

MATHS: Knowledge, Skills and Understanding Progression Grid

	Reception	Year 1	Year 2	Year 3
Number: Number and Place Value	verbally count beyond 20, recognising the pattern of the counting system 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 up to 1000 in numerals and in words
	Have a deep understanding of number to 10, including the composition of each number	understanding that two digit numbers are made up of tens and ones	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)
	subitise (recognise quantities without counting) up to 5	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	identify, represent and estimate numbers using different representations
	count objects actions and sounds count beyond 10 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 in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	count from 0 in multiples of 4, 8, 50 and 100;
	count objects actions and sounds count beyond 10	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens		
	understand the 'one more than/one less than' relationship between consecutive numbers	given a number, identify one more and one less		find 10 or 100 more or less than a given number
	compare numbers and amounts, for example, using vocabulary like 'more than', 'less than', 'fewer', 'the same as', 'equal to' 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 <, > and = signs	compare and order numbers up to 1000
	Have a deep understanding of number to 10, including the composition of each number	understanding that two digit numbers are made up of tens and ones	use place value and number facts to solve problems	solve number problems and practical problems involving these ideas

Number: Addition and Subtraction	Reception	Year 1	Year 2	Year 3
	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	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	
	compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	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 and hundreds
	compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs		
	Subitise (recognise quantities without counting) up to 5	add and subtract one-digit and two-digit numbers to 20, including zero	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	
	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$	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
			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
Number: Multiplication and Division	Reception	Year 1	Year 2	Year 3
		count in multiples of twos, fives and tens	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
			calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	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
			show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	
	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	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

Fractions, Decimals and Percentages	Reception	Year 1	Year 2	Year 3
	Select, rotate and manipulate shapes in order to develop spatial reasoning skills compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can	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	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 name a quarter as one of four equal parts of an object, shape or quantity	write simple fractions for example, 1/2 of 6 = 3	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
			recognise the equivalence of 2/4 and 1/2	recognise and show, using diagrams, equivalent fractions with small denominators
Measurement	Reception	Year 1	Year 2	Year 3
	use language associated with time (now, next, before, later) use vocabulary like ‘morning’, ‘afternoon’ and ‘night-time’, ‘earlier’, ‘later’, ‘too late’, ‘too soon’	sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	compare and sequence intervals of time	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
	develop an awareness about the days of the week and seasons through daily activities, songs, rhymes and stories	recognise and use language relating to dates, including days of the week, weeks, months and years	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 seconds in a minute and the number of days in each month, year and leap year
	develop an awareness of time and use time associated language, for example, linked to their daily timetable (now, next, later, after, before)	tell the time to the hour and half past 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.	compare durations of events [for example to calculate the time taken by particular events or tasks]
	join in with role play activities involving money i.e. shops	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	add and subtract amounts of money to give change, using both £ and p in practical contexts
	compare length, weight and capacity, starting to use ‘than’, for example: “This is heavier <i>than</i> that.” [“What if we pour the jugful into the teapot? Which holds more?”]	compare, describe and solve practical problems for: - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] - mass/weight [for example, heavy/light, heavier than, lighter than] - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] - time [for example, 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	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
	record quantities (for example, scores in games), such as tallies, dots and using numeral cards	measure and begin to record the following: - lengths and heights - mass/weight - capacity and volume - time (hours, minutes, seconds)		

Geometry: Properties of Shapes	Reception	Year 1	Year 2	Year 3
	select, rotate and manipulate shapes in order to develop spatial reasoning skills compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can	recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles] - 3-D shapes [for example, 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 horizontal and vertical lines and pairs of perpendicular and parallel lines
			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]	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
			compare and sort common 2-D and 3-D shapes and everyday objects	
Geometry: Position and Direction	Reception	Year 1	Year 2	Year 3
	understand position through words alone – for example, “The bag is under the table,” – with no pointing.	describe position, direction and movement, including whole, 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)	
Statistics	Reception	Year 1	Year 2	Year 3
			ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	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
			ask and answer questions about totalling and comparing categorical data	
			interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables
Algebra	Reception	Year 1	Year 2	Year 3
	<i>compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity</i>	<i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</i> (Number: Addition & Subtraction)	<i>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems</i> (Number: Addition & Subtraction)	<i>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</i> (Number: Addition & Subtraction)
			<i>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</i> (Number: Addition & Subtraction)	
	<i>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</i>	<i>represent and use number bonds and related subtraction facts within 20</i> (Number: Addition & Subtraction)		