



## Year 5/6 yearly overview (2020)

This mixed-age plan follows the same progression as the White Rose Maths mixed age planning, except where divergence improves the alignment of the *Power Maths* lessons. The main aim of these plans is to allow teachers to cover the same topic with both groups more often than with our existing (2019) mixed age plans, which follow the *Power Maths* progression more strictly in each year group.

Note: Shaded colours refer to the strand colours used in the textbooks.

Year 5	Year 6	Number of lessons
<b>Autumn term</b>		<b>60</b>
<b>Unit 1: Place value within 100,000</b> <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>• round any number up to 1,000,000 to the nearest 10, 100, 1,000, 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 1,000 (M) and recognise years written in Roman numerals</li></ul>	<b>Unit 12: Ratio and proportion</b> <ul style="list-style-type: none"><li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li><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 similar shapes where the scale factor is known or can be found</li></ul>	<b>9</b>



<b>Unit 2: Place value within 1,000,000</b> <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>• solve number problems and practical problems that involve all of the above</li><li>• round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000</li><li>• interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</li><li>• count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li><li>• solve number problems and practical problems that involve all of the above</li></ul>	<b>Unit 1: Place value within 10,000,000</b> <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>• solve number and practical problems that involve all of the above</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></ul>	<b>8</b>



<p><b>Unit 3: Addition and subtraction</b></p> <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>• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li><li>• add and subtract numbers mentally with increasingly large numbers</li><li>• solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why</li><li>• estimate and use inverse operations to check answers to a calculation</li></ul>	<p><b>Unit 9: Algebra</b></p> <ul style="list-style-type: none"><li>• generate and describe linear number sequences</li><li>• use simple formulae</li><li>• express missing number problems algebraically</li><li>• use simple formulae</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><b>10</b></p>

<p><b>Unit 5: Multiplication and division (1)</b></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>• solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes</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>• recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>), identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</li> <li>• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li> <li>• multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</li> </ul>	<p><b>Unit 3: Four operations (2)</b></p> <ul style="list-style-type: none"> <li>• identify common factors, common multiples and prime numbers</li> <li>• recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>) (Year 5)</li> <li>• use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>• perform mental calculations, including with mixed operations and large numbers</li> <li>• solve problems involving addition, subtraction, multiplication and division</li> </ul>	<p><b>10</b></p>



<p><b>Unit 7: Multiplication and division (2)</b></p> <ul style="list-style-type: none"><li>• multiply and divide numbers mentally drawing upon known facts</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>• 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>	<p><b>Unit 2: Four operations (1)</b></p> <ul style="list-style-type: none"><li>• solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why</li><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 number using the formal written method of short division, where appropriate, interpreting remainders according to the context</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></ul>	<p><b>11</b></p>



<b>Unit 8: Fractions (1)</b> <ul style="list-style-type: none"><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</li><li>• 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>]</li><li>• compare and order fractions whose denominators are all multiples of the same number</li></ul>	<b>Unit 4: Fractions (1)</b> <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></ul>	<b>12</b>



Year 5	Year 6	Number of lessons
<b>Spring Term</b>		<b>56</b>
<b>Unit 9: Fractions (2)</b> <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>• recognise mixed numbers and improper fractions and convert from one form to the other</li><li>• 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>]</li></ul>	<b>Unit 14: Problem solving lessons 1-6; 9-11</b> <ul style="list-style-type: none"><li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li><li>• solve problems involving addition, subtraction, multiplication and division</li><li>• solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why</li><li>• use knowledge of the order of operations to carry out calculations involving the four operations</li><li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</li><li>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li></ul>	<b>21</b>

<p><b>Unit 10: Fractions (3)</b></p> <ul style="list-style-type: none"> <li>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>recognise mixed numbers and improper fractions and convert from one form to the other</li> <li>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>]</li> </ul>	<p><b>Unit 5: Fractions (2)</b></p> <ul style="list-style-type: none"> <li>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>1/4 \times 1/2 = 1/8</math>]</li> <li>divide proper fractions by whole numbers [for example, <math>1/3 \div 2 = 1/6</math> ]</li> <li>add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>use written division methods in cases where the answer has up to two decimal places</li> </ul>

<p><b>Unit 11: Decimals and percentages</b></p> <ul style="list-style-type: none"> <li>• read, write, order and compare numbers with up to three decimal places</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>• 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> </ul>	<p><b>Unit 8: Percentages</b></p> <ul style="list-style-type: none"> <li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</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>• 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>• multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>• compare and order fractions, including fractions <math>&gt; 1</math></li> <li>• solve problems that require answers to be rounded to specified degrees of accuracy</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> </ul>	<p><b>12</b></p>



