decimal notation, including scaling  - solve problems involving converting between units of time  - measure and calculate the perimeter of composite rectilinear shapes in cm and m  - 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 (e.g. using 1cm³ blocks to build cuboids and capacity | - solve problems involving calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate  - use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.  - convert between miles and kilometres  - recognise that shapes with the same areas can have different perimeters and vice versa  - recognise when it is possible to use formulae for area and volume of shapes  - calculate the area of parallelograms and triangles  - 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 |
| **Geometry: Properties of Shape** |  | - recognise and name common 2D shapes (e.g. rectangles (including squares), circles and triangles  - recognise and name common 3D shapes (e.g. cuboids (including cubes), pyramids and spheres) | - identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line  - identify 2D shapes on the surface of 3D shapes  - compare and sort common 2D shapes and everyday objects  - recognise and name common 3D shapes  - compare and sort common 3D shapes and everyday objects | - draw 2D shapes  - make 3D shapes using modelling materials; recognise 3D 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 | - compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes  - identify lines of symmetry in 2D shapes presented in different orientations  - identify acute and obtuse angles and compare and order angles up to two angles by size  - identify lines of symmetry in 2D shapes presented in different orientations  - complete a simple symmetric figure with respect to a specific line of symmetry | - 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 3D shapes, including cubes and other cuboids, from 2D 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)  - identify angles at a point on a straight line and ½ a turn (180)  - identify other multiples of 90 degrees | - draw 2D shapes using given dimensions and angles  - compare and classify geometric shapes based on their properties and sizes  - 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 3D shapes, including making nets  - find unknown angles in any triangles, quadrilaterals, and regular polygons  - recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
| **Geometry: Position and Direction** |  | - describe position, direction and movement including whole, half, quarter and three-quarter turns. | - order and arrange combinations of mathematical objects in patterns and 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) |  | - describe positions on a 2D 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 | - 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  - describe positions on the first quadrant of a coordinate grid | - 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** |  |  | - 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 categories by quantity  - ask and answer questions about totalling and comparing categorical data | - interpret and present data using bar charts, pictograms and tables  - solve one-step and two-step questions (e.g. how many more? and how many fewer?) using information presented in scaled bar charts and pictograms and tables | - 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 | - complete, read and interpret information in tables, including timetables  - solve comparison, sum and difference problems using information presented in a line graph | - interpret and construct pie charts and line graphs and use these to solve problems  - calculate and interpret the mean as average |