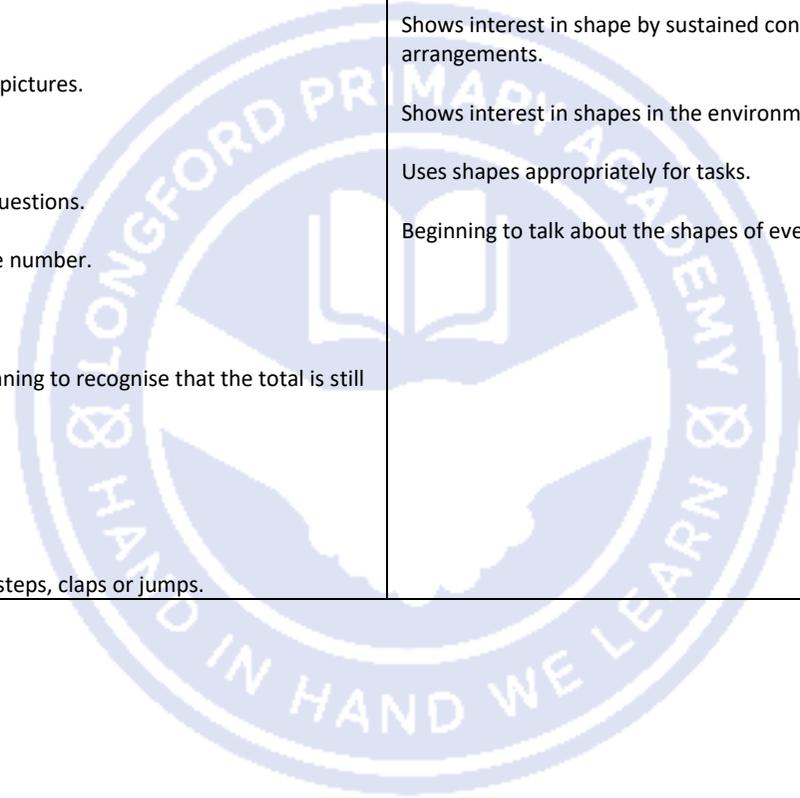


Nursery – Maths Programme of Study

<u>Number</u>	<u>Geometry</u>
<p>Uses some number names and number language spontaneously.</p> <p>Uses some number names accurately in play.</p> <p>Recites numbers in order to 10.</p> <p>Knows that numbers identify how many objects are in a set.</p> <p>Beginning to represent numbers using fingers, marks on paper or pictures.</p> <p>Sometimes matches numeral and quantity correctly.</p> <p>Shows curiosity about numbers by offering comments or asking questions.</p> <p>Compares two groups of objects, saying when they have the same number.</p> <p>Shows an interest in number problems.</p> <p>Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.</p> <p>Shows an interest in numerals in the environment.</p> <p>Shows an interest in representing numbers.</p> <p>Realises not only objects, but anything can be counted, including steps, claps or jumps.</p>	<p>Shows an interest in shape and space by playing with shapes or making arrangements with objects.</p> <p>Shows awareness of similarities of shapes in the environment.</p> <p>Uses positional language.</p> <p>Shows interest in shape by sustained construction activity or by talking about shapes or arrangements.</p> <p>Shows interest in shapes in the environment.</p> <p>Uses shapes appropriately for tasks.</p> <p>Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'.</p>

