Mathematics Progression of Skills

NUMBER – Number and Place Value						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Counting I can count verbally beyond 5. I can count verbally beyond 10. I can count verbally beyond 20. I can accurately count items to 5 with one-to-one correspondence. I can accurately count items to 10 with one-to-one correspondence. I can correctly count sounds and actions, as well as objects.	*Counting* I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. I can count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. *Comparing* I can use the language of: equal to, more than, less than (fewer), most, least.	*Counting* I can count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward. I can read and write numbers to at least 100 in numerals and in words. I can identify, represent and estimate numbers using different representations, including the number line. *Place Value* I can recognise the place value of each	*Counting* I can count from 0 in multiples of 4, 8, 50 and 100. I can find 10 or 100 more or less than a given number. I can compare and order numbers up to 1 000. I can identify, represent and estimate numbers using different representations. I can read and write numbers up to 1 000 in numerals and in words.	I can count in multiples of 6, 7, 9, 25 and 1000 I can find 1000 more or less than a given number. I can count backwards through zero to include negative numbers. I can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). I can order and compare numbers beyond 1000 I can identify, represent and estimate numbers using different representations.	I can read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0. I can round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.	I can read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. I can round any whole number to a required degree of accuracy. I can use negative numbers in context, and calculate intervals across 0. I can solve number and practical problems that involve all of the above.

I can show a secure understanding of the 'cardinal principle' (knows the last number reached when counting tells you the total). I can subitise up to 3. I can subitise up to 5. I can show 'finger numbers' up to 5. I can link numeral to amounts up to 5. I can link numeral to amounts up to 10. *Comparing* I can use 'more than' and 'fewer than' to compare quantities. I can compare quantities up to 10 and say whether one is greater than, less than or the same as the other. I can understand 'one more than/one less than'.	Given a number, identify one more and one less. Representation I can identify and represent numbers using objects and pictorial representations including the number line. I can read and write numbers from 1 to 20 in numerals and words. I can read and write numbers to 100 in numerals and words.	digit in a two-digit number (tens, ones) I can compare and order numbers from 0 up to 100; use <, > and = signs. I can use place value and number facts to solve problems.	*Place Value* I can recognise the place value of each digit in a three-digit number (hundreds, tens, ones).	I can round any number to the nearest 10, 100 or 1000. I can solve number and practical problems that involve all of the above and with increasingly large positive numbers. I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	I can solve number problems and practical problems that involve all of the above. I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.	

NUMBER – Addition, Subtraction, Multiplication and Division						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Composition of Number I can solve real-life maths problems with numbers up to 5. I know the total of a larger set by subitising the groups within it and immediately combining them to find the total (conceptual subitising). I can demonstrate an understanding of the composition of numbers to 5. I can demonstrate an understanding of the composition of numbers to 10. I can automatically recall number bonds to 5. I can automatically recall some number bonds to 10. I can apply knowledge of number bonds to recall some subtraction facts to 5.	*Addition & Subtraction* I can read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. I can represent and use number bonds and related subtraction facts within 20. I can add and subtract one-digit and two-digit numbers to 20, including zero. I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9.	*Addition & Subtraction* I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. I can show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. I can recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	I can add and subtract numbers mentally, including: a three-digit number and 1s, a three-digit number and 10s, a three-digit number and 100s. I can add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. I can estimate the answer to a calculation and use inverse operations to check answers. I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. I can estimate and use inverse operations to check answers to a calculation. I can solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. I can recall multiplication and division facts for multiplication tables up to 12 × 12. I can 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.	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.	Add/subtract whole numbers with more than 4 digits (column method). Inverse operations (addition and subtraction). Multi-step addition and subtraction problems. Add and subtract Integers. *Multiplication & Division* Multiply multi-digit up to 4 digits by a two-digit (long multiplication). Divide up to 4 digits by a one, two-digits (short, long division). Interpret remainders appropriate for the context.

