

Progression Grid - Mathematics

	EYFS	
	Nursery	Reception
	<p>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</p> <p>Recite numbers past 5. Say one number for each item in order: 1,2,3,4,5.</p> <p>Knowing that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</p> <p>Show 'finger numbers' up to 5.</p> <p>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</p> <p>Experiment with their own symbols and marks as well as numerals.</p> <p>Solve real world mathematical problems with numbers up to 5.</p>	<p>Count objects, actions and sounds.</p> <p>Subitise to 5.</p> <p>Link the number symbol (numeral) with its cardinal number value.</p> <p>Verbally count beyond 20, recognising the pattern of the number system.</p> <p>Compare numbers.</p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers.</p> <p>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</p> <p>Explore the composition of numbers to 10.</p> <p>Compare quantities up to 10 in different contexts,</p>

	<p>Compare quantities using language: 'more than', 'fewer than'.</p> <p>Talk about and explore 2D and 3D shapes using informal and mathematical language 'sides', 'corners', 'straight', 'flat', 'round'.</p> <p>Understand position through words alone – for example, "The bag is under the table," – with no pointing.</p> <p>Describe a familiar route.</p> <p>Discuss routes and locations, using words like 'in front of' and 'behind'.</p> <p>Make comparisons between objects relating to size, length, weight and capacity.</p> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.</p> <p>Combine shapes to make new ones – an arch, a bigger triangle, etc.</p> <p>Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper.</p> <p>Use informal language like 'pointy', 'spotty', 'blobs', etc.</p> <p>Extend and create ABAB patterns – stick, leaf, stick, leaf.</p>	<p>recognising when one quantity is greater than, less than or the same as the other quantity.</p> <p>Automatically recall number bonds for numbers 0–5 and some to 10.</p> <p>Select, rotate and manipulate shapes to develop spatial reasoning skills.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compare length, weight and capacity.</p>
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	<p>Notice and correct an error in a repeating pattern.</p> <p>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</p>	
	KS1	
	Year 1	Year 2
Number and place value	<p>Count within 100, forwards and backwards, starting with any number.</p> <p>Reason about the location of numbers to 20 within the linear system, including comparing using $<$ $>$ and $=$.</p>	<p>Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.</p> <p>Reason about the location of any two-digit number in the linear system, including identifying the previous and next multiple of 10.</p>
Number facts	<p>Develop fluency in addition and subtraction facts within 10.</p> <p>Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.</p>	<p>Secure fluency in addition and subtraction facts within 10, through continued practice.</p>
Addition and subtraction	<p>Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.</p>	<p>Add and subtract across 10.</p> <p>Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".</p>

	<p>Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.</p>	<p>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.</p> <p>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.</p>
Multiplication and division		<p>Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.</p> <p>Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).</p>
Geometry	<p>Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.</p> <p>Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.</p>	<p>Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.</p>
Other	<p>Position and direction.</p> <p>Time.</p>	<p>Position and direction.</p> <p>Time.</p> <p>Money.</p>

		<p>Multiplication and division – doubling, halving, quotitive and partitive division.</p> <p>Sense of measure – capacity, volume, mass</p>
	LKS2	
	Year 3	Year 4
Number and place value	<p>Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.</p> <p>Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.</p> <p>Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.</p> <p>Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.</p>	<p>Know that 10 hundreds are equivalent to 1 thousand, and that 1000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.</p> <p>Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning.</p> <p>Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.</p> <p>Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.</p>

<p>Number facts</p>	<p>Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</p> <p>Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).</p>	<p>Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).</p> <p>Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.</p> <p>Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders.</p>
<p>Addition and subtraction</p>	<p>Add and subtract across 10.</p> <p>Calculate complements to 100.</p> <p>Add and subtract up to three-digit numbers using columnar methods.</p> <p>Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.</p>	<p>Add and subtract up to three-digit numbers using columnar methods.</p>
<p>Multiplication and division</p>	<p>Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.</p>	<p>Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.</p> <p>Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.</p>

		Understand and apply the distributive property of multiplication.
Fractions	<p>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.</p> <p>Find unit fractions of quantities using known division facts (multiplication tables fluency).</p> <p>Reason about the location of any fraction within 1 in the linear number system.</p> <p>Add and subtract fractions with the same denominator, within 1.</p>	<p>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. (Review)</p> <p>Reason about the location of mixed numbers in the linear number system.</p> <p>Convert mixed numbers to improper fractions and vice versa.</p> <p>Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.</p>
Geometry	<p>Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.</p> <p>Draw polygons by joining marked points, and identify parallel and perpendicular sides.</p>	<p>Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.</p> <p>Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.</p> <p>Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.</p>
Other	Time.	Time.

	UKS2	
	Year 5	Year 6
Number and place value	<p>Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.</p> <p>Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning.</p> <p>Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.</p> <p>Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.</p> <p>Convert between units of measure, including using common decimals and fractions.</p>	<p>Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).</p> <p>Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.</p> <p>Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.</p> <p>Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.</p>
Number facts	Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).	

<p>Addition and subtraction</p>	<p>Addition and subtraction: Money</p>	<p>Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).</p> <p>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</p> <p>Solve problems involving ratio relationships.</p> <p>Solve problems with two unknowns.</p>
<p>Multiplication and division</p>	<p>Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.</p> <p>Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.</p> <p>Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.</p> <p>Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.</p>	<p>Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).</p> <p>Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</p> <p>Solve problems involving ratio relationships.</p> <p>Solve problems with two unknowns.</p>

<p>Fractions</p>	<p>Find non-unit fractions of quantities.</p> <p>Find equivalent fractions and understand that they have the same value and the same position in the linear number system.</p> <p>Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$, and for multiples of these proper fractions.</p>	<p>Recognise when fractions can be simplified, and use common factors to simplify fractions.</p> <p>Express fractions in a common denomination and use this to compare fractions that are similar in value.</p> <p>Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.</p>
<p>Geometry</p>	<p>Compare angles, estimate and measure angles in degrees ($^{\circ}$) and draw angles of a given size.</p> <p>Compare areas and calculate the area of rectangles (including squares) using standard units.</p>	<p>Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.</p>
<p>Other</p>		<p>Area, perimeter, position and direction.</p> <p>Statistics.</p> <p>Order of operations.</p> <p>Mean average.</p> <p>Multiples of 1000.</p>