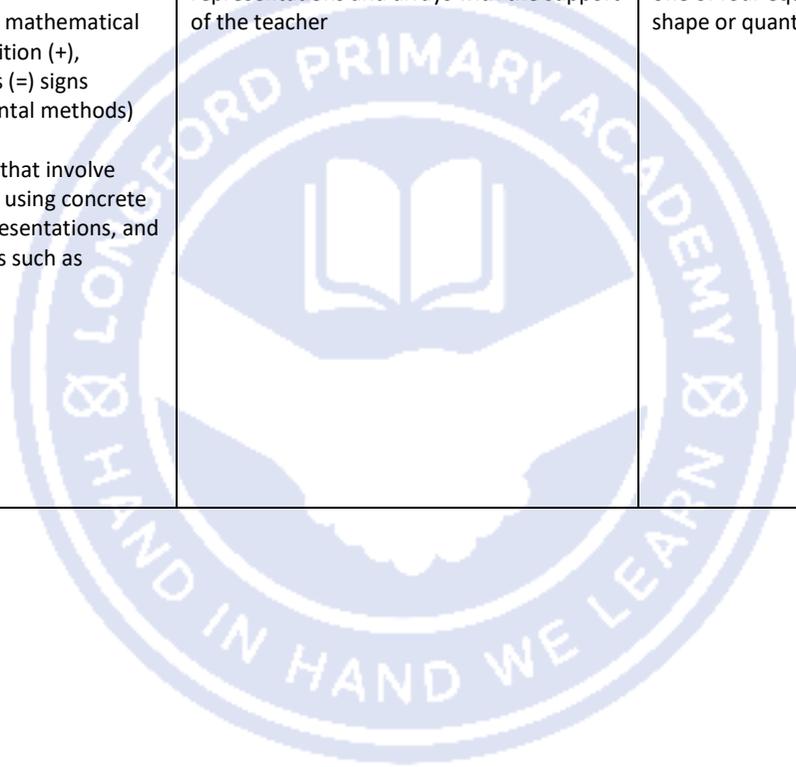


Reception – Maths Programme of Study

<u>Number and Place Value</u>	<u>Addition and Subtraction</u>	<u>Multiplication and Division</u>	<u>Fractions, Decimals and Percentages</u>	<u>Ratio and Proportion</u>
<p>Count from 0-20</p> <p>Count an irregular arrangement of up to 10 objects</p> <p>Compare quantities of identical objects</p> <p>Compare quantities of non-identical objects</p> <p>Compare groups up to 10</p> <p>Use the language of more than and fewer than</p> <p>Select the correct numeral to represent 1-5, then 1-10 objects</p> <p>Write the correct numeral for a given number</p>	<p>Bonds to 5</p> <p>Number bonds 10 (tens frame)</p> <p>Number bonds to 10 (part-part whole model)</p> <p>Find one more and one less</p> <p>Combine two groups to find the whole</p> <p>Adding by counting on</p> <p>Subtract by counting back</p> <p>Sorting into groups</p>	<p>Doubling</p> <p>Halving and sharing</p> <p>Odds and evens</p>		
<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Daily routine</p> <p>Recognise length, height and distance</p> <p>Understand the difference between weight and capacity</p> <p>Daily routine</p> <p>Order and sequence events</p> <p>Measure short periods of time</p>	<p>Recognise 2-D and 3-D shapes; using mathematical terms</p> <p>Selects a particular named shape</p> <p>Make simple patterns</p> <p>Explore more complex patterns</p> <p>order two or three items by length and height</p> <p>order two items by weigh or capacity</p>	<p>Describe the position of an object</p> <p>Use common shapes to create patterns and build models</p>		

Year 1 – Maths Programme of Study

<u>Number and Place Value</u>	<u>Addition and Subtraction</u>	<u>Multiplication and Division</u>	<u>Fractions, Decimals and Percentages</u>	<u>Ratio and Proportion</u>
<p>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p> <p>Count, read and write numbers to 100 in numerals</p> <p>Count in multiples of twos, fives and tens</p> <p>Given a number, identify one more and one less</p> <p>Use the language of: equal to, more than, less than (fewer), most, least</p> <p>Identify and represent numbers using objects and pictorial representations including the number line</p> <p>Read and write numbers from 1 to 20 in numerals and words.</p>	<p>Represent and use number bonds and related subtraction facts within 20</p> <p>Add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears in written &amp; mental methods)</p> <p>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></p>	<p>Count in multiples of twos, fives and tens</p> <p>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher</p>	<p>Recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</p>	



