Maths Skills Progression

EYFS: *FS1* / FS2	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
			Counting numbers			
Subitise (recognise qualities without counting) up to 5. Verbally count beyond 20, recognising the pattern of the counting system *Recite numbers past 5.* *Say one number for each item in order: 1,2,3,4,5.* *Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). Show 'finger numbers' up to 5.* *Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.*	Count to and across 100, forwards and backwards, beginning with 0 or 1, from any given number			Count backwards through zero to include negative numbers	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero Count forwards or backwards in steps of powers of 10 for any given number up to 1,000 000	Use negative numbers in context, and calculate intervals across zero
	Count, read and write numbers to 100 in numerals					
	Count in multiples of twos, fives and tens.	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	Count from 0 in multiples of 4, 8, 50 and 100	Count in multiples of 6, 7, 9, 25 and 1,000		
	Identify one more or one less than a given number		Find 10 or 100 more or less than a given number	Find 1,000 more or less than a given number		
			Count up and down in tenths	Count up and down in hundredths		
			Reading and writing numbers			
Have a deep understanding of number to 10, including the composition of each number	Read and write numbers from 1 to 20 in numerals and words.	Read and write numbers to at least 100 in numerals and in words.	Read and write numbers to at least 1,000 in numerals and in words.		Read and write numbers to at least 1,000,000	Read and write numbers to at least 10,000,000
			Roman numerals			
			Use Roman numerals I-XII to help read analogue time	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	Read Roman numerals to 1 000 (M) and recognise years written in Roman numerals	
			Comparing numbers			
Compare quantities up to 10 in different contexts, recognising when one	Use the language of: equal to, more than, less than (fewer), most, least	Compare and order numbers from 0 up to 100; use <, > and = signs	Compare and order numbers up to 1,000	Order and compare numbers beyond 1,000	Order and compare numbers to at least 1,000,000	Order and compare numbers to at least 10,000,000

quantity is greater than, less than or the same as the other quantity						
Understanding place value						
		Recognise the place value of each digit in a two-digit number (tens, ones)	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	Determine the value of each digit in numbers up to 1,000,000	Determine the value of each digit in numbers up to 10,000,000
				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 units, tenths and hundredths		Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1 000 where the answers are up to three decimal places Identify the value of each digit in numbers given to three decimal places
Rounding numbers						
				Round any number to the nearest 10,100 and 1,000	Round any number up to 1,000,000 to the nearest 10 100 1,000 10,000 100,000	Round any whole number to a required degree of accuracy
				Round decimals with one decimal place to the nearest whole number	Round decimals with two decimal places to the nearest whole number and to one decimal place	Solve problems which require answers to be rounded to specified degrees of accuracy
Number bonds						
Recall numbers bonds up to 5 and some number bonds up to 10 including double facts.	Represent and use number bonds and related subtraction facts within 20	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
Place value problem solving						
Solve real world mathematical problems with numbers up to 5.		Use place value and number facts to solve problems	Solve number and practical problems involving these ideas	Solve number and practical problems that involve all of the above and with increasingly large numbers	Solve number and practical problems that involve all of the above	Solve number and practical problems that involve all of the above
Addition / Subtraction mental calculation						
Recall numbers bonds up to 5 and some number bonds up to 10 including double facts. Understand the 'one more than/one less than' relationship between consecutive numbers.	Add and subtract one-digit and two-digit numbers to 20, including zero	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	Add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number		Add and subtract numbers mentally with increasingly large numbers	
		Show that addition of two numbers can be done in any order (commutative)				Use their knowledge of the order of operations to carry

		and subtraction of one number from another cannot			out calculations involving the four operations
Addition / Subtraction written methods					
	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
Inverse, estimating and checking answers					
		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
Addition / Subtraction problem solving					
	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	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	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Solve addition, subtraction, multiplication and division multi-step problems in contexts, deciding which operations and methods to use and why
Multiplication and division facts / Properties of number					
		Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Recall multiplication and division facts for multiplication tables up to 12 × 12		
		Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		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 and divide numbers mentally drawing upon known facts	Perform mental calculations, including with mixed operations and large number
					Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	
			Recognise and use factor pairs and commutativity in mental calculations		Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	Identify common factors, common multiples and prime 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 numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	

Written calculations for multiplication and division						
			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	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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 multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
					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	Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding

Multiplication and Division problem solving

		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	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	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	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 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	Use their knowledge of the order of operations to carry out calculations involving the four operations
				Recognising fractions		
	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, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
			Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.			
			Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			
				Comparing fractions		
			Compare and order unit fractions, and fractions with the same denominators		Compare and order fractions whose denominators are all multiples of the same number	Compare and order fractions, including fractions >1
				Comparing decimals		
				Compare numbers with the same number of decimal places up to two decimal places	Read, write, order and compare numbers with up to three decimal places	

