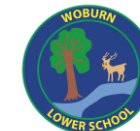


Woburn Lower School - Mathematics Key Knowledge Progression Map 2023/24



Knowledge Strand	Early Years	Key Stage 1		Lower Key Stage 2	
	3 to 4 Year Olds, Children in Reception, Early Learning Goals	Year 1	Year 2	Year 3	Year 4
Number and Place value	<p>Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').</p> <p>Recite numbers past 5.</p> <p>Say one number for each item in order: 1,2,3,4,5.</p> <p>Know 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>Count objects, actions and sounds</p> <p>Subitise.</p> <p>Link the number symbol (numeral) with its cardinal number value.</p> <p>Count beyond ten.</p> <p>Compare numbers.</p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers.</p> <p>Explore the composition of numbers to 10.</p> <p>Automatically recall number bonds for numbers 0-5 and some to 10.</p> <p>Number - ELG'S</p> <p>Have a deep understanding of number to 10, including the composition of each number.</p> <p>Subitise (recognise quantities without counting) up to 5.</p> <p>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>Numerical Patterns</p> <p>Verbally count beyond 20, recognising the pattern of the counting system.</p> <p>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</p>	<p>Count, read and write numbers to 100</p> <p>Read and write numbers from 1-20 in numerals and words</p> <p>Count in multiples of 2's, 5's and 10's</p> <p>Given a number, identify one more and one less</p> <p>Identify and represent numbers using objects and pictorial representations</p> <p>Vocabulary: equal to, more than, less than, fewer, most, least</p>	<p>Count in 2's, 3's and 5's and in 10's from any number, forward and backwards</p> <p>Place value - tens, ones</p> <p>Identify, represent and estimate numbers using different representations</p> <p>Compare and order numbers from 0-100</p> <p>Use mathematical signs for more than, less than and equals</p> <p>Read and write numbers to at least 100 in numerals and in words</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100</p> <p>Find 10 or 100 less than a given number</p> <p>Recognise the place value of each digit in a 3 digit number</p> <p>Compare and order numbers up to 1000</p> <p>Identify, represent and estimate numbers using different representations</p> <p>Read and write numbers up to 100 in numerals and words</p> <p>Solve number problems and practical problems involving these ideas</p>	<p>Count in multiples of 6, 7,9, 25 and 1000</p> <p>Find 1000 more or less than a given number</p> <p>Count backwards through zero to include negative numbers</p> <p>Recognise the place value of each digit in a 4 digit number</p> <p>Order and compare numbers beyond 1000</p> <p>Identify represent and estimate numbers using different representations</p> <p>Round any number to the nearest 10, 100 or 1000</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers</p> <p>Read roman numerals to 100 and understand the changes to the numeral system over time</p>

<p>Number: Addition and Subtraction</p>	<p>Solve real world mathematical problems with numbers up to 5. Compare quantities using language: 'more than', 'fewer than'. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</p>	<p>Solve one-step problems involving addition and subtraction using concrete objects and pictorial representations Read and write +, -, = signs Solve missing number problems Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero</p>	<p>Solve problems with + and - using concrete objects, pictorial representations and mentally, including quantities and measures, a 2 digit number and 1's, a 2 digit number and 10's, 2 x 2 digit numbers, 3 x 1 digit numbers Recall and use + and - facts to 20 fluently and derive and use related facts up to 100 Show that addition of two numbers can be done in any order and subtraction cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems</p>	<p>Add and subtract numbers mentally including a 3 digit number and 1's, a 3 digit number and 10's, a 3 digit number and 100's Add and subtract numbers with up to 3 digits using formal written methods of columnar addition and subtraction Estimate the answer to a calculation and use inverse operations to check answers Solve problems, including missing numbers, using number facts, place value and more complex addition and subtraction</p>	<p>Add and subtract numbers with 4 digits using the formal written methods of columnar addition and subtraction where appropriate Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction 2 step problems in contexts, deciding which operations and methods to use and why</p>
<p>Number: Multiplication and Division</p>		<p>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</p>	<p>Recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers Understand and use multiplication and division symbols Show that multiplication of two numbers can be done in any order and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts</p>	<p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2 digit numbers times 1 digit numbers, using mental maths and progressing to formal written methods Solve problems, including missing number problems involving multiplication and division, positive integer scaling problems and correspondence problems</p>	<p>Recall multiplication and division facts for multiplication tables up to 12 x 12 Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1, dividing by 1, multiplying together 3 numbers Recognise and use factor pairs and use in mental calculations Multiply 2 digit and 3 digit numbers by a 1 digit number using formal written layout Solve problems involving multiplying and adding and including using the distributive law to multiply 2 digit numbers by one digit, integer scaling problems and harder correspondence problems</p>

