

## Strand Map – Curriculum V Framework Y5/6

Strand	Year 5	Year 6	Interim Framework
Place Value	<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>	<ul style="list-style-type: none"> <li>• The pupil can demonstrate an understanding of place value, including large numbers and decimals e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; <math>8.09 = 8 + ? + ?</math> <math>28.13 = 28 + ? + 0.03</math></li> </ul>

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Addition and subtraction	<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>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>See fractions, decimals and percentages</p>	<p>The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation  (e.g. <math>53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18</math>;  <math>20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700</math>;  <math>53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8</math>).</p> <ul style="list-style-type: none"> <li>The pupil can use formal methods to solve multi-step problems  (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55;  a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?;  a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).</li> </ul>
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<p>Multiplication and division</p>	<ul style="list-style-type: none"> <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 (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>	<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 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>See fractions, decimals and percentages</p>	<ul style="list-style-type: none"> <li>• The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. <math>53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18</math>; <math>20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700</math>; <math>53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8</math>).</li> <li>• The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).</li> </ul>
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Fractions including decimals	<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</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</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}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \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>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</li> <li>divide proper fractions by whole numbers</li> <li>associate a fraction with division and calculate decimal fraction equivalents</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>The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as <math>\frac{1}{5}</math> or 0.2 or 20% of the whole cake).</li> <li>The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as <math>\frac{7}{21}</math> and that this is equal to <math>\frac{1}{3}</math>; 15% of 60; <math>\frac{11}{2} + \frac{3}{4}</math>; <math>\frac{7}{9}</math> of 108; <math>0.8 \times 70</math>).</li> </ul>

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Measures	<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>	<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>	<ul style="list-style-type: none"> <li>The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).</li> <li>The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).</li> </ul>

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Geometry	<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 (o)</li> <li>identify: angles at a point and one whole turn (total 360o) , _ angles at a point on a straight line and a turn (total 180o), _ other multiples of 90o</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> <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>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</li> <li>recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> <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>	<ul style="list-style-type: none"> <li>The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).</li> <li>The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).</li> </ul>
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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>	N/A
Strand	Year 5	Year 6	Interim Framework
Ratio and Proportion	N/A	<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>	N/A

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Algebra	N/A	<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> <p>Pupils should be introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as:</p> <ul style="list-style-type: none"> <li>• missing numbers, lengths, coordinates and angles</li> <li>• formulae in mathematics and science</li> <li>• equivalent expressions (for example, <math>a + b = b + a</math>)</li> <li>• generalisations of number patterns</li> <li>• number puzzles (for example, what two numbers can add up to).</li> </ul>	The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).