

# Whole School Curriculum Map 2019- 2020

## Year 1

Autumn	Spring	Summer
<p><b>Number – count to and across 100</b> To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. To 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. To count, read and write numbers to 100 in numerals, count in multiples of twos, fives and tens. To 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. To read and write numbers from 1 to 20 in numerals and words. When given a number, identify one more and one less. To 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. To read and write numbers from 1 to 20 in numerals and words.</p>	<p><b>Number – reading and writing to 100</b> Numbers can be represented in different ways using objects, pictures or numerals. Their stable order must be known and their numeral or name does not always give us a clue about their value e.g. 14. Our number system is base 10. The tens numbers must be seen as ten and one, ten and two and so on. The position (place) of a digit in a number determines its value. We need standard units of measure in order to compare things more accurately and consistently. We can place numbers on a track, line or 100 square to compare them. To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. To count, read and write numbers to 100 in numerals, count in multiples of twos, fives and tens. When given a number, identify one more and one less. To read and write numbers from 1 to 20 in numerals and words.</p>	<p><b>Number</b> When given a number, identify one more and one less. To 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><b>Calculating, Patterns &amp; Algebra + and –</b> We can compare numbers or expressions that use + or - using &gt; or &lt;. We can partition numbers into two or more parts. We can add two or more of these parts in any order (commutativity). We can add or subtract by counting on or back in one’s understanding their position can helps add or subtract by calculation. Use a whole-part model (dienes) to picture addition and subtraction. Relating numbers to 5 and 10 can help us to add by calculating, using bonds.</p> <p><b>Calculating, Patterns &amp; Algebra: X and ÷</b> Division can be seen as ‘how many groups of...in...’. The inverse relationship can also be</p>

<p><b>Calculating, Patterns &amp; Algebra + and –</b>  = means ‘equivalent’, ‘the same as’ or ‘balances’. Understanding this before other symbols are introduced helps children make sense of equations written with = in different positions. We can compare numbers using &gt; or &lt;. We can partition numbers into two or more parts. We can add two or more of these parts in any order (commutativity). We can add or subtract by counting on or back in ones BUT knowing the order of sums can help add or subtract by calculation. Use a whole-part model (Dienes) to picture addition and subtraction. Relating numbers to 5 and 10 can help us to add by calculating, using bonds.</p> <p><b>Geometry</b>  To recognise and name common 2D and 3D shapes, including:</p> <ul style="list-style-type: none"> <li>• 2D shapes (rectangles (including squares), circles and triangles)</li> <li>• 3D shapes (cuboids (including cubes), pyramids and spheres).</li> </ul> <p><b>Calculating</b>  Pupils can add or subtract by counting on or back in ones BUT knowing position of numbers can help us add or subtract by calculation. Use a whole-part model (Dienes) to picture addition and subtraction. Relating numbers to 5 and 10 can help us to add by calculating, using bonds.</p>	<p><b>Calculating, Patterns &amp; Algebra + and –</b>  To represent and use number bonds and related subtraction facts within 20. To add and subtract one-digit and two-digit numbers to 20, including zero. To solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems.</p> <p><b>Calculating, Patterns &amp; Algebra X and Division</b>  Child should be taught to count in multiples of twos, fives and tens – understanding that this is repeated addition. The concept of ‘fair shares’ is quickly grasped by children and will have been covered in Reception as a first exploration of division. Children now need to develop the big idea of ‘unitisation’ where they count in ‘groups of’ a number. Division can be seen as ‘how many groups of...in...’. Children learn about doubling as ‘two groups of’ and counting in other ‘groups of’ numbers. Division can be explored as the inverse through ‘grouping’, as well as ‘sharing’. Solve problems using concrete objects or pictorials. To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher</p>	<p>explored through arrays. Children learn about doubling as ‘two groups of’ and counting in other ‘groups of’ numbers. Division can be explored as the inverse through ‘grouping’, as well as ‘sharing’ To solve one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p> <p><b>Measures: time and money</b>  To compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>• lengths and heights (long/short, longer/shorter, tall/short, double/half)</li> <li>• mass or weight (heavy/light, heavier than, lighter than)</li> <li>• capacity/volume (full/empty, more than, less than, quarter)</li> <li>• time (quicker, slower, earlier, later).</li> <li>• To measure and begin to record the following: lengths and heights</li> <li>• mass/weight</li> <li>• capacity and volume</li> <li>• time (hours, minutes, seconds).</li> </ul> <p>To sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.</p> <p><b>Number &amp; Calculating, Patterns &amp; Algebra check-up</b></p>
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<p>Repeated addition can also be understood as multiplying and counting in 'groups of'.</p> <p><b>Measures</b> To compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>• Lengths and heights (long/short, longer/shorter, tall/short, double/half)</li> <li>• mass or weight (heavy/light, heavier than, lighter than)</li> <li>• Capacity/volume (full/empty, more than, less than, quarter)</li> <li>• time (quicker, slower, earlier, later).</li> </ul> <p>To recognise and know the value of different denominations of coins and notes.</p>	<p><b>Number: Fractions</b> Fractions of shapes and quantities &amp; fractions as numbers. Fractions are equal parts of a whole which can be a whole shape. Fractions can also be counted like any other numbers. Children can recognise and find half of objects, shapes and quantities.</p> <p><b>Geometry</b> 3D shapes are made up of 2D faces and they have depth/volume.</p> <p><b>Measures</b> To sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. To tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. To 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>Review all number work and focus in on essentials.</p> <p><b>Number: Fractions</b> To recognise, find and name a half as one of two equal parts of an object, shape or quantity. To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p>
