

# Mathematics Curriculum

# Newstead Primary School

# INTENT

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number and Place Value</b>	<ul style="list-style-type: none"> <li>count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number.</li> </ul>	<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;</li> <li>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>	<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>	<ul style="list-style-type: none"> <li>read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</li> <li>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</li> <li>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> <li>solve number problems and practical problems that involve all of the above</li> <li>read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<ul style="list-style-type: none"> <li>read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li> <li>round any whole number to a required degree of accuracy</li> <li>use negative numbers in context, and calculate intervals across zero</li> <li>solve number problems and practical problems that involve all of the above.</li> </ul>

## Addition and Subtraction

<ul style="list-style-type: none"> <li>Use quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.</li> </ul>	<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 numbers to 20, including zero</li> <li>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</li> </ul>	<ul style="list-style-type: none"> <li>solve problems with addition and subtraction: 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> </ul> <p>add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <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>	<ul style="list-style-type: none"> <li>add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds</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>	<ul style="list-style-type: none"> <li>add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</li> <li>add and subtract numbers mentally with increasingly large numbers</li> <li>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li> <li>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li>perform mental calculations, including with mixed operations and large numbers</li> <li>identify common factors, common multiples and prime numbers</li> <li>use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>solve problems involving addition, subtraction, multiplication and division</li> <li>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>
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			<ul style="list-style-type: none"> <li>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>				
<b>Multiplication and Division</b>	<ul style="list-style-type: none"> <li>solve problems, including doubling, halving and sharing.</li> </ul>	<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>	<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,</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</li> </ul>	<ul style="list-style-type: none"> <li>identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers</li> <li>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li> <li>establish whether a number up to 100 is prime and recall prime numbers up to 19</li> <li>multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</li> <li>multiply and divide numbers mentally, drawing upon known facts</li> <li>divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders</li> </ul>	<ul style="list-style-type: none"> <li>multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</li> <li>divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</li> </ul>

			including problems in contexts.		connected to m objects.	appropriately for the context <ul style="list-style-type: none"><li>• multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</li><li>• recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</li><li>• solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes</li><li>• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</li><li>• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li></ul>	
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## Fractions (Including decimals and percentages)

<ul style="list-style-type: none"> <li>•</li> </ul>	<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>	<ul style="list-style-type: none"> <li>• recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</li> <li>• write simple fractions e.g. <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of two quarters and one half.</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>5\frac{7}{7} + \frac{1}{7} = 6\frac{7}{7}</math>]</li> <li>• compare and order unit fractions, and fractions with the same denominator</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>, <math>\frac{1}{2}</math>, <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</li> </ul>	<ul style="list-style-type: none"> <li>• compare and order fractions whose denominators are all multiples of the same number</li> <li>• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt;1</math> as a mixed number [for example, <math>2\frac{5}{5} + \frac{4}{5} = 6\frac{5}{5} = 1\frac{1}{5}</math>]</li> <li>• add and subtract fractions with the same denominator and denominators that are multiples of the same number</li> <li>• multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>• read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math>]</li> <li>• recognise and use thousandths and relate them to tenths,</li> </ul>	<ul style="list-style-type: none"> <li>• use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> <li>• compare and order fractions, including fractions <math>&gt;1</math></li> <li>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>• multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>]</li> <li>• divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>]</li> <li>• associate a fraction with division and calculate decimal fraction equivalents [for example, <math>0.375</math>] for a simple fraction [for example, <math>\frac{3}{8}</math>]</li> <li>• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</li> </ul>
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					<p>the nearest whole number</p> <ul style="list-style-type: none"> <li>compare numbers with the same number of decimal places up to two decimal places</li> <li>solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>	<p>hundredths and decimal equivalents</p> <ul style="list-style-type: none"> <li>round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>read, write, order and compare numbers with up to three decimal places</li> <li>solve problems involving number up to three decimal places</li> <li>recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</li> <li>solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>use written division methods in cases where the answer has up to two decimal places.</li> <li>solve problems which require answers to be rounded to specified degrees of accuracy</li> <li>recall and use equivalences between simple fractions, decimals and percentages including in different contexts.</li> </ul>
<p><b>Measurement</b></p>	<ul style="list-style-type: none"> <li>use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.</li> </ul>	<p>compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> </ul>	<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</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> </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</li> </ul>	<ul style="list-style-type: none"> <li>convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</li> </ul>	<ul style="list-style-type: none"> <li>solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> </ul>

	<ul style="list-style-type: none"> <li>recognise, create and describe patterns.</li> <li>explore characteristics of everyday objects and shapes and use mathematical language to describe them.</li> </ul>	<ul style="list-style-type: none"> <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> <p>measure and begin to record the following:</p> <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> <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> </ul>	<p>the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <ul style="list-style-type: none"> <li>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></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</li> </ul>	<ul style="list-style-type: none"> <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>	<p>(including squares) in centimetres and metres</p> <ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</li> <li>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</li> <li>estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]</li> <li>solve problems involving converting between units of time</li> <li>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using</li> </ul>	<ul style="list-style-type: none"> <li>use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</li> <li>convert between miles and kilometres</li> <li>recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>recognise when it is possible to use the formulae for area and volume of shapes</li> <li>calculate the area of parallelograms and triangles</li> <li>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>]</li> </ul>
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<p><b>Geometry – properties of shapes</b></p>	<ul style="list-style-type: none"> <li>•</li> </ul>	<p>recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> <li>• 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>	<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>	<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>	<ul style="list-style-type: none"> <li>• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>• identify acute and obtuse angles and compare and order angles up to two right angles by size</li> <li>• identify lines of symmetry in 2-D shapes presented in different orientations</li> <li>• complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<ul style="list-style-type: none"> <li>• identify 3-D shapes, including cubes and other cuboids, from 2-D representations</li> <li>• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>• draw given angles, and measure them in degrees (°)</li> <li>• identify: <ul style="list-style-type: none"> <li>angles at a point and one whole turn (total 360°)</li> <li>angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total 180°)</li> <li>other multiples of 90°</li> </ul> </li> <li>• use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>• distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<ul style="list-style-type: none"> <li>• draw 2-D shapes using given dimensions and angles</li> <li>• recognise, describe and build simple 3-D shapes including making nets</li> <li>• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>• illustrate and name parts of circle, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>

