MATHS CURRICULUM MAP

SKILLS, KNOWLEDGE AND UNDERSTANDING PROGRESSION

Nursery Birth to three	Pre-School 3 and 4 year olds	Reception (ELG)	Year 1	Year 2
Number - Counting				
Begins to say numbers in order, some of which are in the right order (ordinality)	May enjoy counting verbally as far as they can go Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. Uses some number names and number language within play, and may show fascination with large numbers Beginning to recognise that each counting number is one more than the one before	Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 Increasingly confident at putting numerals in order 0 to 10 (ordinality) **ELG - Verbally count beyond 20, recognising the pattern of the counting system**	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 Given a number, identify one more and one less	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
Cardinality (How many?)				
In everyday situations, takes or gives two or three objects from a group Beginning to notice numerals (number symbols) Beginning to count on their fingers	Subitises one, two and three objects (without counting) Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle) Links numerals with amounts up to 5 and maybe beyond Explores using a range of their own marks and signs to which they ascribe mathematical meaning	Engages in subitising numbers to four and maybe five Counts out up to 10 objects from a larger group. Matches the numeral with a group of items to show how many there are (up to 10) **ELG - have a deep understanding of numbers to 10, including the composition of each number**		

		ELG - subitise (recognise quantities without counting) up to 5		
Comparing Numbers				
Beginning to compare and recognise changes in numbers of things, using words like more, lots or same	Compares two small groups of up to five objects, saying when there are the same number of objects in each group, eg You've got two, I've got two. Same! Starting to order numbers, eg placing '3' on an empty line from 0 to 5 (ordinality) Beginning to recognise that each counting number is one more than the one before	Uses number names and symbols when comparing numbers, showing interest in large numbers Estimates a numbers of things, showing understanding of relative size **ELG - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity**	Use the language of: equal to, more than, less than (fewer), most, least	Compare and order numbers from 0 up to 100; use q, G and = signs
Identifying, representing & estimating numbers				
		Estimates a numbers of things, showing understanding of relative size Increasingly able to put numbers in their approximate positions on an empty number line, eg places '4' and '9' approximately on a line from 0-10 (ordinality)	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 & Writing Numbers				
Beginning to notice numerals (number symbols)	Begin to recognise numerals 0 -10	Matches the numeral with a group of items to show how many there are (up to 10)	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

	Explores using a range of their own marks and signs to which they ascribe mathematical meaning		Read and write numbers to 100 in numerals	
Understanding Place Value				
			Identify and represent numbers using objects and pictorial representations including the number line	Recognise the place value of each digit in a two-digit number (tens, ones)
Problem Solving				
	Beginning to use understanding of number to solve practical problems in play and meaningful activities	Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and + or -		Use place value and number facts to solve problems
Addition & Subtraction Number Bonds				
	Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same	Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects Begins to conceptually subitise larger numbers by subitising smaller groups within the number, eg sees six raisins on a plate as three and three **ELG - have a deep understanding of numbers to 10, including the composition of each number** **ELG - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally**	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

		ELG - 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.		
Mental Calculation				
	Beginning to recognise that each counting number is one more than the one before	In practical activities, adds one and subtracts one with numbers to 10	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
		Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and + or –	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				
		Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+"	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation) add and subtract one-digit and two-digit numbers to 20, including zero Solve 1 step problems that involve addition & subtraction, using concrete & pictorial representations, & missing number problems	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 Solve probs with addition & subtraction
Inverse operations				
				Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Multiplication & 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)
		ELG - 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	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
Written Calculation				
				Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
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
Fractions				
				Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)

			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 Write simple fractions e.g. $^{1}/_{2}$ of 6 = 3
Equivalence				
				Recognise the equivalence of $^{2}/_{4}$ and $^{1}/_{2}$.
Measurement – Comparing & Estimating				
Explores differences in size, length, weight and capacity			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]	Compare and order lengths, mass, volume/capacity and record the results using >, < and = Compare and sequence intervals of time
Measuring & Calculating				
Explores differences in size, length, weight and capacity	In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items	Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy Becomes familiar with measuring tools in everyday experiences and play	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
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
Telling the Time				
Beginning to understand some talk about immediate past and future Beginning to anticipate times of the day such as mealtimes or home time	Recalls a sequence of events in everyday life and stories	Is increasingly able to order and sequence events using everyday language related to time Beginning to experience measuring time with timers and calendar	Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	Compare and sequence intervals of time Know the number of minutes in an hour and the number of hours in a day. (appears also in Converting) 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.
Converting				
				Know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)
Shapes				
Chooses puzzle pieces and tries to fit them in	Chooses items based on their shape which are appropriate for the child's purpose		Recognise and name common 2-D and 3-D shapes, including:	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line

Recognises that two objects have the same shape Makes simple constructions	Responds to both informal language and common shape names Shows awareness of shape similarities and differences between objects Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes Attempts to create arches and enclosures when building, using trial and improvement to select blocks .	Uses informal language and analogies, (eg heartshaped and hand-shaped leaves), as well as mathematical terms to describe shapes Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build	* 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 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 & Classifying				
Recognises that two objects have the same shape	Shows awareness of shape similarities and differences between objects			Compare and sort common 2-D and 3-D shapes and everyday objects
Position, Direction & Movement (Spatial Reasoning)				
Moves their body and toys around objects and explores fitting into spaces Begins to remember their way around familiar environments Responds to some spatial and positional language Explores how things look from different viewpoints including things that are near or far away	Responds to and uses language of position and direction Predicts, moves and rotates objects to fit the space or create the shape they wou	Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints Investigates turning and flipping objects in order to make shapes fit and create models, predicting and visualising how they will look	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)

		May enjoy making simple maps of familiar and imaginative environments, with landmarks		
Pattern				
Joins in and anticipates repeated sound and action patterns Is interested in what happens next using the pattern of everyday routine	Creates their own spatial patterns showing some organisation or regularity Explores and adds to simple linear patterns of two or three repeating items, eg stick, leaf (AB) or stick, leaf, stone (ABC) Joins in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes	Spots patterns in the environment, beginning to identify the pattern "rule" Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat	Recognise and create repeating patterns with objects and shapes	Order and arrange combinations of mathematical objects in patterns and sequences
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 the categories by quantity Ask and answer questions about totalling and comparing categorical data
Algebra				
			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)