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# Year 2

Autumn	Spring	Summer
<p><b>Number: Two digit numbers</b>            To count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward.            To recognise the place value of each digit in a two-digit number (tens, ones).            To identify, represent and estimate numbers using different representations, including the number line.            To compare and order numbers from 0 up to 100; use and = signs.            To read and write numbers to at least 100 in numerals and in words.            To use place value and number facts to solve problems.</p> <p><b>Calculating, Patterns &amp; Algebra + and –</b>            Children must understand = as ‘equivalent’, ‘the same as’ or ‘balances’.            Empty box problems can support this key idea, as can writing equations in different ways, altering where the = is placed.            We can partition numbers into two or more parts.            We can add two or more of these parts in any order (commutativity). Sometimes it is more efficient to put the larger number first but not always.</p>	<p><b>Number: Place Value</b>            To count in steps of 2, 3, and 5 from 0, and count in tens from any number, forward or backward.            To recognise the place value of each digit in a 2-digit number (tens, ones).            To identify, represent and estimate numbers using different representations, including the number line.            To compare and order numbers from 0 up to 100; use and = signs.            To read and write numbers to at least 100 in numerals and in words.            To use place value and number facts to solve problems.</p> <p><b>Number and Measure</b>            The position (place) of a digit in a number determines its value. We can partition numbers into tens and ones. We can position numbers on a number line to see their value relative to other numbers. We need standard units of measure in order to compare things more accurately and consistently.            Different metric units are understood and can be converted between e.g. m/cm, kg/g and children can choose appropriate unit of measure for task.</p>	<p><b>Number: Place Value</b>            To recognise the place value of each digit in a 2-digit number (tens, ones).            To identify, represent and estimate numbers using different representations, including the number line.            To compare and order numbers from 0 up to 100; use and = signs.            To read and write numbers to at least 100 in numerals and in words.</p> <p><b>Calculating, Patterns &amp; Algebra + and –</b>            To solve problems with addition and subtraction: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.            Applying their increasing knowledge of mental and written methods.            To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers.            To show that addition can be done in any order(commutative) and subtraction cannot.            To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</p>

<p>Numbers can be partitioned, the parts added, then recombined. Focus on calculations not counting on in ones. Use a whole-part model to picture addition and subtraction. Relate numbers to their parts (partitioning) and to multiples of 10 to bridge multiples of ten. E.g. <math>8 + 7 = 8 + 2 + 5</math> Drawing bar models will help children to picture which operation to do. Sometimes it's more efficient to 'take away' and sometimes it's more efficient to 'find the difference' when subtracting. Children can notice patterns in numbers and create sequences.</p> <p><b>Geometry</b> To order and arrange combinations of mathematical objects in patterns. To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line. To identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. To identify and describe the properties of 3D shapes including the number of edges, vertices and faces. To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid.</p>	<p><b>Calculating, Patterns &amp; Algebra + and –</b> To solve problems with addition and subtraction: Using concrete objects and pictorial representations, including those involving numbers, quantities and measures. Applying their increasing knowledge of mental and written methods. To add and subtract using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a 2-digit number and tens; two 2-digit numbers; adding three one-digit numbers. To show that addition can be done in any order (commutative) and subtraction cannot. To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</p> <p><b>Statistics</b> To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. To ask and answer simple questions by counting the number of object in each category and sorting the categories by quantity. To ask and answer questions about totalling and compare categorical data.</p> <p><b>Calculating, Patterns &amp; Algebra: X and ÷</b> 'Unitisation' means children count in 'groups of' a number. Division can be seen as 'how many groups of'. The inverse relationship can also be explored through arrays. These whole/ (equal) part</p>	<p><b>Calculating, Patterns &amp; Algebra: X and ÷</b> To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. To 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. To recognise and use the inverse relationship between multiplication and division in calculations. To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.</p> <p><b>Measures: Time</b> To compare and sequence intervals of time. To 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><b>Geometry</b> The properties of a shape inform as to what name it should have and help us to group shapes with the same or similar properties. Shapes have the same names and properties when they are at different orientations or scaled to a different size (still congruent). 2D shapes are closed shapes. 2D and 3D shapes can be sorted by their properties. To identify and describe the properties of 2D and 3D shapes, including the number of sides,</p>