<b>Geometry – position and direction</b>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<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>	<ul style="list-style-type: none"> <li>•</li> </ul>	<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>	<ul style="list-style-type: none"> <li>• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<ul style="list-style-type: none"> <li>• describe positions on the full coordinate grid (all four quadrants)</li> <li>• draw and translate simple shapes on the coordinate plane and reflect them in the axes.</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>	<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> </ul>	<ul style="list-style-type: none"> <li>• solve comparison, sum and difference problems using information presented in a line graph</li> <li>• complete, read and interpret information in tables, including timetables.</li> </ul>	<ul style="list-style-type: none"> <li>• interpret and construct pie charts and line graphs and use these to solve problems</li> <li>• calculate and interpret the mean as an average</li> </ul>

<b>Ratio and Proportion</b>	•	•	•	•	•	•	<ul style="list-style-type: none"> <li>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and use percentages for comparison</li> <li>• solve problems involving similar shapes where the scale factor is known or can be found</li> <li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li> </ul>
<b>Algebra</b>	•	•	•	•	•	•	<ul style="list-style-type: none"> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• find pairs of numbers that satisfy number sentences involving two unknowns</li> <li>• enumerate possibilities of</li> </ul>

							combinations of two variables
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**Maths Curriculum****Newstead Primary School****IMPLEMENTATION**

	<b>EYFS</b>	<b>KS1</b>	<b>KS2</b>
<b>Pedagogical approach and strategies</b>	<p>White Rose Maths Hub            Number blocks            Exposure to number and calculation            Counting            Number rhymes</p>	<p>White Rose Maths Hub including online resources and planning, using Mastery approach – teaching to the top – Spotlight intervention to support            Multiple strategies            Times tables strategies            Rising Stars Mental arithmetic            Bar modelling strategies            Encouragement to develop fluency, reasoning and problem solving strategies            Concrete, Pictorial, Abstract being used            Collect, discuss and expand mathematical vocabulary            Maths integrated within the curriculum            Number rhymes</p>	<p>White Rose Maths Hub including online resources and planning, using Mastery approach – teaching to the top – Spotlight intervention to support            Multiple strategies            Times tables strategies            Rising Stars Mental arithmetic            Bar modelling strategies            Encouragement to develop fluency, reasoning and problem solving strategies            Concrete, Pictorial, Abstract being used            Collect, discuss and expand mathematical vocabulary            Maths integrated within the curriculum            Number rhymes</p>
<b>Timetabling</b>	<p>FS1 Carpet time activities            FS2 Maths activities = 3 hours per week</p>	<p>Maths 9.00 – 10.20            Group and 1:1 maths interventions timetabled throughout the week</p>	<p>Maths 9.00 – 10.20            Group and 1:1 maths interventions timetabled throughout the week</p>
<b>Maths across the curriculum</b>	<p>Topic-led and child-led</p>	<p>Curriculum includes topics that have mathematical data            Understanding, using and recording data tables and charts</p>	<p>Curriculum includes topics that have mathematical data            Understanding, using and recording data tables and charts</p>

<b>Mental Maths</b>	Counting Number recognition Ordering numbers Sequencing	Multiples/Times Tables Challenges Arithmetic questions Ordering/Sequencing numbers Weekly Rising Stars Arithmetic Tests 5 in 5 10 in 10	Multiples/Times Tables Challenges Arithmetic questions Ordering/Sequencing numbers Weekly Rising Stars Arithmetic Tests 5 in 5 10 in 10
<b>Language used for maths talk</b>	Tell me how you know... What comes next? How did you do it?	How did you work it out? What method did you use? Show me using concrete, pictorial, abstract methods Prove it Can you solve it a different way?	How did you work it out? What method did you use? Show me using concrete, pictorial, abstract methods Prove it Can you solve it a different way?
<b>Expectations for recording children's work</b>	Maths recorded in maths book Practical maths work photographed and annotated where necessary	Maths recorded in large squared maths book Practical maths work photographed and annotated where necessary Mental Maths book	Maths recorded in small squared maths book Practical maths work photographed and annotated where necessary Mental Maths book
<b>Environment</b>	Practical maths activities as part of continuous provision Maths display to support learning	Maths display to support learning Maths manipulatives readily available to pupils (including Numicon) Maths working wall to support recent work Maths vocabulary including synonyms displayed and regularly used and revised	Maths display to support learning Maths manipulative readily available to pupils (including Numicon) Maths working wall to support recent work Maths vocabulary including synonyms displayed and regularly used and revised

**Interventions  
inc SEND  
provision**

Group and 1:1 intervention groups

Group and 1:1 intervention groups  
linked to Pupil Progress  
'Spotlight' intervention using targeted  
questioning from Rising Stars analysis  
Targeted work  
Maths manipulatives eg Numicon and  
scaffolding maths frames eg number-  
lines, place value grids

Group and 1:1 intervention groups  
linked to Pupil Progress  
'Spotlight' intervention using targeted  
questioning from Rising Stars analysis  
Targeted work  
Maths manipulatives eg Numicon and  
scaffolding maths frames eg number-  
lines, place value grids  
Numicon intervention groups  
Third Space Learning for targeted  
pupils in Year 6  
Power of Two

**Maths  
community in  
and out of  
school**

New parent meetings  
Parent workshops

Parent workshops

Parent workshops  
Year 6 SATs meeting

<b>Resources</b>	Maths workbook Numicon Classroom Secrets (Online) White Rose Maths Hub Number blocks	Maths workbook Mental Maths workbook Maths - No Problem! Textbooks Focus Maths Power Maths textbooks White Rose Maths Hub Rising Stars Arithmetic Tests Classroom Secrets (Online) Times Table Rockstars (Online) Numicon Multiple check Times tables check	Maths workbook Mental Maths workbook Maths - No Problem! Textbooks Focus Maths Power Maths textbooks White Rose Maths Hub Rising Stars Arithmetic Tests Classroom Secrets (Online) Times Table Rockstars (Online) Numicon Multiple check Times tables check
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# Maths Curriculum

# Newstead Primary School Maths Cycle A

# IMPLEMENTATION

Focus Maths / White Rose Maths Hub units of work are used to implement Maths.

