

Knowledge and Skills Progression Map for Maths

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NUMBER: PLACE VALUE		
COUNTING		
Reception	Year 1	Year 2
- Say number names in sequence to 5, 10, 20 and then beyond - Tag each object with one number word when counting to 10 and beyond - Know that the last number counted gives us the total so far - Subitise: recognise small quantities without the need to count them all – up to 5 - Link the number symbol with its cardinal value - Know that the number does not change if things are rearranged (as long as none have been added or taken away) within 5 and then within 10	- 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
COMPARING NUMBERS		
- Identify which group of objects has more items and which has fewer items. - Identify groups with the same number of things - Compare numbers and develop reasoning - Know the 'one more/one less than' relationship between counting numbers	- Use the language of: equal to, more than, less than (fewer), most, least - Identify and represent numbers using objects and pictorial representations including the number line	- Compare and order numbers from 0 up to 100; use +, - and = signs - Identify, represent and estimate numbers using different representations, including the number line

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READING AND WRITING NUMBERS		
Link the number symbol with its cardinal value	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
UNDERSTANDING PLACE VALUE		
- Understand the 'one more than/one less than' relationship between consecutive numbers - Explore the composition of numbers to 10		Recognise the place value of each digit in a two-digit number (tens, ones)
PROBLEM SOLVING		
Solve real world mathematical problems with numbers up to 5		Use place value and number facts to solve problems

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NUMBER: ADDITION AND SUBTRACTION		
NUMBER BONDS		
Reception	Year 1	Year 2
- Identify smaller numbers within a number (conceptual subitising – see groups and combine to make a total) - Explore how a number can be partitioned into different pairs of numbers - Know which pairs make a given number - Automatically recall some number bonds for numbers 0-10	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		
- Recognise small quantities without the need to count them all – up to 5 - Automatically recall number bonds for numbers up to 5 and then some up to 10 - Understand and recall doubling facts up to 10	- Add and subtract one-digit and two-digit numbers to 20, including zero - Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	- 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 - Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot

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WRITTEN METHODS		
To be introduced to model, images and symbols used to record number sentences	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)	
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS		
Recognise inverse relationships – have opportunities to partition a number of things into two groups and recognise that these two groups can be recombined to make the same total		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 $7 = \square - 9$	- 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 <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>

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NUMBER: MULTIPLICATION AND DIVISION		
MULTIPLICATION AND DIVISION FACTS		
Reception	Year 1	Year 2
- To be introduced to the concepts of sharing equally and doubling with numbers up to 5+5 - To understand concept of odd and even numbers	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 ($\times$), division ($\div$) and equals ($=$) signs
PROBLEM SOLVING		
Explore and represent patterns within numbers up to 10, including 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

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NUMBER: FRACTIONS		
COUNTING IN FRACTIONAL STEPS		
Reception	Year 1	Year 2
		Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (Non Statutory Guidance)
RECOGNISING FRACTIONS		
Begin to use the term “half” and understand it means sharing into 2 equal parts	- 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 $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
EQUIVALENCE		
		Write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

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MEASUREMENT		
COMPARING AND ESTIMATING		
Reception	Year 1	Year 2
- Recognise attributes - Compare amounts of continuous quantities - Show an awareness of comparison in estimating and predicting - Comparing indirectly - Recognise the relationship between the size and the number of units - Begin to use units to compare things - Begin to use time to sequence events - Begin to experience specific time durations	- 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] - Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	- Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ - 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 ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

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MONEY

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|--|---|---|
| | <ul style="list-style-type: none"> Recognise and know the value of different denominations of coins and notes | <ul style="list-style-type: none"> 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 |
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TELLING THE TIME

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| | <ul style="list-style-type: none"> Tell the time to the hour and half past 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 | <ul style="list-style-type: none"> 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 minutes in an hour and the number of hours in a day. (appears also in Converting) |
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CONVERTING

- | | | |
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| | | <ul style="list-style-type: none"> Know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time) |
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GEOMETRY: PROPERTIES OF SHAPES		
IDENTIFYING SHAPES AND THEIR PROPERTIES		
Reception	Year 1	Year 2
- 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 2d and 3d shapes and talk about properties of sides, corners, edges, faces, curved and flat	- 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

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GEOMETRY: POSITION AND DIRECTION		
POSITION, DIRECTION AND MOVEMENT		
Reception	Year 1	Year 2
- Select, rotate and manipulate shapes in order to develop spatial reasoning skills - To describe position, direction and movement including forwards, backwards, sideways, in front, behind, under, over, beside, next to, in between - To begin to introduce left and right	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		
- Continue, copy and make an AB pattern - Spot an error in an AB pattern - Identify the unit of repeat - Continue an ABC pattern - Continue a pattern that ends mid-unit - Make their own ABB, ABBC patterns - Spot an error in an ABB pattern		Order and arrange combinations of mathematical objects in patterns and sequences

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STATISTICS		
INTERPRETING, CONSTRUCTING AND PRESENTING DATA		
Reception	Year 1	Year 2
	• Introduction to tally counting • Construct a simple block graph to represent local geography survey results	• 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