

Progression of skills for Mathematics

YR progression Checkpoint	Maths - Numbers	Maths - Numerical Patterns	Shape, Space and Measure
September	Subitise to 3. Represent 1 - 3 on fingers, on a tens frame and with objects.	Join in with number songs, attempting to represent numbers using fingers where appropriate. Recite numbers to 10 or beyond. Demonstrate understanding that we use one number for each item, when counting. Attempt to count objects, actions and sounds. Use and understand the term "more" in practical contexts.	Describe the size or shape of real-life objects using simple mathematical vocabulary, e.g. <i>big/small, round/straight</i> . Time - understand <i>first/next</i> <i>Sorting/matching</i> - sort groups of objects according to different criteria
Christmas	Subitise to 4. Discuss composition of numbers to 4, showing some automatic recall of number facts. Begin to recognise parts within numbers. E.g. Look at 4 buttons and say "I can see a group of 2 and another group of 2"	Recite numbers to 20 confidently. Count back from 10. Demonstrate understanding of the cardinal principle when counting objects. Show accuracy when counting a group of up to 5/10 objects. Use and understand the terms more and fewer/less in practical contexts. Understand the term equal when comparing two groups of objects.	Time - Understand <i>yesterday/today/tomorrow</i> . Recite days of the week. Shape - Identify straight and curved sides on 2D shapes, and flat and curved faces on 3D shape Use shapes to make pictures/models. Measure - use and understand the terms short/tall, large/small. Sequence 4 items according to these criteria.
Easter	Discuss composition of numbers to 5, showing some automatic recall of number facts. Confidently subitise rather than count small groups of objects. Subitise to 5 using familiar concept images (e.g. a tens frame, with Numicon and using fingers)	Recite numbers to 20 and back from 20. Count on from a given number to 20 and back from a given number 0 - 10. Show accuracy when counting a group of objects, showing 1 to 1 correspondence & confident application of the cardinal principle. Say the number one more/less than a given number 1 - 10. Explore sharing into equal groups in practical contexts, commenting on what they notice.	Demonstrate understanding of everyday prepositions - in, on, under, beside, in front, behind. Time - Use and understand <i>before/after</i> Shape - Select, rotate and manipulate shapes to match a picture, fit an outline or create patterns. Pattern - continue a simple AB, ABC pattern

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<p>EOY incl. ELG</p>	<p>ELG - Have a deep understanding of number to 10, including the composition of each number. ELG - Subitise (recognise quantities without counting) up to 5. 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.</p>	<p>ELG - Verbally count beyond 20, recognising the pattern of the counting system. 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. ELG - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally</p>	<p>NO ELG FOR THIS AREA.</p> <p>Use everyday language to discuss length, size, height, weight, time, position and capacity. Use this language to make simple observations, e.g. this is heavier than that. Shape - Understand and use correct mathematical language to describe 2D and 3D shapes (e.g. vertices, sides, edges, faces, flat/curved). Shape - Know some common 2D and 3D shapes. Pattern - create, copy and continue a simple pattern</p>
<p>Those working in Greater Depth may...</p>	<p>Be able to “conceptually subitise” to 10 or beyond. Know number bonds to 10 or beyond. Link subtraction and addition in meaningful ways, e.g. when exploring the part-whole model. Make strong links between areas of their learning, e.g. doubling/halving.</p>	<p>Make estimations based on their “number knowledge/sense”, e.g. <i>that number must be greater than 20 because I can see two full tens and a part finished ten.</i> Apply their number knowledge to solve problems, e.g. <i>It takes 3 eggs to make a cake so I must need 6 for two cakes.</i></p>	<p>Pattern - create patterns of increasing complexity, e.g. ABCCABCC or spot errors in a given pattern. Shape - confidently discuss the properties of common and irregular 2D and 3D shapes, e.g. giving clues. Make predictions and link their knowledge of number to their work on measures, e.g. <i>The red car weighed 4 cubes and the green one is heavier so it might weigh 6 cubes.</i></p>

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	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: <ul style="list-style-type: none"> * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers

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	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 $7 = \square - 9$	<p>solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written methods
		<i>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement)</i>
Multiplication and division	Multiplication and division facts	
	<i>count in multiples of twos, fives and tens (copied from Number and Place Value)</i>	<i>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)</i>
		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 (\times), division (\div) and equals (=) signs

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	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 $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ 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. $\frac{1}{2}$ of $6 = 3$ and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.
Algebra	Equations	
	<i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as</i> $7 = \square - 9$ (copied from Addition and Subtraction)	<i>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</i> (copied from Addition and Subtraction)
		<i>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</i> (copied from Addition and Subtraction)
	<i>represent and use number bonds and related subtraction facts within 20</i> (copied from Addition and Subtraction)	
	Sequences	
	<i>sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening</i> (copied from Measurement)	<i>compare and sequence intervals of time</i> (copied from Measurement)
		<i>order and arrange combinations of mathematical objects in patterns</i> (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 $=$

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	<ul style="list-style-type: none"> * 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: <ul style="list-style-type: none"> * 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	Identifying shapes and their properties	
Properties of shape	recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> * 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

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		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, direction and movement	
Position and direction		
	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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<p>End of KS1 expectations</p>	<p>Working towards the expected standard The pupil can:</p> <ul style="list-style-type: none"> • 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). 	<p>Working at the expected standard The pupil can:</p> <ul style="list-style-type: none"> - 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 	<p>Working at greater depth The pupil can:</p> <ul style="list-style-type: none"> - 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. $29 + 17 = 15 + 4 + \blacklozenge$; '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
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