	Autumn Term	Spring Term	Summer Term
<b>Nursery</b>	Recognising, naming and matching colours Sorting by various attributes Continuing AB patterns Use the language of size Counting principles Comparing amount of objects.	Exploring and understanding number 1 Exploring and understanding number 2 Exploring and understanding number 3 Exploring and understanding number 4 Exploring and understanding number 5 Exploring and understanding number 6	Properties of shape Ordering events of the day Long, short, tall and comparing lengths. Light, heavy and comparison Full, half full, empty and comparison Using language related to position and direction.
<b>Reception</b>	Getting to know you Just like me! It's me 1,2,3! Light & Dark	Alive in 5! Growing 6,7,8 Building 9 & 10 Consolidation	On the move Superhero to 20 & beyond First, them, now Find my pattern
<b>Year 1/2</b>	Place Value Addition and Subtraction Money Multiplication and division	Multiplication and division Statistics Shape Fractions Measurement: Length and Height	Position and direction Problem solving Time Mass, Capacity Temperature Investigations
<b>Year 3/4</b>	Place Value Addition and subtraction Multiplication and division Measures Time Perimeter and area Geometry Shape and Angles Statistics	Multiplication and Division Measurement, Length, Perimeter and Area Fractions Mass and Capacity Decimals	Measurement Money Time Statistics Geometry Properties of shape Position and Direction
<b>Year 4/5</b>	Place Value Addition and subtraction Multiplication and division Measures. Time	Place Value and Roman Numerals Multiplication and division Fractions Geometry Position and direction.	Place Value Fractions and decimals Addition and subtraction. Multiplication and division Measures – length, mass, capacity and time.

	Perimeter and area. Geometry. Shape and Angles. Statistics	Reflection and translations. Addition and subtraction	Geometry – position and direction. Assessment and Consolidation
<b>Year 6</b>	Place Value Numbers to 10000000 Ordering and Rounding numbers Negative numbers Addition Subtraction Multiplication Division Compare and order fractions Add, subtract, multiply and divide fractions Fractions of an amount Geometry Position and Direction	Add, subtract, multiply and divide decimals Percentages Algebra Converting Units Perimeter, Area and Volume Ratio	Properties of Shape Problem Solving Enterprise project Statistics Investigations

# Maths Curriculum

# Newstead Primary School Maths Cycle B

# IMPLEMENTATION

Focus Maths / White Rose Maths Hub units of work are used to implement Maths.

	Autumn Term	Spring Term	Summer Term
<b>Nursery</b>	Recognising, naming and matching colours Sorting by various attributes Continuing AB patterns Use the language of size Counting principles Comparing amount of objects.	Exploring and understanding number 1 Exploring and understanding number 2 Exploring and understanding number 3 Exploring and understanding number 4 Exploring and understanding number 5 Exploring and understanding number 6	Properties of shape Ordering events of the day Long, short, tall and comparing lengths. Light, heavy and comparison Full, half full, empty and comparison Using language related to position and direction.
<b>Reception</b>	Getting to know you Just like me! It's me 1,2,3! Light & Dark	Alive in 5! Growing 6,7,8 Building 9 & 10 Consolidation	On the move Superhero to 20 & beyond First, them, now Find my pattern
<b>Year 1/2</b>	Place Value Addition and Subtraction Money Multiplication and division	Multiplication and division Statistics Shape Fractions Measurement: Length and Height	Position and direction Problem solving Time Mass, Capacity Temperature Investigations
<b>Year 3/4</b>	Place Value Addition and Subtraction Multiplication and Division	Multiplication and Division Measurement, Length, Perimeter and Area Fractions Mass and Capacity Decimals	Measurement Money Time Statistics Geometry Properties of shape Position and Direction
<b>Year 4/5</b>	Place Value Addition and subtraction Multiplication and division Measures. Time Perimeter and area. Geometry.	Place Value and Roman Numerals Multiplication and division Fractions Geometry Position and direction. Reflection and translations. Addition and subtraction	Place Value Fractions and decimals Addition and subtraction. Multiplication and division Measures – length, mass, capacity and time. Geometry – position and direction. Assessment and Consolidation

	Shape and Angles. Statistics		
<b>Year 6</b>	Place Value Numbers to 10000000 Ordering and Rounding numbers Negative numbers Addition Subtraction Multiplication Division Compare and order fractions Add, subtract, multiply and divide fractions Fractions of an amount Geometry Position and Direction	Add, subtract, multiply and divide decimals Percentages Algebra Converting Units Perimeter, Area and Volume Ratio	Properties of Shape Problem Solving Enterprise project Statistics Investigations

# A Daily Maths Lesson at Newstead Primary School might look like

<b>Rapid/Mental Maths Warm up 5 in 5</b>	<b>Anchor Task Main Session</b>	<b>Guided Practice</b>	<b>Independent Practice Task 3 to Try</b>	<b>Depth Task</b>	<b>Arithmetic Focus 10 in 10</b>
	<ul style="list-style-type: none"> <li>• All pupils are capable of succeeding</li> <li>• Everyone moves at a similar pace</li> <li>• If children don't understand then the concept is repeated, either in the same or an alternative way.</li> <li>• Pre and post teaching sessions will be used to secure understanding.</li> <li>• Children need to take small steps through an area of study.</li> <li>• Extra reasoning activities, in smaller groups, will allow children to articulate the mathematical thinking and develop mathematical talk.</li> <li>• All pupils will need to have procedural fluency; with this In mind, arithmetic units must be embedded. Regular assessment using Rising Stars Arithmetic tests and Focus Maths pre-teach style activities will allow teachers to keep track with this and revisit mis-conceptions.</li> <li>• Maths of the Day activities will support the development of fluency and give pupils the opportunity to make maths fun/competitive/active /interactive.</li> <li>• Teachers will follow White Rose Maths Hub (WRMH) Planning structure and Assessment Materials supported by Classroom Secrets which follows WRMH.</li> <li>• Depth Challenges will be used where appropriate.</li> <li>• A variety of maths textbooks will be used to support steps in maths topics including: Maths – No Problem!, Focus Maths, Classroom Secrets, White Rose Maths Hub, Target Maths and Power Maths.</li> <li>• Teachers review progress of maths using objectives stuck at the back of maths books.</li> <li>• The collaboration will meet on a half-termly basis to discuss maths.</li> </ul>				

<b>Mathematics</b>		<b>Newstead Primary School</b>		<b>IMPACT</b>
	<b>EYFS</b>	<b>KS1</b>	<b>KS2</b>	
<b>Assessment</b>	EYFS Profile assessment Observation Learning journey photographs	Multiples/Times Tables Challenge Termly White Rose Test Y2 SATs Scholarpack assessments Rising Stars Arithmetic Tests Formative assessment sheets in maths books	Multiples/Times Tables Challenge Termly White Rose Test Times Table Test Y6 SATs Scholarpack assessments Rising Stars Arithmetic Tests Formative assessment sheets in maths books	
<b>Monitoring</b>	Learning walks Observations Termly summative assessments Termly pupil progress meeting Internal Moderation External Moderation	Learning walks Observations Book scrutiny Termly summative assessments Termly pupil progress meeting Internal Moderation External Moderation	Learning walks Observations Book scrutiny Termly summative assessments Termly pupil progress meeting Internal Moderation External Moderation	