			Equivalence of fractions decimals and percentages			
		Write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
				Recognise and write decimal equivalents of any number of tenths or hundredths	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	Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
				Recognise and write decimal equivalents to 1/4; 1/2; 3/4	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 as a decimal fraction	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
			Add / Subtract fractions			
		Add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7)	Add and subtract fractions with the same denominator	Add and subtract fractions with the same denominator and multiples of the same number 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)	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
			Multiply / Divide fractions			
					Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8)
						Multiply one-digit numbers with up to two decimal places by whole numbers
						Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6)
			Multiply / Divide decimals			
						Multiply one-digit numbers with up to two decimal places by whole numbers
						Associate a fraction with division and calculate decimal fraction

						equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
						Use written division methods in cases where the answer has up to two decimal places
Problem solving: fractions, decimals and percentages						
			Solve problems that involve all of the above	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 problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.	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
					Solve simple measure and money problems involving fractions and decimals to two decimal places.	Solve problems involving numbers up to three decimal places
Measurement						
Compare length, weight and capacity. *Compare sizes, weights etc. using gesture and Language: 'bigger/little/smaller', 'high/low', 'tall', 'heavy'* *Make comparisons between objects relating to size, length, weight and capacity.*	Measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * 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]	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 Compare and order lengths, mass, volume/capacity and record the results using >, < and =	Estimate, compare and calculate different measures Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	Estimate, compare and calculate different measures	Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	
			Convert between different units of measure [for example, kilometre to metre; hour to minute]	Convert between different units of metric measure (for example, kilometre and metre; centimetre and	Solve problems involving the calculation and conversion of units of measure, using decimal	

					metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	notation up to three decimal places where appropriate
					Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	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
			Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares	Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes (also included in measuring) Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	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 [for example, mm3 and km3].
				Time		
Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	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. Sequence events in chronological order using language [for example, before and	Know the number of minutes in an hour and the number of hours in a day 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	Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	Solve problems involving converting between units of time	

	after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Measure and begin to record time (hours, minutes, seconds)	Know the number of minutes in an hour and the number of hours in a day..	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 [for example to calculate the time taken by particular events or tasks].			
			Money			
	Recognise and know the value of different denominations of coins and notes	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 Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	Add and subtract amounts of money to give change, using both £ and p in practical contexts Estimate, compare and calculate money in pounds and pence	Estimate, compare and calculate money in pounds and pence		
			Properties of shape			
Select, rotate and manipulate shapes to develop spatial reasoning skills. *Talk about and explore 2D and 3D shapes*	Recognise and name common 2D shapes	Identify and describe the properties of 2-D shapes, including the number of sides	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes		Draw 2-D shapes using given dimensions and angles
		Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces			Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	Recognise, describe and build simple 3-D shapes, including making nets
Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.		Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				

Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. *Combine shapes to make new ones – an arch, a bigger triangle, etc.*					
		Compare and sort common 2-D and 3-D shapes and everyday objects			Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
		Recognise line symmetry in a vertical line	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	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	
				Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
					Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
<td colspan="6" align="center">Angles</td>
		Recognise angles as a property of shape or a description of a turn	Identify acute and obtuse angles and compare and order angles up to 2 right angles by size	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	
		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: * angles at a point and one whole turn (total 360°) * angles at a point on a straight line and 1/2 a turn (total 180°) * other multiples of 90	
				Draw given angles, and measure them in degrees (°)	
				Use the properties of rectangles to deduce	Recognise angles where they meet at a point, are on a straight line, or are

					related facts and find missing lengths and angles	vertically opposite, and find missing angles.

Position, direction and movement

	Describe position, direction and movement, including half, quarter and three-quarter turns.	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 2-D grid as coordinates in the first quadrant

Plot specified points and draw sides to complete a given polygon | | Describe positions on the full coordinate grid (all four quadrants) |
| | | | | Describe movements between positions as translations of a given unit to the left/right and up/down | 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 | Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |
| | | | | | | |

Pattern

Verbally count beyond 20, recognising the pattern of the counting system

Continue, copy and create repeating patterns.

Notice patterns and arrange things in patterns. | | Order and arrange combinations of mathematical objects in patterns and sequences | | | | |

Interpreting, constructing and presenting data

		Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems
		Ask and answer questions about totalling and comparing categorical data				

Solving problems using data

			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.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Solve comparison, sum and difference problems using information presented in a line graph	Calculate and interpret the mean as an average

- express missing number problems algebraically
- find pairs of numbers that satisfy number sentences involving two unknowns
- enumerate all possibilities of combinations of two variables
- use simple formulae
- generate and describe linear number sequences