



## National Curriculum: Progression in Mathematics

Early Years			
	Nursery	Foundation	ELG
Counting	<ul style="list-style-type: none"> <li>Recite numbers past 5.</li> <li>Say one number name for each item in order: 1, 2, 3, 4, 5.</li> <li>Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> </ul>	<ul style="list-style-type: none"> <li>Count objects, actions and sounds.</li> <li>Count beyond ten.</li> </ul>	<ul style="list-style-type: none"> <li>Verbally count beyond 20, recognising the pattern of the counting system.</li> </ul>
Numbers	<ul style="list-style-type: none"> <li>Fast recognition of up to 3 objects, without having to count them individually ('subitising').</li> <li>Show 'finger numbers' up to 5.</li> <li>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</li> <li>Experiment with their own symbols and marks as well as numerals.</li> <li>Compare quantities using language: 'more than', 'fewer than'.</li> </ul>	<ul style="list-style-type: none"> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> <li>Compare numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Subitise (recognising quantities without counting) up to 5.</li> <li>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</li> </ul>
Place Value	<ul style="list-style-type: none"> <li>Solve real world mathematical problems with numbers up to 5.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the 'one more than/one less than' relationship between consecutive numbers.</li> <li>Explore the composition of numbers to 10.</li> </ul>	<ul style="list-style-type: none"> <li>Have a deep understanding of numbers to 10, including the composition of each number.</li> </ul>
Addition and Subtraction		<ul style="list-style-type: none"> <li>Automatically recall number bonds for numbers 0-10.</li> <li>Subitise.</li> <li>Link the number symbol (numeral) with its cardinal number value.</li> </ul>	<ul style="list-style-type: none"> <li>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</li> <li>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.</li> </ul>
Measurement	<ul style="list-style-type: none"> <li>Make comparisons between objects relating to size, length, weight and capacity.</li> <li>Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then...'</li> </ul>	<ul style="list-style-type: none"> <li>Compare length, weight and capacity.</li> </ul>	

Shape	<ul style="list-style-type: none"> <li>• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round'.</li> <li>• Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc.</li> <li>• Combine shapes to make new ones – an arch, a bigger triangle, etc.</li> </ul>	Select, rotate and manipulate shapes in order to develop spatial reasoning skills.	
Position and direction	<ul style="list-style-type: none"> <li>• Understand position through words alone – for example, "The bag is under the table," – with no pointing</li> <li>• Describe a familiar route.</li> <li>• Discuss routes and locations, using words like 'in front of' and 'behind'.</li> <li>• Talk about and identify the patterns around them. For example, stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.</li> <li>• Extend and create ABAB patterns – stick, leaf, stick, leaf.</li> <li>• Notice and correct an error in a repeating pattern.</li> </ul>	<ul style="list-style-type: none"> <li>• Draw information from a simple map.</li> <li>• Continue, copy and create repeating patterns.</li> </ul>	

Lower Phase			
	Year 1	Year 2	Year 3
Number - Place Value	<p><b>-count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number (1NPV-1)</b></p> <p><b>-count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens (1NF-2)</b></p> <p>-given a number, identify one more and one less</p> <p>-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</p> <p>-read and write numbers from 1 to 20 in numerals and words.</p>	<p>-count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p><b>-recognise the place value of each digit in a two-digit number (tens, ones)</b></p> <p>-identify, <b>represent</b> and estimate numbers using different representations, including the number line</p> <p><b>-compose and decompose two-digit numbers using standard and nonstandard partitioning (representing number links)</b></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>-count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</p> <p><b>Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.</b></p> <p>-recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p><b>-Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.</b></p> <p><b>-Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three digit multiples of 10.</b></p> <p>-compare and order numbers up to 1000</p> <p><b>Reason about the location of any three digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.</b></p>