<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>*lengths and heights [e.g. Long/short, longer/shorter, tall/short, double/half]</li> <li>*mass/weight [e.g. Heavy/light, heavier than, lighter than]</li> <li>*capacity and volume [e.g. Full/empty, more than, less than, half, half full, quarter]</li> <li>*time [e.g. Quicker, slower, earlier, later]</li> </ul> <p>Sequence events in chronological order using language [e.g. Before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <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> </ul> <p>Recognise and know the value of different denominations of coins and notes</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p> <p>Recognise and use language relating to dates, including days of the week, weeks, months and year</p>	<p>Recognise and name common 2-d and 3-d shapes, including:</p> <ul style="list-style-type: none"> <li>* 2-d shapes [e.g. Rectangles (including squares), circles and triangles]</li> <li>* 3-d shapes [e.g. Cuboids (including cubes), pyramids and spheres].</li> </ul>	<p>Describe position, direction and movement, including half, quarter and three-quarter turns.</p>		<p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as</p> $7 = * - 9$ <p>represent and use number bonds and related subtraction facts within 20</p> <p>sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening</p>

Year 2 – Maths Programme of Study

<u>Number and Place Value</u>	<u>Addition and Subtraction</u>	<u>Multiplication and Division</u>	<u>Fractions, Decimals and Percentages</u>	<u>Ratio and Proportion</u>
<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</p> <p>Recognise the place value of each digit in a two-digit number (tens, ones).</p> <p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs.</p> <p>Read and write numbers to at least 100 in numerals and in words.</p> <p>Use place value and number facts to solve problems.</p>	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> <li>Using concrete objects and pictorial representations, including those involving numbers, quantities and measures;</li> <li>Applying their increasing knowledge of mental and written methods.</li> </ul> <p>Recall and use addition and subtraction facts to 20 and 100:</p> <ul style="list-style-type: none"> <li>fluently up to 20;</li> <li>related facts 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> </ul> <p>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</p> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.</p> <p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>	<p>Pupils should count in fractions up to 10, starting from any number and using the 1/2 and 2/4 equivalence on the number line</p> <p>Recognise, find, name and write fractions 1/3, 1/4, 2/4, and 3/4 of a length, shape, set of objects or quantity.</p> <p>Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.</p>	

<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Choose and use appropriate standard units to estimate and measure to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels:</p> <ul style="list-style-type: none"> <li>• length/height in any direction (m/cm);</li> <li>• mass (kg/g);</li> <li>• temperature (°C);</li> <li>• capacity (litres/ml).</li> </ul> <p>Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</p> <p>Recognise and use symbols for pounds (£) and pence (p);</p> <p>Combine amounts to make a particular value.</p> <p>Find different combinations of coins that equal the same amounts of money.</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p> <p>Compare and sequence intervals of time.</p> <p>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.</p> <p>Know the number of minutes in an hour and number of hours in a day.</p>	<p>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</p> <p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid].</p> <p>Compare and sort common 2-D and 3-D shapes and everyday objects.</p>	<p>Order and arrange combinations of mathematical objects in patterns and sequences.</p> <p>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).</p>	<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask and answer questions about totalling and comparing categorical data.</p>	<p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</p> <p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>Compare and sequence intervals of time</p> <p>Order and arrange combinations of mathematical objects in patterns</p>

Year 3 – Maths Programme of Study

<u>Number and Place Value</u>	<u>Addition and Subtraction</u>	<u>Multiplication and Division</u>	<u>Fractions, Decimals and Percentages</u>	<u>Ratio and Proportion</u>
<p>Count from 0 in multiples of 4, 8, 50 and 100.</p> <p>Find 10 or 100 more or less than a given number.</p> <p>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</p> <p>Compare and order numbers up to 1000.</p> <p>Identify, represent and estimate numbers using different representations.</p> <p>Read and write numbers up to 1000 in numerals and in words.</p> <p>Solve number problems and practical problems involving these ideas.</p> <p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> <li>• a three-digit number and ones;</li> <li>• a three-digit number and tens;</li> <li>• a three-digit number and hundreds.</li> </ul> <p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</p> <p>Estimate the answer to a calculation and use inverse operations to check answers.</p> <p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100.</p> <p>Recall and use multiplication and division facts for the multiplication tables:</p> <ul style="list-style-type: none"> <li>• 3;</li> <li>• 4;</li> <li>• 8.</li> </ul> <p>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.</p> <p>Estimate the answer to a calculation and use inverse operations to check answers.</p> <p>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p>	<p>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.</p> <p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</p> <p>Recognise and use fractions as numbers: unit fractions (numerator of 1) and non-unit fractions with small denominators.</p> <p>Recognise and show, using diagrams, equivalent fractions with small denominators.</p> <p>Add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</math>].</p> <p>Compare and order unit fractions, and fractions with the same denominators. Solve problems that involve all of the above.</p>	

