Progression of skills for Mathematics

EYFS Reception	Mathematical Development			
	30-50 months	**40-60 months**	**ELG**	**Exceeding**
Number	Uses some number names and number language spontaneously. Uses some number names accurately in play. Recites numbers in order to 10. Knows that numbers identify how many objects are in a set. Beginning to represent numbers using fingers, marks on paper or pictures. Sometimes matches numeral and quantity correctly. Shows curiosity about numbers by offering comments or asking questions. Compares two groups of objects, saying when they have the same number. Shows an interest in number problems. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. Shows an interest in numerals in the environment. Shows an interest in representing numbers. Realises not only objects, but anything can be counted, including steps, claps or jumps.	Recognise some numerals of personal significance. Recognises numerals 1 to 5. Counts up to three or four objects by saying one number name for each item. Counts actions or objects which cannot be moved. Counts objects to 10, and beginning to count beyond 10. Counts out up to six objects from a larger group. Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. Counts an irregular arrangement of up to ten objects. Estimates how many objects they can see and checks by counting them. Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. Says the number that is one more than a given number. Finds one more or one less from a group of up to five objects, then ten objects. In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. Records, using marks that they can interpret and explain. Begins to identify own mathematical problems based on own interests and fascinations.	Children count reliably with numbers from one to 20. Place numbers in order. Say which number is one more or one less than a given number. Using quantities and objects, they add two single-digit numbers and count on to find the answer. Using quantities and objects, they subtract two single-digit numbers and count back to find the answer. They solve problems, including doubling, halving and sharing.	Can estimate a number of objects and check buy counting up to 20. Can solve practical problems that involve combining groups of 2, 5, 10. Can solve practical problems that involve sharing into equal groups.

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	30-50 months	40-60 months	ELG	Exceeding
Shape space and measures	Shows an interest in shape and space by playing with shapes or making arrangements with objects. Shows awareness of similarities of shapes in the environment. Uses positional language. Shows interest in shape by sustained construction activity or by talking about shapes or arrangements. Shows interest in shapes in the environment. Uses shapes appropriately for tasks. Beginning to talk about the shapes of everyday objects, e.g. '*round*' and '*tall*'.	Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. Selects a particular named shape. Can describe their relative position such as '*behind*' or '*next to*'. Orders two or three items by length or height. Orders two items by weight or capacity. Uses familiar objects and common shapes to create and recreate patterns and build models. Uses everyday language related to time. Beginning to use everyday language related to money. Orders and sequences familiar events. Measures short periods of time in simple ways.	Children use everyday language to talk about size to compare quantities and objects and to solve problems. Children use everyday language to talk about weight to compare quantities and objects and to solve problems. Children use everyday language to talk about capacity to compare quantities and objects and to solve problems. Children use everyday language to talk about position to compare quantities and objects and to solve problems. Children use everyday language to talk about distance to compare quantities and objects and to solve problems. Children use everyday language to talk about time to compare quantities and objects and to solve problems. Children use everyday language to talk about money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.	Can estimate objects. Can measure objects. Can weigh objects. Can compare objects. Can order objects. Can talk about properties. Can talk about position. Can talk about time.

Progression of skills for Mathematics

	Year 1	Year 2
Number and place value	**Counting**	
	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 twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
	given a number, identify one more and one less	
	Comparing numbers	
	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
	Identifying, representing and estimating numbers	
	identify and represent numbers using objects and pictorial representations including the number line	identify, represent and estimate numbers using different representations, including the number line
	Reading and writing numbers	
	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
		recognise the place value of each digit in a two-digit number (tens, ones)
	Understanding Place Value	
	use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.
Addition and Subtraction	**Number Bonds**	
	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
	Mental Calculation	
	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

	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
	Written methods	
	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)	
	Inverse operations, 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.
	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 simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)
Multiplication and division	**Multiplication and division facts**	
	count in multiples of twos, fives and tens (copied from Number and Place Value)	*count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value)
		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
	Mental calculation	
		show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
	Written calculation	
		calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs

Progression of skills for Mathematics

	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
Number- Fractions	**Recognising fractions**	
	recognise, find and name a half as one of two 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 name a quarter as one of four equal parts of an object, shape or quantity	
	Equivalence	
		write simple fractions e.g. $^{1}/_{2}$ of 6 = 3 and recognise the equivalence of $^{2}/_{4}$ and $^{1}/_{2}$.
Algebra	**Equations**	
	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and ***missing number problems*** *such as* *7 = □ - 9* (copied from Addition and Subtraction)	*recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.* (copied from Addition and Subtraction)
		recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction)
	represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction)	
	Sequences	
	sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)	*compare and sequence intervals of time* (copied from Measurement)
		order and arrange combinations of mathematical objects in patterns (copied from Geometry: position and direction)
Measurement	**Comparing and estimating**	
	compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]	compare and order lengths, mass, volume/capacity and record the results using >, < and =

	* 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]	
	sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time
	Measuring and calculating	
	measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds**)**	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
	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
	Telling the time	
	tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.
	recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)
	Converting	
		know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)
Geometry Properties of shape	**Identifying shapes and their properties**	
	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].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
		identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces

		identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
	Comparing and classifying	
		compare and sort common 2-D and 3-D shapes and everyday objects
Geometry Position and direction	**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)
	Pattern	
		order and arrange combinations of mathematical objects in patterns and sequences

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End of KS1 expectations	**Working towards the expected standard The pupil can:** • read and write numbers in numerals up to 100 • partition a two-digit number into tens and ones to demonstrate an understanding of place value, though they may use structured resources to support them • add and subtract two-digit numbers and ones, and two-digit numbers and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus (e.g. 23 + 5; 46 + 20; 16 – 5; 88 – 30) • recall at least four of the six2 number bonds for 10 and reason about associated facts (e.g. 6 + 4 = 10 , therefore 4 + 6 = 10 and 10 – 6 = 4) • count in twos, fives and tens from 0 and use this to solve problems • know the value of different coins • name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres).	**Working at the expected standard The pupil can:** - read scales in divisions of ones, twos, fives and tens • partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus • add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17) -recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14) -recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating understanding of commutativity as necessary -identify 1 4 , 1 3 , 1 2 , 2 4 , 3 4 , of a number or shape, and know that all parts must be equal parts of the whole -use different coins to make the same amount -read the time on a clock to the nearest 15 minutes -name and describe properties of 2D and 3D shapes, including number of sides, vertices, edges, faces and lines of symmetry	**Working at greater depth The pupil can:** - read scales where not all numbers on the scale are given and estimate points in between • recall and use multiplication and division facts for 2, 5 and 10 and make deductions outside known multiplication facts - use reasoning about numbers and relationships to solve more complex problems and explain their thinking (e.g. 29 + 17 = 15 + 4 + ♦; 'together Jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have?' etc.) • solve unfamiliar word problems that involve more than one step (e.g. 'which has the most biscuits, 4 packets of biscuits with 5 in each packet or 3 packets of biscuits with 10 in each packet?') • read the time on a clock to the nearest 5 minutes • describe similarities and differences of 2-D and 3-D shapes, using their properties (e.g. that two different 2-D shapes both have only one line of symmetry; that a cube and a cuboid