Y1	Emerging	Expected	Exceeding	
Number and Place Value	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li><input type="checkbox"/> Count, read and write numbers to 10 in numerals.</li> <li><input type="checkbox"/> Given a number, identify 1 more and 1 less.</li> <li><input type="checkbox"/> Identify and represent numbers using objects and pictorial representations.</li> <li><input type="checkbox"/> Use the language of: more than, less than (fewer), most, least.</li> <li><input type="checkbox"/> Read and write numbers from 1 to 10 in numerals and words.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li><input type="checkbox"/> Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s.</li> <li><input type="checkbox"/> Given a number, identify 1 more and 1 less.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<p>Sufficient evidence shows the ability to: <b>All aspects of number and place value at the national standard are exceeded.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate fluency when counting to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number and when counting in multiples of 2s, 5s and 10s.</li> <li><input type="checkbox"/> Consistently identify 1 more and 1 less from a given number and use in solving problems.</li> <li><input type="checkbox"/> Identify and represent numbers using increasingly complex representations including the number line.</li> <li><input type="checkbox"/> Consistently use the language of: equal to, more than, less than (fewer), most, least accurately when comparing numbers and expressions.</li> </ul>	
	Addition and Subtraction	<ul style="list-style-type: none"> <li><input type="checkbox"/> Find the total of two groups by combining.</li> <li><input type="checkbox"/> Calculate subtractions through taking away.</li> <li><input type="checkbox"/> Represent addition and subtraction calculations using objects and pictorial representations.</li> <li><input type="checkbox"/> Know and use addition and subtraction number facts to 5 and some facts to 10.</li> <li><input type="checkbox"/> Add and subtract one-digit numbers.</li> <li><input type="checkbox"/> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</li> <li><input type="checkbox"/> Represent and use number bonds and related subtraction facts within 20.</li> <li><input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20, including 0.</li> <li><input type="checkbox"/> 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>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</li> <li><input type="checkbox"/> Recall and use number facts to 20 fluently and use them to derive new unknown facts.</li> <li><input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20 mentally.</li> <li><input type="checkbox"/> Solve two-step problems that involve addition and subtraction, using concrete objects and pictorial representations.</li> <li><input type="checkbox"/> Solve and missing number problems using a wider range of numbers.</li> </ul>
		Multiplication and Division	<ul style="list-style-type: none"> <li><input type="checkbox"/> Begin to recall doubles and halves of numbers to 5.</li> <li><input type="checkbox"/> Count in multiples of 2 and 10.</li> <li><input type="checkbox"/> Solve simple problems involving grouping and sharing with pictorial representations and arrays with the support of the teacher.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 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>
	Fractions		<ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity.</li> <li><input type="checkbox"/> Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.</li> </ul>

Y1	Emerging	Expected	Exceeding
<b>Measures</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use the language of measures to make direct comparisons between 2/3 objects.</li> <li><input type="checkbox"/> Solve simple measure problems (length, mass/weight, capacity and volume and time) in a practical context using direct comparison and non-standard units.</li> <li><input type="checkbox"/> Recognise and sort coins to £1.</li> <li><input type="checkbox"/> Use language related to time e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</li> <li><input type="checkbox"/> Tell the time to the nearest hour.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare, describe and solve practical problems for: <ul style="list-style-type: none"> <li><input type="checkbox"/> lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li><input type="checkbox"/> mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li><input type="checkbox"/> capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> </ul> </li> <li><input type="checkbox"/> time [for example, quicker, slower, earlier, later].</li> <li><input type="checkbox"/> 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> <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> </ul> </li> <li><input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years.</li> <li><input type="checkbox"/> 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><b>Sufficient evidence shows the ability to:</b></p> <p><b>All aspects of measurement at the national standard are embedded</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of measures in solving problems of increasingly complexity.</li> <li><input type="checkbox"/> Solve more complex problems involving money and other measures including time.</li> <li><input type="checkbox"/> Be able to apply knowledge of measures to other curriculum areas in practical activities.</li> </ul>
<b>Geometry - Properties of shapes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and name some common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>➤ 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> </li> <li><input type="checkbox"/> Sort shapes based on simple properties.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>➤ 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> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and sort shapes using 1 criterion.</li> <li><input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, describing their properties using increasingly sophisticated mathematical vocabulary.</li> <li><input type="checkbox"/> Reason about and solve more complex problems relating to shapes and their properties.</li> </ul>
<b>Geometry - Position and movement</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, direction and movement, including whole, half-turns.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of position to problem solving across the curriculum.</li> <li><input type="checkbox"/> Solve more complex problems involving position and movement.</li> </ul>

Y2	Emerging	Expected	Exceeding
<b>Number and Place Value</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li>❑ Count to and across 100, forwards or backwards, beginning with 0 or 1, or from any given number.</li> <li>❑ Count in multiples of 2s, 5s and 10s.</li> <li>❑ Count in steps of 10 within 100, starting from any number.</li> <li>❑ Read and write numbers from 1 to 100 in numerals, and up to 20 in words (not necessarily spelled correctly).</li> <li>❑ Use the place value of each digit to order numbers to 100.</li> <li>❑ Know the number that is 1 more and 1 less than any number up to 100.</li> <li>❑ Use the language of least.</li> <li>❑ Identify and represent numbers using objects, structured apparatus and number lines.</li> <li>❑ Use place value and number facts to solve simple problems.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <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>	<p><b>Sufficient evidence shows the ability to: All aspects of number and place value at the national standard are embedded.</b></p> <ul style="list-style-type: none"> <li>❑ Demonstrate fluency and reasoning in counting forwards and backwards in steps of 2, 5 and 10 including from different starting points and using numbers beyond 100.</li> <li>❑ Consistently use less than (<math>&lt;</math>), equals (<math>=</math>) and greater than (<math>&gt;</math>) signs correctly when comparing numbers and expressions.</li> <li>❑ Identify and represent numbers using different representations including more complex number lines.</li> <li>❑ Demonstrate reasoning about place value and number facts to solve more complex problems.</li> </ul>
<b>Addition and Subtraction</b>	<ul style="list-style-type: none"> <li>❑ Recall and use addition and subtraction facts for all numbers up to 10.</li> <li>❑ Add and subtract numbers mentally, including: 2 single-digit numbers, a number up to 20 and 1s.</li> <li>❑ Add and subtract numbers using concrete objects, pictorial representations and the written columnar method including: a two-digit number and 1, adding 3 single-digit numbers with a total up to 20.</li> <li>❑ Read, write and interpret mathematical statements involving addition (+), subtraction (<math>-</math>) and equals (=).</li> <li>❑ Solve missing number addition problems involving single-digit numbers.</li> <li>❑ Solve simple 1 or 2 step problems with addition and subtraction.</li> <li>❑ Show that addition can be done in any order (commutative).</li> </ul>	<ul style="list-style-type: none"> <li>❑ Solve problems with addition and subtraction:</li> <li>❑ Use concrete objects and pictorial representations, including those involving numbers, quantities and measures 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: a two-digit number and ones, a two-digit number and tens, two two-digit numbers.</li> <li>❑ Add 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> <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>❑ Recall and use addition and subtraction facts to 20 fluently; derive and use related facts to 100 and beyond.</li> <li>❑ Add and subtract numbers mentally using appropriate strategies, including: 2 2-digit numbers, adding /subtracting several single-digit numbers.</li> <li>❑ Add and subtract numbers using objects, pictorial representations and the written columnar method including: adding several 2-digit numbers, subtracting 2-digit numbers, adding a 2-digit number to a 3-digit number, adding 3-digit numbers.</li> <li>❑ Solve missing number problems involving a wider range of numbers.</li> <li>❑ Use addition and subtraction facts to solve more complex problems, such as 3 step problems.</li> </ul>
<b>Multiplication and Division</b>	<ul style="list-style-type: none"> <li>❑ Recall multiplication facts for the 10 multiplication table and use them to derive division facts, and count in steps of 10 to answer questions.</li> <li>❑ Recall and use doubling and halving facts for numbers up to double 10 and other significant doubles.</li> <li>❑ Recognise odd and even numbers to 20.</li> <li>❑ Solve simple problems involving grouping and sharing, using objects, pictorial representations and arrays.</li> </ul>	<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>❑ Rapidly recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables and write mathematical statements using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs.</li> <li>❑ Count in 3s to solve multiplication and division problems for the 3 multiplication table.</li> <li>❑ Solve more complex problems involving multiplication and division in a range of contexts including measures.</li> <li>❑ Make connections between place value and multiplication/division by 10 and use known multiplication and division facts to derive others.</li> </ul>