<p>Number: Fractions</p>		<p>Recognise, find and name a half and a quarter as one of two equal parts of an object, shape or quantity</p>	<p>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 Write simple fractions ie: $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$</p>	<p>Count up and down in tenths, recognise that tenths arise from dividing an object into 10 equal parts and by dividing 1 digit numbers by 10 Recognise, find and write fractions of a set of objects - unit fractions and non-unit fractions with small denominators Recognise and use fractions as numbers Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole Compare and order unit fractions and fractions with the same denominators Problem solving using fraction learning</p>	<p>Recognise and show, using diagrams, families of common equivalent fractions Count up and down in hundredths, understand that they come about by dividing an object by 100 and by dividing tenths by 10 Solve problems including increasingly harder fractions to calculate quantities and fractions to divide quantities, including non-unit fractions where the answer is a whole number Add and subtract fractions with the same denominator Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ Find the effect of dividing a 1 or 2 digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Round decimals with one decimal place to the nearest whole number Compare numbers with the same number of decimal places up to two decimal places Solve simple measure and money problems involving fractions and decimals to 2 decimal places</p>
<p>Measurement</p>	<p>Make comparisons between objects relating to size, length, weight and capacity. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</p>	<p>Compare, describe and solve practical measuring, weighing, capacity and volume, time problems</p>	<p>Choose and use appropriate standard units to estimate and measure length/height, mass,</p>	<p>Measure, compare, add and subtract lengths, mass, capacity</p>	<p>Convert between different units of measure</p>

	Compare length, weight and capacity.	<p>Recognise and understand the value of different denominations of coins and notes</p> <p>Sequence events in chronological order</p> <p>Recognise and use language relating to dates, including days of the week, weeks, months and years</p> <p>Tell the time to the hour and half past the hour</p>	<p>temperature, capacity using appropriate resources</p> <p>Compare and order lengths, mass, volume/capacity and record the results using more and less than symbols</p> <p>Recognise and use £ and p symbols, combine amounts to make a particular value and find different combinations of coins that equal the same amounts of money and solve simple money problems</p>	<p>Measure the perimeter of simple 2D shapes</p> <p>Add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>Tell and write the time from an analogue clock, including using Roman numerals for 1 to x11, and 12 hour and 24 hour clocks</p> <p>Estimate and read time to the nearest minute, record and compare time in terms of seconds, minutes and hours, use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>Compare durations of events</p>	<p>Measure and calculate the perimeter of a rectilinear figure in cm and m</p> <p>Find the area of rectilinear shapes by counting squares</p> <p>Estimate, compare and calculate different measures, including different money in £'s and p</p> <p>Read, write and convert time between analogue and digital 12 and 24 hour clocks</p> <p>Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days</p>
Geometry: Property of shape	<p>Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'</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>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>	Recognise and name common 2D and 3D shapes	<p>Identify and describe the properties of 2D shapes including the number of sides and line symmetry in a vertical line</p> <p>Identify and describe the properties of 3D shapes including the number of edges, vertices and faces</p> <p>Identify 2D shapes on the surface of 3D shapes and compare and sort 2D and 3D objects</p>	<p>Draw 2D shapes and make 3D shapes using modelling materials, recognise 3D shapes in different orientations and describe them</p> <p>Recognise angles as a property of shape or a description of a turn</p> <p>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn</p> <p>Identify whether angles are greater than or less than a right angle</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p> <p>Identify acute and obtuse angles and compare and order angles up to two right angles by size</p> <p>Identify lines of symmetry in 2D shapes presented in different orientations</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry</p>

<p>Geometry: Position and Direction</p>	<p>Understand position through words alone - for example, "The bag is under the table," - with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind' Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. Extend and create ABAB patterns - stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Continue, copy and create repeating patterns.</p>	<p>Describe position, direction and movement, including whole, half, quarter and three quarter turns</p>	<p>Order and arrange combinations of mathematical objects in patterns and sequences 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 anticlockwise)</p>		<p>Describe positions on a 2D grid as co-ordinates in the first quadrant Describe movement between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon</p>
<p>Statistics</p>			<p>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</p>	<p>Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables</p>	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>