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<p><b>Number: Fractions as numbers</b> To recognise, find, name and write fractions <math>1/3</math>, <math>1/4</math>, <math>2/4</math> and <math>3/4</math>. To write simple fractions for example, <math>1/2</math> of 6 = 3 and recognise the equivalence of two quarters and one half.</p> <p><b>Calculating, Patterns &amp; Algebra X and Division</b> To recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. To calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication, division and equals signs. To recognise and use the inverse relationship between multiplication and division in calculations. To show that multiplication of two numbers can be done in any order (commutative) and division for one number by another cannot. To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.</p> <p><b>Statistics</b> To interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</p>	<p>relationships can be drawn using bar models. Children find patterns and links between the 2 and 4 X tables, and the 5 and 10 X tables. They can use these facts to find division facts. Doubling and halving by partitioning two digit numbers and recombining (distributive law) lays the foundation for later multiplication. Solve simple word problems using the four operations, while developing and using different methods to record and explain addition and subtractions of two–digit numbers.</p> <p><b>Number: fractions of numbers</b> Fractions are equal parts of a whole. <math>1/3</math>, <math>1/4</math>, <math>2/4</math> and <math>3/4</math> are recognised and pupils can find these fractions of objects or quantities. Equivalence is started to be introduced e.g. <math>2/4</math> and <math>1/2</math></p> <p><b>Measures: Money</b> To choose and use appropriate standard units to estimate and measure length/ height in any direction (m/cm/mm); mass (kg/g); temperature (<math>^{\circ}</math>C); volume and capacity (litres/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. To compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math>.</p> <p><b>Geometry</b></p>	<p>symmetry in a vertical line, edges, vertices, and faces. To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid. To compare and sort common 2D and 3D shapes and everyday objects. To solve one-step problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.</p> <p><b>Statistics</b> To interpret and construct simple pictograms, tally charts, block diagrams and simple tables. To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. To ask and answer questions about totalling and compare categorical data.</p> <p><b>Fractions</b> To recognise, find, name and write fractions <math>1/3</math>, <math>1/4</math>, <math>2/4</math> and <math>3/4</math>. To write simple fractions for example, <math>1/2</math> of 6 = 3 and recognise the equivalence of two quarters and one half. To recognise, find, name and write fractions <math>1/3</math>, <math>1/4</math>, <math>2/4</math>, and <math>3/4</math> of a length shape, set of objects or quantity.</p>
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<p>To ask and answer simple questions by counting the number of object in each category and sorting the categories by quantity. To ask and answer questions about totalling and compare categorical data.</p> <p><b>Measure</b> To choose and use appropriate standard units to estimate and measure length/ height in any direction; mass; temperature; volume and capacity to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. To compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math>. To recognise and use the symbols for pounds and pence; combine amounts to make a particular value To find different combinations of coins that equal the same amounts of money To solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. To order and arrange combinations of mathematical objects in patterns. To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line. To compare and sequence intervals of time.</p>	<p>To identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line. To identify and describe the properties of 3D shapes including the number of edges, vertices and faces. To identify 2D shapes on the surface of 3D shapes, for example circle on a cylinder and a triangle on a pyramid. To use mathematical vocabulary to describe position, direction and movement, including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise) and movement in a straight line. To 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>	
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To 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.		
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## Year 3

<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<p><b>Number: Whole numbers to 1,000</b> To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). To compare and order numbers up to 1000. To read and write numbers up to 1000 in numerals and in words. To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. To identify, represent and estimate numbers using different representations.</p> <p><b>Number: addition and subtraction</b> To add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction.</p>	<p><b>Number: Place value</b> To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). To compare and order numbers up to 1000. To identify, represent and estimate numbers using different representations. To read and write numbers up to 1000 in numerals and in words. To solve number problems and practical problems involving these ideas.</p> <p><b>Number: addition and subtraction</b> To add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds. To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>	<p><b>Number: Place Value</b> To count from 0 in multiples of 4, 8, 50 and 100; finding 10 or 100 more or less than a given number. To recognise the place value of each digit in a three-digit number (hundreds, tens, ones). To compare and order numbers up to 1000. To identify, represent and estimate numbers using different representations. To read and write numbers up to 1000 in numerals and in words. To solve number problems and practical problems involving these ideas.</p> <p><b>Number: addition and subtraction</b> To add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds. To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>