		<p><b>-Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10</b></p>	<p>-identify, represent and estimate numbers using different representations          -read and write numbers up to 1000 in numerals and in words          -solve number problems and practical problems involving these ideas.</p>
<p>Number (add, subtract, multiply and divide)</p>	<p>-read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs          -represent and use number bonds and related subtraction facts within 20          -add and subtract one-digit and two-digit numbers to 20, including zero          -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>.          -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>-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 fluently, and derive and use related facts up to 100  <b>-Secure fluency in addition and subtraction facts within 10, through continued practice.</b>          -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  <b>-Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two digit number.</b>          -recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.  <b>-Add and subtract across 10.</b>  <b>-Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".</b></p> <p>-recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers          -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          -show that multiplication of two numbers can be done in any order (<b>commutative</b>) and division of one number by another cannot  <b>Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).</b></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>● <b>a three-digit number and hundreds</b></li> </ul> <p>-add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction -estimate the answer to a calculation and use inverse operations to check answers  <b>Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</b></p> <p>-solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.  <b>-Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).</b>  <b>-Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure.</b>  <b>-Understand and use the commutative property of addition, and understand the related property for subtraction.</b></p> <p>-recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables  <b>Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.</b></p> <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  <b>-Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.</b></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>-solve problems involving multiplication and division, using materials, arrays, <b>repeated addition</b>, mental methods, and multiplication and division facts, including problems in contexts</p> <p><b>Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.</b></p>	
Number (Fractions)	<p>-recognise, find and name a half as one of two equal parts of an object, shape or quantity - recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p>	<p>-recognise, find, name and write fractions <math>\frac{3}{4}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{4}{4}</math> of a length, shape, set of objects or quantity -write simple fractions for example, <math>\frac{2}{6} = \frac{1}{3}</math> and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</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><b>Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.</b></p> <p>-recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p><b>Find unit fractions of quantities using known division facts (multiplication tables fluency).</b></p> <p>-recognise and show, using diagrams, equivalent fractions with small denominators</p> <p><b>-add and subtract fractions with the same denominator within one whole [for example, <math>\frac{7}{5} + \frac{1}{5} = \frac{8}{5}</math>]</b></p> <p>-compare and order unit fractions, and fractions with the same denominators</p> <p><b>Reason about the location of any fraction within 1 in the linear number system.</b></p> <p>-solve problems that involve all of the above.</p>
Measurement	<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> <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> </ul> <p>-recognise and know the value of different denominations of coins and notes</p>	<p>-choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (<math>^{\circ}\text{C}</math>); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels -compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></p> <p>-recognise and use symbols for pounds (£) and pence (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 the number of hours in a day.</p>	<p>-measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <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 an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>-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 -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>-sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>-recognise and use language relating to dates, including days of the week, weeks, months and years</p> <p>-tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>		
Geometry	<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> <p>-describe position, direction and movement, including whole, half, quarter and three-quarter turns.</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><b>Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.</b></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 anticlockwise).</p>	<p>-draw 2-D shapes (<b>Draw polygons by joining marked points</b>) and make 3-D shapes using modelling materials; 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><b>-identify right angles of shapes in different orientations, 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</b></p> <p><b>-identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</b></p>
Statistics		<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>-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>
Ratio and Proportion			

Algebra			
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## Upper Phase

	Year 4	Year 5	Year 6
Number - Place Value	<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 - <b>Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.</b></li> <li>-count backwards through zero to include negative numbers</li> <li>-<b>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</b></li> <li>-order and compare numbers beyond 1000</li> <li>-identify, represent and estimate numbers using different representations -<b>compose and decompose four-digit numbers using standard and nonstandard partitioning.</b></li> <li>-<b>round any number to the nearest 10, 100 or 1000 and reason about its location</b> -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 and practical problems that involve all of the above.</li> </ul>

	<p>Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.</p>		
<p>Number (add, subtract, multiply and divide)</p>	<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> <li><b>-recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math> and recognise products in multiplication tables as multiples of the corresponding number.</b></li> <li><b>-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</b></li> <li><b>-recognise and use factor pairs and commutativity in mental calculations</b></li> <li><b>Understand and apply the distributive property of multiplication</b></li> <li>-multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li><b>-Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.</b></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 n objects are connected to m objects.</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> <li>-identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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 appropriately for the context</li> <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 ( <math>2</math> ) and cubed ( <math>3</math> )</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> <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>

	<p><b>-Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.</b></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>Number (Fractions - including decimals and percentages)</p>	<p><b>-Reason about the location of mixed numbers in the linear number system.</b></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><b>-Convert mixed numbers to improper fractions and vice versa.</b></p> <p><b>-add and subtract fractions with the same denominator</b></p> <p>-recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>-recognise and write decimal equivalents to <math>4\frac{1}{2}</math>, <math>2\frac{1}{4}</math>, <math>4\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>-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>5\frac{2}{4} + 5\frac{4}{4} = 5\frac{6}{4} = 1\frac{5}{4}</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 -read and write decimal numbers as fractions [for example, <math>0.71 = \frac{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</p>	<p>-use common factors to simplify fractions; use common multiples to express fractions in the same denomination - 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>4\frac{1}{2} \times 2\frac{1}{4} = 8\frac{1}{2}</math>]</p> <p>-divide proper fractions by whole numbers [for example, <math>3\frac{1}{2} \div 2 = 6\frac{1}{4}</math>] -associate a fraction with division and calculate decimal fraction equivalents [for example, <math>0.375</math>] for a simple fraction [for example, <math>8\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 - 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 -recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>

	<p>-solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	<p>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>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{3}{4}</math> and those fractions with a denominator of a multiple of 10 or 25</p>	
Measurement	<p>-Convert between different units of measure [for example, kilometre to metre; hour to minute] -measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres -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</p>	<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>) and 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>-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 to up to three decimal places -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>)</p>
Geometry (properties of shape and position and direction)	<p><b>-Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.</b></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 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 (°) - identify:</p> <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> </ul>	<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><b>-identify lines of symmetry in 2-D shapes presented in different orientations</b></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><b>-Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.</b></p>	<ul style="list-style-type: none"> <li>• other multiples of 90o</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>-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>
Statistics	<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>-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>-interpret and construct pie charts and line graphs and use these to solve problems</p> <p>-calculate and interpret the mean as an average.</p>
Ratio and Proportion			<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>
Algebra			<p>-use simple formulae -generate and describe linear number sequences -express missing number problems algebraically -find pairs of numbers that satisfy an equation with two unknowns -enumerate possibilities of combinations of two variables.</p>