## Fractions

- ❑ Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.
- ❑ Begin to solve simple problems involving fractions.

- ❑ Recognise, find, name and write fractions  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$  of a length, shape, set of objects or quantity.
- ❑ Write simple fractions for example,  $\frac{1}{2}$  of  $6 = 3$  and recognise the equivalence of  $\frac{2}{4}$  and  $\frac{1}{2}$ .

- ❑ Express more complex problems using fraction notation and solve them.

Y2	Emerging	Expected	Exceeding
<b>Measures</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measure and begin to record the following: <ul style="list-style-type: none"> <li>➤ lengths and heights</li> <li>➤ mass/weight</li> <li>➤ volume/capacity</li> <li>➤ time.</li> </ul> </li> <li><input type="checkbox"/> Recognise and know the value of different denominations of coins and notes.</li> <li><input type="checkbox"/> Begin to recognise and use the symbols for pounds (£) and pence (p).</li> <li><input type="checkbox"/> Combine amounts to make small values.</li> <li><input type="checkbox"/> Sequence the events of several days in chronological order using appropriate language.</li> <li><input type="checkbox"/> Tell the time to half past the hour; turn the hands of a geared clock to show these times; draw hands on a clock face to show o'clock times.</li> <li><input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years.</li> <li><input type="checkbox"/> Know there are 7 days in a week.</li> <li><input type="checkbox"/> Know the name of the day before or after a given day.</li> <li><input type="checkbox"/> Solve simple measure problems in a practical context using standardised units.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 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><input type="checkbox"/> Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</li> <li><input type="checkbox"/> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</li> <li><input type="checkbox"/> Find different combinations of coins that equal the same amounts of money.</li> <li><input type="checkbox"/> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li><input type="checkbox"/> Compare and sequence intervals of time.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b> <b>All aspects of measurement at the national standard are embedded</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Find all possible combinations of coins to equal a given amount or how to pay a given amount using the fewest possible number of coins.</li> <li><input type="checkbox"/> Know that there are 60 minutes in an hour and 24 hours in a day and use these facts to solve problems.</li> <li><input type="checkbox"/> Tell and write the time to 5 minutes and draw hands on a clock face to show these times.</li> <li><input type="checkbox"/> Solve more complex problems involving, money and other measures, including time.</li> <li><input type="checkbox"/> Reason about multiplicative relationships between specific measured quantities, drawing on knowledge of 2, 5 and 10 tables and knowledge of fractions.</li> </ul>
<b>Geometry - Properties of shapes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, name and describe the properties of common 2-D shapes including pentagons and hexagons.</li> <li><input type="checkbox"/> Recognise, name and describe the properties of common 3-D shapes including cones and spheres.</li> <li><input type="checkbox"/> Solve simple problems involving shapes.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li><input type="checkbox"/> Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> All aspects of geometry – properties of shape at the national standard are embedded.</li> <li><input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and common objects, using more than 1 criterion, identifying and describing their properties.</li> <li><input type="checkbox"/> Reason about and solve more complex problems involving shapes and their properties.</li> </ul>
<b>Geometry - Position and movement</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, directions and movement, including whole, half, quarter and three-quarter turns.</li> <li><input type="checkbox"/> Solve simple problems involving position and direction.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li><input type="checkbox"/> 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).</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Order and arrange combinations of mathematical objects in more complex patterns and sequences.</li> <li><input type="checkbox"/> Solve more complex problems involving position and direction.</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct simple pictograms where the picture is worth 1 unit.</li> <li><input type="checkbox"/> Interpret simple tally charts and block diagrams.</li> <li><input type="checkbox"/> Ask and answer questions that require counting the number of objects in each category.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</li> <li><input type="checkbox"/> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</li> <li><input type="checkbox"/> Ask and answer questions about totaling and comparing categorical data.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct pictograms (where the symbols show many to one correspondence), block diagrams (where the scale is divided into 2s or 5s) and more complex tables.</li> <li><input type="checkbox"/> Use more complex charts to ask and answer questions by reading from the chart the number of objects in each category, sorting the categories by quantity, totaling and comparing categorical data.</li> </ul>