<p>To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p><b>Number: Multiplication and division</b> To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. To 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. To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> <p><b>Calculating, Patterns &amp; Algebra + and –</b> Focus on calculations rather than counting on in ones. Relate numbers to their parts (partitioning) and to multiples of 10 to bridge multiples of ten. E.g. <math>8 + 7 = 8 + 2 + 5</math>. <math>15 - 8</math> should be tackled by thinking what needs to be added to 8 to make 15. This is the concept of ‘difference’. Addition and subtraction sums involving more complex numbers should be solved using column</p>	<p>To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p><b>Number: multiplication and division</b> To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. To 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. To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> <p><b>Calculating, Patterns &amp; Algebra: X and ÷</b> This unit of work is one of scaling: When we multiply by 10, the product is 10 times larger. This understanding is the basis for grid method and formal multiplication. The distributive law is also important as children explore how numbers are partitioned, multiplied and recombined. Multiplication and division’s</p>	<p>To add and subtract numbers with up to three digits, using the efficient written methods of columnar addition and subtraction. To estimate the answer to a calculation and use inverse operations to check answers. To solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p><b>Number: Multiplication and division</b> To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. To 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. To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> <p><b>Calculating, Patterns &amp; Algebra +, –, x and division</b> Use whole-part and relationships to see how numbers relate to each other. This is how the inverse is explored. Mental methods of subtraction (finding the difference) should be used when most efficient.</p>
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<p>addition and subtraction, with more able students confident with 'taking over columns'</p> <p><b>Geometry</b> To draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them with increasing accuracy. To identify horizontal, vertical, perpendicular and parallel lines in relation to other lines.</p> <p><b>Number: Fractions</b> To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. To compare and order unit fractions, and fractions with the same denominators. To solve problems that involve all of the above.</p> <p><b>Calculating, Patterns &amp; Algebra X and Division</b> Multiplication is related to times tables as repeated addition. The big idea is one of 'unitisation' where children count in 'groups of' a number. Division can be seen as 'how many groups of'. The inverse relationship will also be explored through arrays.</p> <p><b>Measuring:</b> To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity</p>	<p>inverse relationship is the basis of solving division problems and finding remainders.</p> <p><b>Number: fractions of numbers</b> To 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. To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. To recognise and show, using diagrams, equivalent fractions with small denominators. To compare and order unit fractions, and fractions with the same denominators. To solve problems that involve all of the above.</p> <p><b>Geometry Angles &amp; properties of shape</b> To recognise angles as a property of shape and associate angles with turning. To 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><b>Measure: Money and length/mass and capacity</b> To add and subtract amounts of money to give change, using both £ and p in practical contexts.</p>	<p>During this unit of work, change is found when subtracting amounts of money. Often, 'find the difference' is the most efficient strategy. This understanding is the basis for grid method and formal multiplication. The distributive law is also important as children explore how numbers are partitioned, multiplied and recombined. Multiplication and division's inverse relationship is the basis of solving division problems and finding remainders.</p> <p><b>Measures: Time</b> To tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight. To know the number of seconds in a minute and the number of days in each month, year and leap year. To compare durations of events, for example to calculate the time taken by particular events or tasks. To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p> <p><b>Number: fractions as numbers</b> To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal</p>
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<p>(l/ml). To measure the perimeter of simple 2D shapes.</p> <p>To 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>To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as am/pm, morning, afternoon, noon and midnight.</p> <p>To know the number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>To compare durations of events, for example to calculate the time taken by particular events or tasks.</p> <p><b>Statistics</b></p> <p>To interpret and present data using bar charts, pictograms and tables</p> <p>To solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.</p>	<p>To measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	<p>parts and in dividing one-digit numbers or quantities by 10.</p> <p>To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.</p> <p>To recognise and show, using diagrams, equivalent fractions with small denominators.</p> <p>To add and subtract fractions with the same denominator within one whole (<math>5/7 + 1/7 = 6/7</math>).</p> <p>To solve problems that involve all of the above.</p> <p><b>Statistics: Construct and interpret bar charts using scales</b></p> <p>To interpret and present data using bar charts, pictograms and tables.</p> <p>To solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.</p> <p><b>Geometry: Identifying horizontal, vertical, and curved lines</b></p> <p>To draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them with increasing accuracy.</p> <p>To recognise angles as a property of shape and associate angles with turning.</p> <p>To 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>
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## Year 4

Autumn	Spring	Summer
