

Year 1 Mathematics Objectives 2014-15

Programme of study	Non Statutory guidance	Objectives
<p><b>Number and place Value</b></p> <ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>given a number, identify one more and one less</li> <li>identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<p>Pupils practise counting (1, 2, 3...), ordering (for example, first, second, third...), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent.</p> <p>Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations.</p> <p>They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and even numbers), including varied and frequent practice through increasingly complex questions.</p> <p>They recognise and create repeating patterns with objects and with shapes.</p>	<p><b>Counting</b></p> <ul style="list-style-type: none"> <li>Show amounts in different ways (pictorially, using objects, numberlines)</li> <li>To order numbers (position on numberline and 100 square)</li> <li>Count forwards and backwards from any number.</li> <li>Count across 100</li> <li>Find one more or less.</li> <li>Count amounts of objects in 1s,2s,5s and 10s' (including counting 1ps, 5ps 10ps)</li> </ul> <p><b>Comparing numbers</b></p> <ul style="list-style-type: none"> <li>Use maths words to compare amounts (and numbers) fewer, most, more than etc.</li> </ul> <p><b>Identifying presenting and estimating numbers</b></p> <ul style="list-style-type: none"> <li>To make estimates.</li> <li>To show numbers using pictures and equipment.</li> <li>To show numbers using 10s and 1s</li> <li>Find numbers on a numberline</li> </ul> <p><b>Reading and writing numbers</b></p> <ul style="list-style-type: none"> <li>Read and write numerals to 100.</li> <li>Read and write numbers 1 to 20 in words.</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>To solve problems involving counting.</li> </ul>
<p><b>Addition and subtraction</b></p> <ul style="list-style-type: none"> <li>read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</li> <li>represent and use number bonds and related subtraction facts within 20</li> <li>add and subtract one-digit and two-digit</li> </ul>	<p>Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, <math>9 + 7 = 16</math>; <math>16 - 7 = 9</math>; <math>7 = 16 - 9</math>). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.</p> <p>Pupils combine and increase numbers, counting forwards and backwards.</p>	<p><b>Number bonds</b></p> <ul style="list-style-type: none"> <li>To know addition and subtraction bonds to 10 and 20. <ul style="list-style-type: none"> <li>number pairs with a total of 10, e.g. <math>3 + 7</math>, or what to add to a single-digit number to make 10, e.g. <math>3 + \square = 10</math></li> <li>number pairs with totals to 20</li> </ul> </li> </ul>

<p>numbers to 20, including zero</p> <ul style="list-style-type: none"> <li>• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = - 9</math>.</li> </ul>	<p>They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.</p>	<p><b>Mental calculation</b></p> <ul style="list-style-type: none"> <li>• To add and subtract one-digit and two-digit numbers to 20, including zero. <ul style="list-style-type: none"> <li>➤ addition facts for totals to at least 5, e.g. <math>2 + 3</math>, <math>4 + 3</math></li> <li>➤ addition doubles for all numbers to at least 10, e.g. <math>8 + 8</math></li> <li>➤ Partition smaller numbers in order to bridge through 10. e.g. <math>8+3= 8+2+1</math></li> <li>➤ reorder numbers when adding, e.g. put the larger number first to add more than 2 numbers</li> </ul> </li> <li>• To add by counting on.</li> <li>• To subtract by counting back.</li> <li>• To find the difference between 2 numbers</li> <li>• Add any single-digit number to or from a multiple of 10, e.g. <math>60 + 5</math></li> <li>• To double numbers <ul style="list-style-type: none"> <li>➤ partition: double and adjust, e.g. <math>5 + 6 = 5 + 5 + 1</math></li> </ul> </li> </ul> <p><b>Written methods</b></p> <ul style="list-style-type: none"> <li>• read and write mathematical statements using +, - and =</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>• To find missing numbers in a range of contexts e.g money, measures, time.</li> <li>• To solve one-step addition and subtraction problems. (practically and pictorially) <ul style="list-style-type: none"> <li>➤ To describe a puzzle or problem (acting out, using equipment, telling a partner)</li> <li>➤ Choose whether to add or subtract</li> </ul> </li> </ul>
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<p><b>Multiplication and division</b></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	<p>Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities. They make connections between arrays, number patterns, and counting in twos, fives and tens.</p>	<p><b>Multiplication and division facts</b></p> <ul style="list-style-type: none"> <li>• To count in multiples of 2,5 and 10s.</li> <li>• To double a number.</li> <li>• To halve a number.</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>• To use arrays to show numbers.</li> <li>• To solve simple multiplication and division problems using 2's 5's and 10's in a range of contexts (<b>practically and pictorially</b>) <ul style="list-style-type: none"> <li>➤ To describe a puzzle or problem (acting out, using equipment, telling a partner)</li> <li>➤ To use equipment and objects to show my thinking.</li> <li>➤ To show how I have solved a problem.</li> <li>➤ Set the solution in the context of the problem.</li> </ul> </li> </ul>
<p><b>Fractions</b></p> <ul style="list-style-type: none"> <li>• recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>• recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</li> </ul>	<p>Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.</p>	<p><b>Recognising fractions</b></p> <ul style="list-style-type: none"> <li>• To understand that a half is a whole divided into two equal parts</li> <li>• To find half (of shapes, objects and quantities)</li> <li>• To understand that a quarter is one whole divided into 4 equal parts.</li> <li>• To find a quarter (of shapes, objects and quantities)</li> </ul> <p><b>Solving problems involving fractions</b></p>