<p><b>Unit 12: Decimals</b></p> <ul style="list-style-type: none"> <li>• solve problems that 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> <li>• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>• solve problems involving number up to three decimal places</li> <li>• read, write, order and compare numbers with up to three decimal places</li> <li>• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> </ul>	<p><b>Unit 7: Decimals</b></p> <ul style="list-style-type: none"> <li>• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places</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>• use written division methods in cases where the answer has up to two decimal places</li> <li>• multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>• solve problems that require answers to be rounded to specified degrees of accuracy</li> </ul>	<p><b>12</b></p>
	<p><b>Unit 14: Problem solving Lessons 7-8</b></p> <ul style="list-style-type: none"> <li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>	

<p><b>Unit 6: Area and perimeter</b></p> <ul style="list-style-type: none"> <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> </ul>	<p><b>Unit 11: Perimeter. Area and volume</b></p> <ul style="list-style-type: none"> <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>	<b>11</b>
<p><b>Unit 17: Measure – volume and capacity</b></p> <ul style="list-style-type: none"> <li>• estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]</li> </ul>		



Year 5	Year 6	Number of lessons
<b>Summer term</b>		<b>38</b>
<b>Unit 4: Graphs and tables</b> <ul style="list-style-type: none"><li>complete, read and interpret information in tables, including timetables</li><li>solve comparison, sum and difference problems using information presented in a line graph</li></ul>	<b>Unit 15: Statistics</b> <ul style="list-style-type: none"><li>calculate and interpret the mean as an average</li><li>interpret and construct pie charts and line graphs and use these to solve problems</li></ul>	<b>10</b>

<p><b>Unit 16: Measure – converting units</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>• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling</li> <li>• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</li> <li>• solve problems involving converting between units of time</li> </ul>	<p><b>Unit 10: Measure – imperial and metric</b></p> <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 up to three decimal places</li> <li>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places, where appropriate</li> <li>• convert between miles and kilometres</li> </ul>	<p><b>9</b></p>
<p><b>Unit 13: Geometry – properties of shapes (1)</b></p> <ul style="list-style-type: none"> <li>• identify: <ul style="list-style-type: none"> <li>○ angles at a point and one whole turn (total <math>360^\circ</math>)</li> <li>○ angles at a point on a straight line and <math>1/2</math> a turn (total <math>180^\circ</math>)</li> <li>○ other multiples of <math>90^\circ</math></li> </ul> </li> <li>• know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles</li> </ul>	<p><b>Unit 13: Geometry – properties of shapes</b></p> <ul style="list-style-type: none"> <li>• draw 2D shapes using given dimensions and angles</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> </ul>	<p><b>12</b></p>

<ul style="list-style-type: none"> <li>• draw given angles, and measure them in degrees (<math>^{\circ}</math>)</li> <li>• use the properties of rectangles to deduce related facts and find missing lengths and angles</li> </ul> <p><b>Unit 14: Geometry – properties of shapes (2)</b></p> <ul style="list-style-type: none"> <li>• identify:             <ul style="list-style-type: none"> <li>○ angles at a point and one whole turn (total <math>360^{\circ}</math>)</li> <li>○ angles at a point on a straight line and <math>1/2</math> a turn (total <math>180^{\circ}</math>)</li> <li>○ other multiples of <math>90^{\circ}</math></li> </ul> </li> <li>• draw given angles, and measure them in degrees (<math>^{\circ}</math>)</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 3D shapes, including cubes and other cuboids, from 2D representations</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>• recognise angles where they meet at a point, are on a straight line or are vertically opposite, and find missing angles</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, describe and build simple 3D shapes, including making nets</li> <li>• identify 3D shapes, including cubes and other cuboids, from 2D representations</li> </ul>	

<p><b>Unit 15: Geometry – position and direction</b></p> <ul style="list-style-type: none"> <li>identify, describe and represent the position of a shape following a reflection or translation, using appropriate language, and know that the shape has not changed</li> </ul>	<p><b>Unit 6: Geometry – position and direction</b></p> <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>4</b>
<p><b>Investigations and consolidation</b></p> <p><b>Problem solving activities</b></p> <p><b>Where appropriate, begin the Year 6 schemes of work</b></p>	<p><b>Unit 14: Problem solving Lessons 12-14</b></p> <ul style="list-style-type: none"> <li>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>describe positions on the full coordinate grid (all four quadrants)</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>compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> </ul>	<b>3</b>