	Multiplication & Division I can 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.	*Calculations* I can 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. I can solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measure - applying their increasing knowledge of mental and written methods. *Multiplication & Division* I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.	*Multiplication & division* I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. I can write and calculate mathematical statements for multiplication and division using the multiplication tables that I know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. I can 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.	I can recognise and use factor pairs and commutativity in mental calculations. I can multiply two-digit and three-digit numbers by a one-digit number using formal written layout. I can 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.	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.	*Written method* Perform mental calculations (mixed operations & large numbers). Identify common factors, common multiples & prime numbers. *BIDMAS* Solve multi-step problems in contexts with multiple operations. Estimation to check answers and determine an appropriate degree of accuracy.

		I can show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs I can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.			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.	

NUMBER – Fractions (including Decimals and Percentages)						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Recognising Fractions I can recognise, find and name a half as one of two equal parts of an object, shape or quantity. I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	*Recognise and Write* Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. *Compare* I can recognise the equivalence of 2/4 and 1/2. I can write simple fractions e.g. 1/2 of 6 = 3.	I can 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. I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. I can 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. I can add and subtract fractions with the same denominator within one whole [for eg, 5/7 + 1/7 = 6/7}.	I can 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 one hundred and dividing tenths by ten. I can 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. I can add and subtract fractions with the same denominator. I can recognise and write decimal equivalents of any number of tenths or hundredths.	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. 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].	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. Divide proper fractions by whole numbers. Associate a fraction with division and calculate decimal fraction equivalents. Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.

			I can compare and order unit fractions, and fractions with the same denominators solve problems that involve all of the above.	I can recognise and write decimal equivalents to 4 1, 2 1, 4 3 I can 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. I can round decimals with one decimal place to the nearest whole number. I can compare numbers with the same number of decimal places up to two decimal places. I can solve simple measure and money problems involving fractions and decimals to two decimal places.	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 half, a quarter, one-fifth, two-fifth and four-fifth and those fractions with a denominator of a multiple of 10 or 25.	Multiply one-digit numbers with up to 2 decimal places by whole numbers. Use written division methods in cases where the answer has up to 2 decimal places solve problems which require answers to be rounded to specified degrees of accuracy. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

RATIO AND PROPORTION						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
						Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

ALGEBRA						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Patterns and Mathematical Relationships I can talk about patterns in the environment using informal language. I can continue a simple AB pattern. I can copy and create a simple AB pattern. I can notice and correct an error in a simple pattern. I can continue and copy a more complex pattern e.g. ABC, ABB, ABBC I can create a more complex pattern. I can notice and correct an error in a more complex pattern. I can understand the odd and even pattern of numbers up to 10.	I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9.	I can recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.				Use simple formulae generate and describe linear number sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy an equation with 2 unknowns enumerate possibilities of combinations of 2 variables.

I can explore how quantities can be distributed equally within numbers up to 10. I can explore the pattern of double facts to 10.						

MEASUREMENT						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Comparing I can make direct comparisons between objects relating to size. I can begin to use units to compare size. I can make direct comparisons between objects relating to length. I can begin to use units to compare length. I can make direct comparisons between objects relating to weight.	*Comparing & Estimating* I can compare, describe and solve practical problems for: lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]; mass/weight [e.g. heavy/light, heavier than, lighter than]; capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]; time [e.g. quicker, slower, earlier, later].	*Comparing & Estimating* I can compare and order lengths, mass, volume/capacity and record the results using >, < and = I can compare and sequence intervals of time. I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.	I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). I can measure the perimeter of simple 2-D shapes. *Money* I can add and subtract amounts of money to give change, using both £ and p in practical contexts.	I can convert between different units of measure [for example, kilometre to metre; hour to minute]. I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. I can find the area of rectilinear shapes by counting squares. I can estimate, compare and calculate different measures, including money in pounds and pence.	I can 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. I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate. I can 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 3 decimal places.