Y3	Emerging	Expected	Exceeding
<b>Number and Place Value</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <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 and = 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>	<p><b>Sufficient evidence shows the ability to:</b></p> <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>	<p><b>Sufficient evidence shows the ability to:</b></p> <p><b>All aspects of number and place value at the national standard are embedded.</b></p> <ul style="list-style-type: none"> <li>❑ Show fluency in the use of number facts and are able to make generalisations based on these to find unknown facts.</li> <li>❑ Demonstrate a secure understanding of place value and have fluency when working with numbers up to and above 1000.</li> <li>❑ Apply place value and number facts knowledge to solving problems involving number and place value in a range of familiar and unfamiliar contexts.</li> </ul>
<b>Addition and Subtraction</b>	<ul style="list-style-type: none"> <li>❑ 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.</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: a two-digit number and ones, a two-digit number and ten, 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.</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: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</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>❑ Demonstrate rapid recall of number facts which they can use to generate new unknown facts.</li> <li>❑ Use rapid recall of number facts to support their repertoire of calculation strategies, both mental and written.</li> <li>❑ Use a range of efficient written and mental calculation strategies to use in calculation.</li> <li>❑ Draw on their repertoire of calculation strategies in problem solving, explaining their choices and communicating their reasoning.</li> <li>❑ Communicate their ideas as well as following a reasoned argument.</li> </ul>
<b>Multiplication and Division</b>	<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>❑ Demonstrate rapid recall of multiplication and division facts and the ability to use these to derive related facts to solve problems.</li> <li>❑ Show a repertoire of written and mental calculation methods to solve problems that involve multiplication and division. They are able to communicate their reasoning and explain their thinking.</li> <li>❑ Apply their understanding of multiplication and division to a wider range of problem solving contexts such as shape and measures.</li> </ul>
<b>Fractions</b>	<ul style="list-style-type: none"> <li>❑ Recognise, find, name and write fractions <math>1/2</math>, <math>1/3</math>, <math>1/4</math>, <math>2/4</math> and <math>3/4</math> of a length, shape, set of objects or quantity.</li> <li>❑ Write simple fractions for example, <math>1/2</math> of <math>6 = 3</math> and recognise the equivalence of <math>2/4</math> and <math>1/2</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</li> </ul>	<ul style="list-style-type: none"> <li>❑ Apply knowledge of fractions to solving problems of increasingly complexity.</li> <li>➤ Show understanding of the connections between areas of learning in fractions such as the</li> </ul>

		<p>non-unit fractions with small denominators.</p> <ul style="list-style-type: none"><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 denominator.</li><li>❑ Add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</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>	<p>ability to recognise equivalency. And links to decimal place value</p> <p>➤ Use fractions in problems solving, explaining reasoning in problems involving measures shape and statistics.</p>
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Y3	Emerging	Expected	Exceeding
<b>Measures</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <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 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>	<p><b>Sufficient evidence shows the ability to:</b></p> <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>	<p><b>Sufficient evidence shows the ability to:</b> <b>All aspects of measurement at the national standard are embedded</b></p> <ul style="list-style-type: none"> <li>❑ Use a wide range of tools when working with measures and can more fluently between different units.</li> <li>❑ Use understanding of other areas of the curriculum to solve problems and calculations involving measures e.g. multiplication.</li> <li>❑ Apply their understanding to solving problems of increasing complexity and can reason about their choices.</li> </ul>
<b>Geometry - Properties of shapes</b>	<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>	<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>	<ul style="list-style-type: none"> <li>❑ Apply knowledge and understanding of the properties of shapes to a wider range of regular and irregular 2D and 3D shapes.</li> <li>❑ Work with an increasing level of accuracy describing the properties of shapes.</li> <li>❑ Apply their knowledge and understanding to solving problems of increasingly complexity as well as communicating their reasoning.</li> </ul>
<b>Geometry - Position and movement</b>	<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 anticlockwise).</li> </ul>	<ul style="list-style-type: none"> <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 anticlockwise).</li> </ul>	<ul style="list-style-type: none"> <li>❑ Apply knowledge of position and movement to solving problems.</li> <li>❑ Use mathematical vocabulary to describe the position and movement of a given unit.</li> </ul>
<b>Statistics</b>	<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> </ul>	<ul style="list-style-type: none"> <li>❑ Interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'].</li> <li>❑ Use information presented in scaled bar charts and pictograms and tables.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Interpret data to answer questions related to problems across the curriculum.</li> <li>❑ Interpret data and read scales with increased accuracy with different divisions using knowledge of number.</li> <li>❑ Pose their own questions and formulate hypothesis and make</li> </ul>

	<ul style="list-style-type: none"><li>Ask and answer questions about totalling and comparing categorical data.</li></ul>		<ul style="list-style-type: none"><li>decisions about how to collect data to solve problems.</li><li>Reason and explain their decisions.</li></ul>
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Y4	Emerging	Expected	Exceeding
Number and Place Value	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</li> <li><input type="checkbox"/> Compare and order numbers up to 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Read and write numbers up to 1000 in numerals and in words.</li> <li><input type="checkbox"/> Solve number problems and practical problems involving these ideas.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number.</li> <li><input type="checkbox"/> Count backwards through zero to include negative numbers.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</li> <li><input type="checkbox"/> Order and compare numbers beyond 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Round any number to the nearest 10, 100 or 1000.</li> <li><input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</li> <li><input type="checkbox"/> 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>Sufficient evidence shows the ability to: <b>All aspects of number and place value at the national standard are embedded.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate very good understanding of place value and is able to apply this to working with larger numbers/decimals.</li> <li><input type="checkbox"/> Demonstrate confidence to use knowledge of place value in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.</li> </ul>
Addition and Subtraction	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</li> <li><input type="checkbox"/> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</li> <li><input type="checkbox"/> Estimate the answer to a calculation and use inverse operations to check answers.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</li> <li><input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation.</li> <li><input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>
Multiplication and Division	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> 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><input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations.</li> <li><input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</li> <li><input type="checkbox"/> 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>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid and fluent recall of all <math>x</math> facts to <math>12 \times 12</math> and is able to use their knowledge to generate new facts.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary.</li> <li><input type="checkbox"/> Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>