<p><b>Number: four digit numbers</b> The value of a digit is determined by its position in a number. Place value must be explored in terms of the value of each digit (additive partitioning) and its overall value, as well as its position relative to other numbers. Count in multiples of 6, 7, 8, 9, 10, 25, 50, 100 and 1000 from a given number</p> <p><b>Number: Addition and subtraction</b> To add and subtract numbers with up to four digits using the efficient written methods of columnar addition and subtraction where appropriate. To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p><b>Number: Multiplication and Division</b> To recall multiplication facts for multiplication tables up to <math>12 \times 12</math>.</p>	<p><b>Number: Place Value</b> To find 1000 more or less than a given number. To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). To order and compare numbers beyond 1000. To identify, represent and estimate numbers using different representations. To round any number to the nearest 10, 100 or 1000. To solve number and practical problems that involve all of the above and with increasingly large positive numbers. To read Roman numerals to 100 (I to C) and understand how, over time, the numeral system changed to include the concept of zero and place value.</p> <p><b>Number: Addition and subtraction</b> To add and subtract numbers with up to four digits using the efficient written methods of</p>	<p><b>Number: Place Value</b> To count in multiples of 6, 7, 9, 25 and 1000. To find 1000 more or less than a given number. To count backwards through zero to include negative numbers. To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). To order and compare numbers beyond 1000. To identify, represent and estimate numbers using different representations. To round any number to the nearest 10, 100 or 1000. To solve number and practical problems that involve all of the above and with increasingly large positive numbers.</p> <p><b>Number: Addition and subtraction</b> To estimate and use inverse operations to check answers to a calculation.</p>

<p>To 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.</p> <p>To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.</p> <p>To recognise and use factor pairs and commutativity in mental calculations.</p> <p>To multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.</p> <p><b>Calculating, Patterns &amp; Algebra</b></p> <p>Formal written calculations should be used where necessary: column addition, column subtraction, long multiplication and chunking and short division.</p> <p>Rounding can help to get a sense of the size of the answer.</p> <p>Rounding numbers to the nearest 10, 100 or 1000.</p> <p>Numbers should be looked at before a method is chosen to decide which will be most efficient.</p> <p><b>Statistics</b></p> <p>To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p>	<p>columnar addition and subtraction where appropriate.</p> <p>To estimate and use inverse operations to check answers to a calculation.</p> <p>To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To estimate, compare and calculate different measures, including money in pounds and pence.</p> <p><b>Number: Multiplication and division</b></p> <p>To recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</p> <p>To 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.</p> <p>To multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.</p> <p><b>Number: fractions and decimals</b></p> <p>To count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.</p> <p>To 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>To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>To add and subtract numbers with up to four digits using the efficient written methods of column addition and subtraction where appropriate.</p> <p>To estimate and use inverse operations to check answers to a calculation.</p> <p>To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> <p><b>Number: Multiplication and division</b></p> <p>To recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</p> <p>To 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.</p> <p>To recognise and use factor pairs and commutativity in mental calculations.</p> <p>To multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which n objects are connected to m objects.</p> <p><b>Number: fractions of numbers</b></p>
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<p>To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs.</p> <p><b>Number: Fractions as numbers</b> Fractions are equal parts of a whole and they represent a relationship between a whole and parts of a whole.</p> <p>Equivalency: fractions that look very different in their notation may be equal. Recognise and show families of common equivalent fractions with denominations up to 12. Fractions can be added and subtracted from one another including fractions with different denominators. Can add or subtract 2 fractions with the same denominator. Fractions and decimals can be converted between one another from tenths, hundredths and key decimals. Know that <math>1/10 = 0.1</math>, <math>0.6 = 6/10</math>, <math>0.01 = 1/100</math>, <math>3/100 = 0.03</math>, etc.</p> <p><b>Measures</b> To convert between different units of measure (for example, kilometre to metre; hour to minute). To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</p>	<p>To recognise and show, using diagrams, families of common equivalent fractions. To recognise and write decimal equivalents of any number of tenths or hundredths. To recognise and write decimal equivalents to <math>1/4</math>; <math>1/2</math>; <math>3/4</math>. To 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 units, tenths and hundredths. To round decimals with one decimal place to the nearest whole number. To compare numbers with the same number of decimal places up to two decimal places. To solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p><b>Calculating, Patterns &amp; Algebra: X and ÷</b> Ideas to be explored are partitioning, scaling and recombining: When we multiply by 10, the product is 10 times larger. This understanding is the formal multiplication. The distributive law is also important as children explore how numbers are partitioned, multiplied and recombined. Multiplication and division's inverse relationship is the basis of solving division problems and finding remainders. Making links and generalisations between facts is a crucial step. If I know... I also know...</p> <p><b>Measures</b></p>	<p>To count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. To 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. To recognise and show, using diagrams, families of common equivalent fractions. To add and subtract fractions with the same denominator.</p> <p><b>Geometry:</b> To convert between different units of measure (kilometre to metre; hour to minute). To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. To find the area of rectilinear shapes by counting. To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. To identify acute and obtuse angles and compare and order angles up to two right angles by size. To identify lines of symmetry in 2D shapes presented in different orientations. To describe positions on a 2D grid as coordinates in the first quadrant. To describe movements between positions as translations of a given unit to the left/right and up/down. To plot specified points and draw sides to complete a given polygon.</p>