<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Measure, compare, add and subtract:</p> <ul style="list-style-type: none"> <li>lengths (m/cm/mm);</li> <li>mass (kg/g);</li> <li>volume/capacity (l/ml).</li> </ul> <p>Measure the perimeter of simple 2-D shapes.</p> <p>Add and subtract amounts of money to give change, using both £ and p in practical contexts.</p> <p>Tell and write the time from:</p> <ul style="list-style-type: none"> <li>an analogue clock and 12-hour and 24-hour clocks;</li> <li>an analogue clock, including using Roman numerals from I to XII.</li> </ul> <p>Estimate and read time with increasing accuracy to the nearest minute.</p> <p>Record and compare time in terms of seconds, minutes and hours</p> <p>Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>Compare durations of events [for example to calculate the time taken by particular events or tasks].</p>	<p>Draw 2-D shapes and make 3-D shapes using modelling materials.</p> <p>Recognise 3-D shapes in different orientations and describe them.</p> <p>Recognise angles as a property of shape or a description of a turn.</p> <p>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>		<p>Interpret and present data using bar charts, pictograms and tables.</p> <p>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.</p>	<p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p>Solve problems, including missing number problems, involving multiplication and division, including integer scaling</p>

Year 4 – Maths Programme of Study

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals and Percentages	Ratio and Proportion
<p>Count in multiples of 6, 7, 9, 25 and 1000.</p> <p>Find 1000 more or less than a given number.</p> <p>Count backwards through zero to include negative numbers.</p> <p>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</p> <p>Order and compare numbers beyond 1000.</p> <p>Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100 or 1000.</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</p> <p>Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p>	<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p> <p>Estimate and use inverse operations to check answers to a calculation.</p> <p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Count in multiples of 6, 7, 9, 25 and 1000.</p> <p>Recall multiplication and division facts for multiplication tables up to 12 x 12.</p> <p>Use place value, known and derived facts to multiply and divide mentally, including:</p> <ul style="list-style-type: none"> <li>• multiplying by 0 and 1;</li> <li>• dividing by 1;</li> <li>• multiplying together three numbers.</li> </ul> <p>Recognise and use factor pairs and commutativity in mental calculations.</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>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 n objects are connected to m objects.</p>	<p>Recognise and show, using diagrams, families of common equivalent fractions.</p> <p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>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.</p> <p>Add and subtract fractions with the same denominator.</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths.</p> <p>Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>.</p> <p>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.</p> <p>Round decimals with one decimal place to the nearest whole number.</p> <p>Compare numbers with the same number of decimal places up to two decimal places.</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	

<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Convert between different units of measure [for example, kilometre to metre; hour to minute].</p> <p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</p> <p>Find the area of rectilinear shapes by counting squares.</p> <p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Geometry: Properties</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Identify lines of symmetry in 2-D shapes presented in different orientations.</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry</p>	<p>Describe positions on a 2-D grid as coordinates in the first quadrant.</p> <p>Describe movements between positions as translations of a given unit to the left/right and up/down.</p> <p>Plot specified points and draw sides to complete a given polygon.</p>	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	<p>Perimeter can be expressed algebraically as <math>2(a + b)</math> where a and b are the dimensions in the same unit.</p>