## Fractions

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|---|--|--|
| <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 denominator.</li><li>❑ Add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</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 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>1/4</math>, <math>1/2</math>, <math>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 problems involving fractions and decimals to two decimal places.</li></ul> | <ul style="list-style-type: none"><li>❑ Apply knowledge of fractions to problems involving measures and shapes.</li><li>❑ Apply links with division to solving increasingly complex problems</li><li>❑ Show a good understanding of the connections between fractions and decimals and is able to use their knowledge to translate between the two.</li><li>❑ Apply their knowledge of fractions to problems of increasing complexity and to explain their reasoning and thinking.</li></ul> |
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Y4	Emerging	Expected	Exceeding
<b>Measures</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</li> <li><input type="checkbox"/> Measure the perimeter of simple 2-D shapes.</li> <li><input type="checkbox"/> Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> 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><input type="checkbox"/> Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li><input type="checkbox"/> Compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert between different units of measure [for example, kilometre to metre; hour to minute]</li> <li><input type="checkbox"/> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</li> <li><input type="checkbox"/> Find the area of rectilinear shapes by counting squares.</li> <li><input type="checkbox"/> Estimate, compare and calculate different measures, including money in pounds and pence.</li> <li><input type="checkbox"/> Read, write and convert time between analogue and digital 12- and 24-hour clocks.</li> <li><input type="checkbox"/> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b> <b>All aspects of measurement at the national standard are embedded</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li><input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li><input type="checkbox"/> Make connections to other areas of mathematics such as fractions, decimals and use this to solve problems.</li> <li><input type="checkbox"/> Communicate reasoning and talk about mathematics using appropriate language.</li> <li><input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>
<b>Geometry - Properties of shapes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</li> <li><input type="checkbox"/> Recognise angles as a property of shape or a description of a turn.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li><input type="checkbox"/> Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li><input type="checkbox"/> Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li><input type="checkbox"/> Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Sort and classify shapes using a range of criterion using mathematically appropriate vocabulary.</li> <li><input type="checkbox"/> Apply knowledge of shapes to solving problems with increasing complexity explaining reasoning.</li> <li><input type="checkbox"/> Make links and connections with other areas of the curriculum.</li> </ul>
<b>Geometry - Position and movement</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 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>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Describe positions on a 2-D grid as coordinates in the first quadrant.</li> <li><input type="checkbox"/> Describe movements between positions as translations of a given unit to the left/right and up/down.</li> <li><input type="checkbox"/> Plot specified points and draw sides to complete a given polygon.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Solve increasingly complex problems involving position and movement.</li> <li><input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and present data using bar charts, pictograms and tables 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><input type="checkbox"/> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> <li><input type="checkbox"/> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li><input type="checkbox"/> Draw conclusions based on data and be able to justify reasoning.</li> </ul>

Y5	Emerging	Expected	Exceeding
<b>Number and Place Value</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000.</li> <li><input type="checkbox"/> Find 1000 more or less than a given number.</li> <li><input type="checkbox"/> Count backwards through zero to include negative numbers.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</li> <li><input type="checkbox"/> Order and compare numbers beyond 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Round any number to the nearest 10, 100 or 1000.</li> <li><input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</li> <li><input type="checkbox"/> 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>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li><input type="checkbox"/> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li><input type="checkbox"/> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10000 and 100 000.</li> <li><input type="checkbox"/> Solve number problems and practical problems that involve all of the above.</li> <li><input type="checkbox"/> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <p><b>All aspects of number and place value at the national standard are embedded.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value.</li> <li><input type="checkbox"/> Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.</li> </ul>
<b>Addition and Subtraction</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</li> <li><input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation.</li> <li><input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li><input type="checkbox"/> Add and subtract numbers mentally with increasingly large numbers.</li> <li><input type="checkbox"/> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li><input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> <li><input type="checkbox"/> Explain why different methods give the same result.</li> <li><input type="checkbox"/> Demonstrate creative thinking when problem solving and is able to justify and prove.</li> </ul>
<b>Multiplication and Division</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li><input type="checkbox"/> 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><input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations.</li> <li><input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</li> <li><input type="checkbox"/> Solve problems involving multiplying and adding, including using the distributive law to</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li><input type="checkbox"/> Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers.</li> <li><input type="checkbox"/> Establish whether a number up to 100 is prime and recall prime numbers up to 19.</li> <li><input type="checkbox"/> Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li><input type="checkbox"/> Multiply and divide numbers mentally drawing upon known facts.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid and fluent recall of all <math>x</math> facts to <math>12 \times 12</math> and is able to use their knowledge to generate new facts and when working with larger numbers.</li> <li><input type="checkbox"/> Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary and is able to apply this to solving increasingly complex problems.</li> <li><input type="checkbox"/> Apply the knowledge of the inverse operation and the links</li> </ul>

	<p>multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<ul style="list-style-type: none"> <li>❑ Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</li> <li>❑ Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</li> <li>❑ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</li> <li>❑ Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</li> <li>❑ Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li> </ul>	<p>between division and multiplication to solving problems.</p> <ul style="list-style-type: none"> <li>❑ Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li>❑ Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>
<b>Fractions</b>	<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>, <math>\frac{1}{2}</math>, <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 problems involving fractions and decimals to two decimal places.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Compare and order fractions whose denominators are all multiples of the same number.</li> <li>❑ Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</li> <li>❑ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example: <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}</math>].</li> <li>❑ Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</li> <li>❑ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li> <li>❑ Read and write decimal numbers as fractions [e.g. <math>0.71 = \frac{71}{100}</math>].</li> <li>❑ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li>❑ Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>❑ Read, write, order and compare numbers with up to three decimal places.</li> <li>❑ Solve problems involving number up to three decimal places.</li> <li>❑ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> <li>❑ Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Apply knowledge of fractions to problems involving measures and shapes.</li> <li>❑ Use their knowledge of decimals in problem involving measure to work with increased accuracy.</li> <li>❑ Show very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three.</li> <li>❑ Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking.</li> <li>❑ Apply links with division to solving increasingly complex problems</li> </ul>

Y5	Emerging	Expected	Exceeding
Measures	<p>Sufficient evidence shows the ability to:</p> <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 square.</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>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</li> <li>❑ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li>❑ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</li> <li>❑ Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li>❑ Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</li> <li>❑ Solve problems involving converting between units of time.</li> <li>❑ Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<p>Sufficient evidence shows the ability to: All aspects of measurement at the national standard are embedded</p> <ul style="list-style-type: none"> <li>❑ Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals.</li> <li>❑ Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li>❑ Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li>❑ Communicate reasoning and talk about mathematics using sophisticated mathematical language.</li> <li>❑ Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>
	Geometry - Properties of shapes	<ul style="list-style-type: none"> <li>❑ Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li>❑ Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li>❑ Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li>❑ Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</li> <li>❑ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li>❑ Draw given angles, and measure them in degrees (°).</li> <li>❑ Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 1/2 a turn (total 180°) and other multiples of 90°</li> <li>❑ Use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>
Geometry - Position and movement	<p>Describe positions on a 2-D grid as coordinates in the first quadrant.</p> <ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>❑ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Solve increasingly complex problems involving position and movement.</li> <li>❑ Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.</li> </ul>
Statistics	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <ul style="list-style-type: none"> <li>❑ Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Solve comparison, sum and difference problems using information presented in a line graph.</li> <li>❑ Complete, read and interpret information in tables, including timetables.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li>❑ Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis.</li> <li>❑ Use understanding of statistics in other curriculum areas.</li> </ul>