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<p>To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p> <p>To estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>To read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>To solve problems involving converting from hrs to mins; minutes to seconds; years to months; weeks to days.</p> <p><b>Geometry:</b></p> <p>To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>To identify lines of symmetry in 2D shapes presented in different orientations.</p> <p>To complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p>To describe positions on a 2D grid as coordinates in the first quadrant.</p> <p>To plot specified points and draw sides to complete a given polygon.</p> <p>To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>To identify acute and obtuse angles and compare and order angles up to two right angles by size.</p>	<p>To convert between different units of measure (kilometre to metre; hour to minute).</p> <p>To estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>To read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p> <p><b>Statistics:</b></p> <p>To interpret and present discrete data using bar charts and continuous data using time graphs.</p> <p>To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs.</p> <p><b>Geometry:</b></p> <p>To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>To identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>To describe positions on a 2D grid as coordinates in the first quadrant.</p> <p>To describe movements between positions as translations of a given unit to the left/right and up/down.</p> <p>To plot specified points and draw sides to complete a given polygon.</p>	<p><b>Measurement:</b></p> <p>To convert between different units of measure (kilometre to metre; hour to minute).</p> <p>To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</p> <p>To find the area of rectilinear shapes by counting.</p> <p>To estimate, compare and calculate different measures, including money in pounds and pence.</p> <p><b>Statistics:</b></p> <p>To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and simple line graphs.</p>
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## Year 5

Autumn	Spring	Summer
<p><b>Number: Place Value</b>            The value of a digit is determined by its position. Place value must be explored in terms of the value of each digit (additive partitioning) and its overall value, as well as its position relative to other numbers, including tenths and hundredths. The number of digits in a number does not necessarily make it larger or smaller e.g. <math>0.35 &lt; 0.5</math>            To read, write, order and compare numbers at least to 1,000,000 and determine the value of each digit.            To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.</p> <p><b>Calculating, Patterns &amp; Algebra + and –</b>            Can you do it mentally? Challenge children to see mental methods to solve problems where appropriate, modelling mental partitioning. Rounding can help to get a sense of the size of the answer or to find an equivalent calculation,</p>	<p><b>Number: Place Value/Negative Numbers</b>            To read, write, order and compare numbers at least to 1,000,000 and determine the value of each digit.            To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.            To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero.            To round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.            To solve number problems and practical problems that involve all of the above.</p> <p><b>Number: addition and subtraction</b>            To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction).            To add and subtract numbers mentally with increasingly large numbers.</p>	<p><b>Number: Place Value/Roman Numerals</b>            To count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.            To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero.            To round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000.            To solve number problems and practical problems that involve all of the above.            To read numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p><b>Number: addition and subtraction</b>            To add and subtract whole numbers with more than 4 digits, including using efficient written methods (columnar addition and subtraction).            To add and subtract numbers mentally with increasingly large numbers.</p>



<p>then adjust. Numbers should be looked at before a method is chosen to decide which will be most efficient.</p> <p>Children can accurately use formal written methods: column addition, column subtraction, formal written multiplication, short division, chunking, long division and apply this knowledge to solve problems.</p> <p><b>Measures</b></p> <p>To convert between different units of measure (for example, kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre).</p> <p>To understand and use equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.</p> <p>To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</p> <p>To calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</p> <p><b>Calculating, Patterns &amp; Algebra X and Division</b></p> <p>In Year 5, the key is to understand the links between factors, multiples, composite and prime numbers, rather than seeing these as separate facts to be learnt. Factors and multiples are</p>	<p>To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>To solve problems involving numbers up to three decimal places.</p> <p><b>Number: multiplication and division</b></p> <p>To multiply and divide numbers mentally drawing upon known facts.</p> <p>To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p> <p>To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p>To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers.</p> <p>To recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</p> <p>To calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</p> <p><b>Number: fractions and % of numbers</b></p> <p>To recognise mixed numbers and improper fractions and convert from one form to the</p>	<p>To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>To solve problems involving numbers up to three decimal places.