I can begin to use units to compare weight. I can make direct comparisons between objects relating to capacity. I can begin to use units to compare capacity. I can describe a sequence of events.	I can measure and begin to record the following: lengths and heights, mass/weight, capacity and volume, time (hours, minutes, seconds). *Money* Recognise and know the value of different denominations of coins and notes. *Time* I can sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. I can tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. I can recognise and use language relating to dates, including days of the week, weeks, months and years.	*Money* I can recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. I can find different combinations of coins that equal the same amounts of money. I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. *Time* I can 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. I can know the number of minutes in an hour and the number of hours in a day.	*Time* I can tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. I can estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours. I can use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. I know the number of seconds in a minute and the number of days in each month, year and leap year. I can compare durations of events [for example, to calculate the time taken by particular events or tasks].	Read, write and convert time between analogue and digital 12- and 24-hour clocks. I can solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	I can calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes. Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. I can solve problems involving converting between units of time. I can use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	I can convert between miles and kilometres. I can recognise that shapes with the same areas can have different perimeters and vice versa. I can recognise when it is possible to use formulae for area and volume of shapes. I can calculate the area of parallelograms and triangles. I can calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

GEOMETRY – Properties of Shapes						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
I can talk about some common 2D shapes using informal and mathematical language. I can talk about some common 3D shapes using informal and mathematical language. I can select shapes appropriately for tasks. I can combine shapes to make new ones. I can understand that shapes can be decomposed into smaller ones within them.	*Identifying & Properties* I can identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. I can compare and sort common 2-D and 3-D shapes and everyday objects.	*Identifying & Properties* I can identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. I can compare and sort common 2-D and 3-D shapes and everyday objects.	*Draw and recognise shapes* I can draw 2-D shapes and make 3-D shapes using modelling materials. I can recognise 3-D shapes in different orientations and describe them. I can recognise angles as a property of shape or a description of a turn. I can identify right angles. I can recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn (also position/direction). I can identify whether angles are greater than or less than a right angle.	I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. I can identify acute and obtuse angles and compare and order angles up to two right angles by size. I can identify lines of symmetry in 2-D shapes presented in different orientations. I can complete a simple symmetric figure with respect to a specific line of symmetry.	I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations. I can know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. I can draw given angles, and measure them in degrees. I can identify: angles at a point and one whole turn (total 360^{o}); angles at a point on a straight line and 2 1 a turn (total 180^{o}). I can other multiples of 90^{o}. I can use the properties of rectangles to deduce related facts and find missing lengths and angles.	I can draw 2-D shapes using given dimensions and angles. I can recognise, describe and build simple 3-D shapes, including making nets. I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

	I can recognise and name common 2-D and 3-D shapes, including: 2-D shapes [e.g. rectangles (including squares), circles and triangles]; 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].		I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines.		I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	

GEOMETRY – Position, Direction and Motion						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
I can explore shapes and spatial awareness by rotating and manipulating shapes. I can understand positional language. I can use positional language. I can describe and discuss a route.	I can describe position, direction and movement, including half, quarter and three-quarter turns.	I can 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). I can order and arrange combinations of mathematical objects in patterns and sequences.	I can recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn (as in shapes).	I can describe positions on a 2-D grid as coordinates in the first quadrant. I can describe movements between positions as translations of a given unit to the left/right and up/down. I can plot specified points and draw sides to complete a given polygon.	I can 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.	I can describe positions on the full coordinate grid (all 4 quadrants). I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

STATISTICS						
Early Years	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
		I can interpret and construct simple pictograms, tally charts, block diagrams and simple tables. I can ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. I can ask and answer questions about totalling and comparing categorical data.	I can interpret and present data using bar charts, pictograms and tables. I can 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.	I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	I can solve comparison, sum and difference problems using information presented in a line graph. I can complete, read and interpret information in tables, including timetables.	I can interpret and construct pie charts and line graphs and use these to solve problems. I can calculate and interpret the mean as an average.