Y6	Emerging	Expected	Exceeding
Number and Place Value	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> <li><input type="checkbox"/> Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li><input type="checkbox"/> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li><input type="checkbox"/> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li><input type="checkbox"/> Solve number problems and practical problems that involve all of the above.</li> <li><input type="checkbox"/> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</li> <li><input type="checkbox"/> Round any whole number to a required degree of accuracy.</li> <li><input type="checkbox"/> Use negative numbers in context, and calculate intervals across zero.</li> <li><input type="checkbox"/> Solve number and practical problems that involve all of the above.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b> <b>All aspects of number and place value at the national standard are embedded.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value.</li> <li><input type="checkbox"/> Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.</li> </ul>
Addition, subtraction, multiplication and division	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li><input type="checkbox"/> Add and subtract numbers mentally with increasingly large number.</li> <li><input type="checkbox"/> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li><input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li><input type="checkbox"/> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li><input type="checkbox"/> Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers.</li> <li><input type="checkbox"/> Establish whether a number up to 100 is prime and recall prime numbers up to 19.</li> <li><input type="checkbox"/> Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li><input type="checkbox"/> Multiply and divide numbers mentally drawing upon known facts.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> <li><input type="checkbox"/> Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.</li> <li><input type="checkbox"/> Perform mental calculations, including with mixed operations and large numbers.</li> <li><input type="checkbox"/> Identify common factors, common multiples and prime numbers.</li> <li><input type="checkbox"/> Use their knowledge of the order of operations to carry out calculations involving the four operations.</li> <li><input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> <li><input type="checkbox"/> Explain why different methods give the same result.</li> <li><input type="checkbox"/> Think creatively when problem solving and is able to justify and prove.</li> <li><input type="checkbox"/> Show rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers.</li> <li><input type="checkbox"/> Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary and is able to apply this to solving increasingly complex problems.</li> <li><input type="checkbox"/> Apply the knowledge of the inverse operation and the links between division and multiplication to solving problems.</li> </ul>
Fractions	<ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and order fractions whose denominators are all multiples of the same number.</li> <li><input type="checkbox"/> Identify, name and write equivalent fractions of a given fraction,</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes.</li> </ul>

	<p>represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example: <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>].</p> <ul style="list-style-type: none"> <li>❑ Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</li> <li>❑ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li> <li>❑ Read and write decimal numbers as fractions [for example, <math>0.71 = 71/100</math>].</li> <li>❑ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li>❑ Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li>❑ Read, write, order and compare numbers with up to three decimal places.</li> <li>❑ Solve problems involving number up to three decimal places.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Compare and order fractions, including fractions <math>&gt; 1</math>.</li> <li>❑ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li> <li>❑ Multiply simple pairs of proper fractions, writing the answer in its simplest form [e.g. <math>1/2 \times 1/2 = 1/4</math>].</li> <li>❑ Divide proper fractions by whole numbers [e.g. <math>1/3 \div 2 = 1/6</math>].</li> <li>❑ Associate a fraction with division and calculate decimal fraction equivalents [for example, <math>0.375</math>] for a simple fraction [for example, <math>3/8</math>].</li> <li>❑ Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</li> <li>❑ Multiply one-digit numbers with up to two decimal places by whole numbers.</li> <li>❑ Use written division methods in cases where the answer has up to two decimal places.</li> <li>❑ Solve problems which require answers to be rounded to specified degrees of accuracy.</li> <li>❑ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use their knowledge of decimals in problem involving measure to work with increased accuracy.</li> <li>❑ Demonstrate a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three.</li> <li>❑ Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking.</li> </ul>
Ratio and proportion	<ul style="list-style-type: none"> <li>❑ Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> <li>❑ Solve problems which require knowing percentage and decimal equivalents of <math>1/2, 1/4, 1/5, 2/5, 4/5</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</li> <li>❑ Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.</li> <li>❑ Solve problems involving similar shapes where the scale factor is known or can be found.</li> <li>❑ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Demonstrate a very good understanding of the connections between fractions, decimals and percentages, ratio and proportion and is able to use their knowledge to translate between the three.</li> <li>❑ Apply their knowledge of ratio and proportion to problems of increasing complexity and to explain their reasoning and thinking.</li> </ul>
Algebra	<ul style="list-style-type: none"> <li>❑ Use simple formula to represent calculations such as perimeter and area of different shapes.</li> <li>❑ Use sequencing when working on shape, measures and pattern activities.</li> <li>❑ Solve problems including missing number problems using addition, subtraction, multiplication and division facts.</li> <li>❑ Demonstrate a secure understanding of the inverse relationship when applied to calculations involving two variables.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use simple formulae.</li> <li>❑ Generate and describe linear number sequences.</li> <li>❑ Express missing number problems algebraically</li> <li>❑ Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>❑ Enumerate possibilities of combinations of two variables.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use algebraic representation to illustrate relationships and patterns.</li> <li>❑ Apply understanding of equivalence in calculation to solve problems with unknowns and more than one possibility.</li> <li>❑ Use algebra to prove relationships and patterns.</li> <li>❑ Explain the meaning of the mathematical notation.</li> </ul>

Y6	Emerging	Expected	Exceeding
Measures	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li>❑ Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</li> <li>❑ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li>❑ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</li> <li>❑ Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li>❑ Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</li> <li>❑ Solve problems involving converting between units of time.</li> <li>❑ Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li>❑ Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</li> <li>❑ Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</li> <li>❑ Convert between miles and kilometres.</li> <li>❑ Recognise that shapes with the same areas can have different perimeters and vice versa.</li> <li>❑ Recognise when it is possible to use formulae for area and volume of shapes.</li> <li>❑ Calculate the area of parallelograms and triangles.</li> <li>❑ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b>  <b>All aspects of measurement at the national standard are embedded</b></p> <ul style="list-style-type: none"> <li>❑ Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals.</li> <li>❑ Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li>❑ Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li>❑ Communicate reasoning and talk about mathematics using sophisticated mathematical language.</li> <li>❑ Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>
	Geometry - Properties of shapes	<ul style="list-style-type: none"> <li>❑ Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</li> <li>❑ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li>❑ Draw given angles, and measure them in degrees (°).</li> <li>❑ Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 1 a turn (total 180°) other multiples of 90°.</li> <li>❑ Use the properties of rectangles to deduce related facts and find missing lengths and angles.</li> <li>❑ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Draw 2-D shapes using given dimensions and angles.</li> <li>❑ Recognise, describe and build simple 3-D shapes, including making nets.</li> <li>❑ Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.</li> <li>❑ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>
Geometry - Position and movement		<ul style="list-style-type: none"> <li>❑ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Describe positions on the full coordinate grid (all four quadrants)</li> <li>❑ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> </ul>
Statistics	<ul style="list-style-type: none"> <li>❑ Solve comparison, sum and difference problems using information presented in a line graph.</li> <li>❑ Complete, read and interpret information in tables, including timetables.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Interpret and construct pie charts and line graphs and use these to solve problems.</li> <li>❑ Calculate and interpret the mean as an average.</li> </ul>	<ul style="list-style-type: none"> <li>❑ Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li>❑ Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis.</li> <li>❑ Use understanding of statistics in other curriculum areas.</li> </ul>