</p> <p><b>Number: multiplication and division</b></p> <p>To multiply numbers up to 4 digits by a one- or two-digit number using an efficient written method, including long multiplication for two-digit numbers.</p> <p>To divide numbers up to 4 digits by a one-digit number using the efficient written method of short division and interpret remainders appropriately for the context.</p> <p>To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p> <p><b>Number: decimals/ fractions/ percentages</b></p> <p>To recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical statements <math>&gt; 1</math> as a mixed number: <math>2/5 + 4/5 = 6/5 = 11/5</math>.</p> <p>To add and subtract fractions with the same denominator and multiples of the same number.</p> <p>To read, write, order and compare numbers with up to three decimal places.</p> <p>To read and write decimal numbers as fractions (for example, <math>0.71 = 71/100</math>).</p>
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<p>linked in an inverse relationship. Making links and generalisations between facts is a crucial step. If I know... I also know... Many big ideas come together with written multiplication and division. Unitisation, scaling, inverse relationships, partitioning and recombining and the distributive law. Children must have a firm understanding of what multiplication and division are from previous years, as well as their inverse relationships. They must also see how fractions are connected to division.</p> <p><b>Number: Fractions and decimals</b>  To compare and order fractions whose denominators are all multiples of the same number.  To identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.  To read and write decimal numbers as fractions (for example, <math>0.71 = 71/100</math>).  To read, write, order and compare numbers with up to three decimal places.  To read and write decimal numbers as fractions (for example, <math>0.71 = 71/100</math>).  To round decimals with two decimal places to the nearest whole numbers and to one decimal place. To recognise and use thousandths and relate them to tenths, hundredths and decimals equivalents.  To solve problems involving number up to three decimal places.</p>	<p>other; write mathematical statements <math>&gt; 1</math> as a mixed number: <math>2/5 + 4/5 = 6/5 = 11/5</math>.  To add and subtract fractions with the same denominator and multiples of the same number.  To recognise mixed numbers and improper fractions and convert from one form to the other; write mathematical statements <math>&gt; 1</math> as a mixed number: <math>2/5 + 4/5 = 6/5 = 11/5</math>.  To add and subtract fractions with the same denominator and multiples of the same number.  To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.  To 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 hundred, and as a decimal fraction.</p> <p><b>Geometry &amp; Measures</b>  To convert between different units of measure (kilometre and metre; metre and centimetre; centimetre and millimetre; kilogram and gram; litre and millilitre).  To understand and use basic equivalences between metric units and common imperial units such as inches, pounds and pints.  To use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.  To understand and use basic equivalences between metric units and common imperial units such as inches, pounds and pints.</p>	<p>To recognise and use thousandths and relate them to tenths, hundredths and decimals equivalents.  To round decimals with two decimal places to the nearest whole numbers and to one decimal place.  To 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 hundred, and as a decimal fraction.  To solve problems which require knowing percentage and decimal equivalents of <math>1/2</math>, <math>1/4</math>, <math>1/5</math>, <math>4/5</math> and those with a denominator of a multiple of 10 or 25.</p> <p><b>Calculating, Patterns &amp; Algebra: all operations 4</b>  All four operations are linked through inverse relationships. They should be used in combination, in multi-step problems and to check answers. All four operations can be used in relation to fractions and decimals.  Letters of symbols are used to represent unknown numbers in a symbol sentence (i.e. an expression or equation) or instruction.  Challenge: Children can use knowledge of patterns in sequences to find the Nth term of sequences.  Linear equations can be solved using the balancing method.  Children understand the purpose of brackets in equations and are able to expand and factors expressions.</p>
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<p><b>Geometry:</b> To distinguish between regular and irregular polygons based on reasoning about equal sides and angles. To use the properties of rectangles to deduce related facts and find missing lengths and angles. To identify 3D shapes including cubes and cuboids from 2D representations.</p> <p><b>Statistics</b> To complete, read and interpret information in tables, including timetables.</p>	<p>To estimate volume and capacity To 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><b>Geometry:</b> To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles To draw given angles, and measure them in degrees (<math>^{\circ}</math>). To identify: 0 angles at a point and one whole turn (total <math>360^{\circ}</math>) 0 angles at a point on a straight line and <math>1/2</math> a turn (total <math>180^{\circ}</math>) 0 other multiples of <math>90^{\circ}</math>. To use the properties of a rectangle to deduce related facts and find missing lengths and angles. To distinguish between regular and irregular polygons based on reasoning about equal sides and angles. To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. To calculate and compare the area of squares and rectangles including using standard units, square centimetres (<math>\text{cm}^2</math>) and square metres (<math>\text{m}^2</math>) and estimate the area of irregular shapes. To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. To estimate volume (e.g. using <math>1 \text{ cm}^3</math> blocks to build cubes and cuboids) and capacity (e.g. using water).</p> <p><b>Statistics:</b> To complete, read and interpret information in tables, including timetables.</p>
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		To solve comparison, sum and difference problems using information presented in a line graph.