		<ul style="list-style-type: none"> <li>To solve simple practical problems involving fractions (<b>practically and pictorially</b>)</li> <li>To combine halves and quarters to make wholes.</li> </ul>
<p><b>Measurement</b></p> <ul style="list-style-type: none"> <li>compare, describe and solve practical problems for:             <ul style="list-style-type: none"> <li>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>time [for example, quicker, slower, earlier, later]</li> </ul> </li> <li>measure and begin to record the following:             <ul style="list-style-type: none"> <li>lengths and heights</li> <li>mass/weight</li> <li>capacity and volume</li> <li>time (hours, minutes, seconds)</li> </ul> </li> <li>recognise and know the value of different denominations of coins and notes</li> <li>sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</li> <li>recognise and use language relating to dates, including days of the week, weeks, months and years</li> <li>tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</li> </ul>	<p>The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage. Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units.</p> <p>In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers. Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past.</p>	<p><b>Comparing and estimating</b></p> <ul style="list-style-type: none"> <li>To compare and describe lengths/mass/ capacity/ time using words such as long short, tall,short,double,half, heavier, lighter, empty, full, less than half full, quarter, slower, quicker, earlier later.</li> <li>Sequence events in logical order.</li> <li>To know the days of the week and months of the year</li> </ul> <p><b>Measuring and calculating</b></p> <ul style="list-style-type: none"> <li>To measure and begin to record lengths/mass/ capacity/ time/ using non-standard units.</li> <li>To measure lengths/mass/ capacity/ time using manageable standard units. e.g metres, cm, litres, Kg</li> <li>To begin to measure time using hours, minutes and seconds.</li> <li>To recognise and know the value of coins and notes.</li> </ul> <p><b>Telling the time</b></p> <ul style="list-style-type: none"> <li>To tell the time (O clock and half past)</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>To solve practical problems (involving the measuring of lengths, heights, mass/weight capacity and volume time (hours, minutes, seconds, money)             <ul style="list-style-type: none"> <li>To describe a puzzle or problem (acting out, using equipment, telling a partner)</li> </ul> </li> </ul>

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		<ul style="list-style-type: none"> <li>➤ To use mathematical symbols to show my thinking.</li> <li>➤ To show how I have solved a problem.</li> <li>➤ Set the solution in the context of the problem.</li> </ul>
<p>Shape and space</p> <ul style="list-style-type: none"> <li>• recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>• 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul>	<p>Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects fluently. They recognise these shapes in different orientations and sizes, and know that rectangles, triangles, cuboids and pyramids are not always similar to each other.</p>	<p><b>Identifying shapes and their properties</b></p> <ul style="list-style-type: none"> <li>• To name common 2D and 3D shapes.</li> <li>• To visualise and describe 2D and 3D shapes.</li> <li>• To know the vocabulary of shape (in order to identify properties)</li> <li>• To recognise shapes in different orientations and sizes.</li> <li>• To sort and classify shapes.</li> <li>• To explore properties of shapes (practically)</li> <li>• To know how shapes are similar to each other.</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>• To describe and make shape patterns and decide whether patterns follow a given rule.</li> <li>• To solve shape problems in a practical contexts.</li> </ul>
<p>Position and direction</p> <ul style="list-style-type: none"> <li>• describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<p>Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside. Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.</p>	<p><b>Position, direction and movement</b></p> <ul style="list-style-type: none"> <li>• To describe position. (near, far, top, bottom, on top of, below etc)</li> <li>• To describe direction. (forwards, backwards, left, right, up, down, clockwise and anti- clockwise.</li> <li>• To make whole, half and quarter turns.</li> <li>• To investigate objects which turn.</li> <li>• To turn clockwise and anticlockwise</li> </ul>

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		<b>Solving problems</b> <ul style="list-style-type: none"><li>• To solve practical problems using position and directions e.g follow and construct simple routes, describe location.</li></ul>
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