**Year 5 – Maths Programme of Study**

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals and Percentages	Ratio and Proportion
<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</p> <p>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</p> <p>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</p> <p>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</p> <p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>Solve number problems and practical problems that involve all of the above.</p>	<p>Add and subtract whole numbers with more than 4 digits.</p> <p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <p>Add and subtract numbers mentally with increasingly large numbers (example, <math>12\ 462 - 2300 = 10\ 162</math>)</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19.</p> <p>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.</p> <p>Multiply and divide numbers mentally drawing upon known facts.</p> <p>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.</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</p> <p>Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</p> <p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p> <p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p>	<p>Compare and order fractions whose denominators are all multiples of the same number.</p> <p>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</p> <p>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 = 11/5</math>].</p> <p>Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p> <p>Read and write decimal numbers as fractions [for example, <math>0.71 = 71/100</math>].</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Read, write, order and compare numbers with up to three decimal places.</p> <p>Solve problems involving number up to three decimal places.</p> <p>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.</p> <p>Solve problems which require knowing percentage and decimal equivalents of <math>1/2</math>, <math>1/4</math>, <math>1/5</math>, <math>2/5</math>, <math>4/5</math> and those fractions with a denominator of a multiple of 10 or 25.</p>	

<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</p> <p>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</p> <p>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>).</p> <p>Estimate the area of irregular shapes. Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</p> <p>Solve problems involving converting between units of time.</p> <p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p>	<p>Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</p> <p>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</p> <p>Draw given angles, and measure them in degrees (<sup>o</sup>).</p> <p>Identify:</p> <ul style="list-style-type: none"> <li>• angles at a point and one whole turn (total 360<sup>o</sup>);</li> <li>• angles at a point on a straight line and 1/2 a turn (total 180<sup>o</sup>);</li> <li>• other multiples of 90<sup>o</sup>.</li> </ul> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p>	<p>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.</p>	<p>Solve comparison, sum and difference problems using information presented in a line graph.</p> <p>Complete, read and interpret information in tables, including timetables.</p>	<p>Use the properties of rectangles to deduce related facts and find missing lengths and angles</p>

**Year 6 – Maths Programme of Study**

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions, Decimals and Percentages	Ratio and Proportion
<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</p> <p>Round any whole number to a required degree of accuracy.</p> <p>Use negative numbers in context, and calculate intervals across zero.</p> <p>Solve number and practical problems that involve all of the above.</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</p>	<p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>Solve problems involving addition, subtraction, multiplication and division</p>	<p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number.</p> <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</p> <p>Divide numbers up to 4 digits by a two-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</p> <p>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.</p> <p>Perform mental calculations, including with mixed operations and large numbers.</p> <p>Identify common factors, common multiples and prime numbers.</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations.</p> <p>Solve problems involving addition, subtraction, multiplication and division.</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. <math>\frac{3}{8}</math>)</p> <p>Use written division methods in cases where the answer has up to two decimal places.</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (<math>\text{cm}^3</math>) and cubic meters (<math>\text{m}^3</math>), and extending to other units such as <math>\text{mm}^3</math> and <math>\text{km}^3</math></p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</p> <p>Compare and order fractions, including fractions <math>&gt; 1</math>.</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</p> <p>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>].</p> <p>Divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>].</p> <p>Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>].</p> <p>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.</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers.</p> <p>Use written division methods in cases where the answer has up to two decimal places.</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy.</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</p> <p>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>

<u>Measurement</u>	<u>Geometry: Properties of shape</u>	<u>Geometry: Position and direction</u>	<u>Statistics</u>	<u>Algebra</u>
<p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p> <p>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 up to three decimal places.</p> <p>Convert between miles and kilometres.</p> <p>Recognise that shapes with the same areas can have different perimeters and vice versa.</p> <p>Recognise when it is possible to use formulae for area and volume of shapes.</p> <p>Calculate the area of parallelograms and triangles.</p> <p>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>].</p>	<p>Draw 2-D shapes using given dimensions and angles.</p> <p>Recognise, describe and build simple 3-D shapes, including making nets.</p> <p>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.</p> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>	<p>Describe positions on the full coordinate grid (all four quadrants).</p> <p>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p>	<p>Interpret pie charts and line graphs and use these to solve problems.</p> <p>Construct pie charts and line graphs.</p> <p>Calculate and interpret the mean as an average.</p>	<p>Use simple formulae.</p> <p>Generate and describe linear number sequences.</p> <p>Express missing number problems algebraically. Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>Enumerate possibilities of combinations of two variables.</p> <p>Perimeter can be expressed algebraically as <math>2(a + b)</math> where a and b are the dimensions in the same unit.</p>