



## Cheadle Primary School – Mathematics Long term Overview

	<b>Year Two</b>	<b>Year Three</b>	<b>Year Four</b>
<b>Number – Number and Place value</b>	<ul style="list-style-type: none"><li>• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li><li>• recognise the place value of each digit in a two-digit number (tens, ones)</li><li>• identify, represent and estimate numbers using different representations, including the number line</li><li>• compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li><li>• read and write numbers to at least 100 in numerals and in words</li><li>• use place value and number facts to solve problems.</li></ul>	<ul style="list-style-type: none"><li>• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li><li>• recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li><li>• compare and order numbers up to 1000</li><li>• identify, represent and estimate numbers using different representations</li><li>• read and write numbers up to 1000 in numerals and in words</li><li>• solve number problems and practical problems involving these ideas.</li></ul>	<ul style="list-style-type: none"><li>• count in multiples of 6, 7, 9, 25 and 1000</li><li>• find 1000 more or less than a given number</li><li>• count backwards through zero to include negative numbers</li><li>• recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li><li>• order and compare numbers beyond 1000</li><li>• identify, represent and estimate numbers using different representations</li><li>• round any number to the nearest 10, 100 or 1000</li><li>• solve number and practical problems that involve all of the above and with increasingly large positive numbers</li><li>• read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li></ul>

<p>Addition and subtraction</p>	<ul style="list-style-type: none"> <li>• solve problems with addition and subtraction:</li> <li>• using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>• applying their increasing knowledge of mental and written methods</li> <li>• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>• a two-digit number and ones</li> <li>• a two-digit number and tens</li> <li>• two two-digit numbers</li> <li>• adding three one-digit numbers</li> <li>• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> </ul> </li> <li>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>• a three-digit number and ones</li> <li>• a three-digit number and tens</li> <li>• a three-digit number and hundreds</li> </ul> </li> <li>• add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</li> <li>• estimate the answer to a calculation and use inverse operations to check answers</li> <li>• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>• estimate and use inverse operations to check answers to a calculation</li> <li>• solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>
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<p>Multiplication and division</p>	<ul style="list-style-type: none"> <li>• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs</li> <li>• show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</li> <li>• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<ul style="list-style-type: none"> <li>• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</li> <li>• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</li> <li>• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which <math>n</math> objects are connected to <math>m</math> objects.</li> </ul>	<ul style="list-style-type: none"> <li>• recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></li> <li>• use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</li> <li>• recognise and use factor pairs and commutativity in mental calculations</li> <li>• multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>• solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as <math>n</math> objects are connected to <math>m</math> objects.</li> </ul>
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<p>Fractions</p>	<ul style="list-style-type: none"> <li>• recognise, find, name and write fractions <math>\frac{3}{1}</math>, <math>\frac{4}{1}</math>, <math>\frac{4}{2}</math> and <math>\frac{4}{3}</math> of a length, shape, set of objects or quantity</li> <li>• write simple fractions for example, <math>\frac{2}{1}</math> of <math>\frac{6}{3}</math> and recognise the equivalence of <math>\frac{4}{2}</math> and <math>\frac{2}{1}</math>.</li> </ul>	<ul style="list-style-type: none"> <li>• count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</li> <li>• recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>• recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</li> <li>• recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>• add and subtract fractions with the same denominator within one whole [for example, <math>\frac{7}{5}</math></li> <li>• <math>\frac{1}{6} + \frac{1}{6}</math></li> <li>• <math>\frac{1}{6} = \frac{1}{6}</math></li> <li>• <math>\frac{1}{6}</math> ]</li> <li>• compare and order unit fractions, and fractions with the same denominators</li> <li>• solve problems that involve all of the above.</li> </ul>	<ul style="list-style-type: none"> <li>• recognise and show, using diagrams, families of common equivalent fractions</li> <li>• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> <li>• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</li> <li>• add and subtract fractions with the same denominator</li> <li>• recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>• recognise and write decimal equivalents to <math>\frac{1}{4}</math></li> <li>• <math>\frac{1}{2}</math></li> <li>• <math>\frac{1}{4}</math></li> <li>• <math>\frac{3}{4}</math></li> <li>• find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</li> <li>• round decimals with one decimal place to the nearest whole number</li> <li>• compare numbers with the same number of decimal places up to two decimal places</li> <li>• solve simple measure and money</li> </ul>
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			problems involving fractions and decimals to two decimal places.
Measurement	<ul style="list-style-type: none"> <li>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</li> <li>compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> <li>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>find different combinations of coins that equal the same amounts of money</li> <li>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>compare and sequence intervals of time</li> <li>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</li> <li>know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<ul style="list-style-type: none"> <li>measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> <li>measure the perimeter of simple 2-D shapes</li> <li>add and subtract amounts of money to give change, using both £ and p in practical contexts</li> <li>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</li> <li>know the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<ul style="list-style-type: none"> <li>convert between different units of measure [for example, kilometre to metre; hour to minute]</li> <li>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>find the area of rectilinear shapes by counting squares</li> <li>estimate, compare and calculate different measures, including money in pounds and pence</li> <li>read, write and convert time between analogue and digital 12- and 24-hour clocks</li> <li>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>

<p>Geometry</p>	<p><b><u>Properties of shapes</u></b></p> <ul style="list-style-type: none"> <li>• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</li> <li>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>• compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul> <p><b><u>Position and direction</u></b></p> <ul style="list-style-type: none"> <li>• order and arrange combinations of mathematical objects in patterns and sequences</li> <li>• 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).</li> </ul>	<p><b><u>Properties of shapes</u></b></p> <ul style="list-style-type: none"> <li>• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</li> <li>• recognise angles as a property of shape or a description of a turn</li> <li>• identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</li> <li>• identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> </ul>	<p><b><u>Properties of shapes</u></b></p> <ul style="list-style-type: none"> <li>• describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>• describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• plot specified points and draw sides to complete a given polygon.</li> </ul> <p><b><u>Position and Direction</u></b></p> <ul style="list-style-type: none"> <li>• describe positions on a 2-D grid as coordinates in the first quadrant</li> <li>• describe movements between positions as translations of a given unit to the left/right and up/down</li> <li>• plot specified points and draw sides to complete a given polygon.</li> </ul>
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Statistics	<ul style="list-style-type: none"><li>• interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li><li>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li><li>• ask and answer questions about totalling and comparing categorical data.</li></ul>	<ul style="list-style-type: none"><li>• interpret and present data using bar charts, pictograms and tables</li><li>• solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</li></ul>	<ul style="list-style-type: none"><li>• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li><li>• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li><li>• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li><li>• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li></ul>
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