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## Year 6

Autumn	Spring	Summer
<p><b>Number: Place Value</b> To read, write, order and compare numbers at least to 10,000,000 and determine the value of each digit. To round any whole number to a required degree of accuracy. To solve number problems and practical problems that involve all of the above.</p> <p><b>Calculating, Patterns &amp; Algebra: all operations</b> Deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. The associative, distributive and commutative laws are useful in making decisions and adjusting equations. Standard written algorithms use the structures of the maths to produce efficient methods of calculation. Long division is confidently used at the appropriate time and remainders are written as decimals.</p>	<p><b>Number: Place Value and problem solving</b> To read, write, order and compare numbers at least to 10,000,000 and determine the value of each digit. To round any whole number to a required degree of accuracy. To use negative numbers in context, and calculate intervals across zero. To solve number problems and practical problems that involve all of the above.</p> <p><b>Number: addition and subtraction</b> To perform mental calculations, including with mixed operations and large numbers. To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. <b>Challenge:</b></p>	<p><b>Revision &amp; SATS</b></p> <ul style="list-style-type: none"> <li>• Number- Writing and ordering numbers to 10,000,000, rounding, negative numbers, problem solving, roman numerals</li> <li>• Calculation – Using formal written methods for all four calculations, including problems with fractions, rounding to check answers, knowledge of prime numbers, square and cube numbers</li> <li>• Fractions – compare and order, mixed to improper, converting to percentages and decimals</li> <li>• Measure- convert between metric, have knowledge of converting from imperial, perimeter, area and volume, reading scales</li> <li>• Geometry - 2D shapes, 3D shapes, position and direction, angles (measuring and constructing)</li> </ul>

<p>Negative numbers can be added, subtracted, multiplied and divided accurately.  All calculation knowledge is used across mathematics curriculum to solve complex problems and investigate knowledge.  To perform mental calculations, including with mixed operations and large numbers.  To use their knowledge of the order of operations to carry out calculations involving the four operations.  To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.  To solve problems involving addition, subtraction, multiplication and division.  To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p><b>Number: Fractions</b>  To compare and order fractions, including fractions <math>&gt;1</math>.  To use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</p> <p><b>Number and Calculation: Ratio &amp; Proportion</b>  Problems involving ratio and proportion can be solved using knowledge of number relationships, factors, fractions. Ratio problems and problems with multiple unknowns can be visualised using bar models. It is important to distinguish</p>	<p><b>Number: multiplication and division</b>  To perform mental calculations, including with mixed operation and large numbers.  To identify common factors, common multiples and prime numbers (Children could practise using mental methods that involve using factors, for example.)  To use their knowledge of the order of operations to carry out calculations involving the four operations.  To use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.  To multiply one-digit numbers with up to two decimal places by whole numbers.  To use written division methods in cases where the answer has up to two decimal places.  To solve problems which require answers to be rounded to specified degrees of accuracy.</p> <p><b>Number: Measures</b>  To read a scale, first work out how much each mark on the scale represents. The unit of measure must be identified before measuring and has a bearing on the accuracy and practicality of the measurement taken.</p> <p><b>Calculating Patterns &amp; Algebra: all operations; Position; Statistics &amp; Measures</b>  There are connections between factors, multiples and prime numbers and between fractions, division and ratios. Letters of symbols</p>	<ul style="list-style-type: none"> <li>• Statistics – compare, solve problems, find average, read and interpret timetables</li> <li>• Decimals are an extension of our whole number system. Decimals are a type of fraction. Calculating, Patterns &amp; Algebra: all operations 4 weeks Solving problems using bar models.</li> </ul> <p><b>Geometry:</b>  Spirals 2 weeks Shapes and patterns can be generated by number sequences. Maths is beautiful!  Problem Solving 3 weeks Maths is about more than finding ‘the right answer’. It’s about reasoning and proving your thinking to convince yourself, a friend and others. It is also about extrapolating from that answer to generalise.</p>
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<p>between situations with an additive change or a multiplicative change (which involves ratio).</p> <p><b>Statistics</b> To interpret and construct pie charts and line graphs and use these to solve problems.</p> <p><b>Geometry</b> To illustrate and name parts of circles, including radius, diameter and circumference. To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. To draw 2D shapes using given dimensions and angles. To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. To recognise, describe and build simple 3D shapes, including making nets.</p> <p><b>Measures:</b> To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate. To 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 three decimal places.</p>	<p>are used to represent unknown numbers in a symbol sentence (i.e. an expression or equation) or instruction. Usually, but not necessarily, in any one equation or instruction, different letters or different symbols represent different unknown numbers. A value is said to 'solve' a symbol sentence if it satisfies it i.e. it results in a true statement. A linear sequence of numbers is where the difference between neighbouring terms is constant. The relationship can be generated in two ways: the rule can be recursive (finding one number based on the preceding number) = term to term; or ordinal (the position of the number in the sequence generates the term) = position to term. Children to use this knowledge to find the nth term. Linear sequences to be solved using the balancing method. Children to apply knowledge of algebra to use formula to solve problems.</p> <p><b>Geometry, Algebra, Ratio &amp; Measures</b> AREA, PERIMETER SCALE FACTORS FORMULAE FOR AREA To solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places, where appropriate. To 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 three decimal places.</p>	
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<p>To convert between miles and kilometres.</p>	<p>To calculate the area of parallelograms and triangles.</p> <p>To recognise when it is necessary to use the formulae for area and volume of shapes.</p> <p>To add and subtract fractions with different denominators, using the concept of equivalent fractions.</p> <p>To associate a fraction with division to calculate decimal fraction equivalents (0.375) for a simple fraction (<math>\frac{3}{8}</math>).</p> <p>To multiply simple pairs of proper fractions, writing the answer in its simplest form (<math>\frac{1}{4} \div \frac{1}{2} = \frac{1}{8}</math>).</p> <p>To divide proper fractions by whole numbers (<math>\frac{1}{3} \div 2 = \frac{1}{6}</math>).</p>	
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