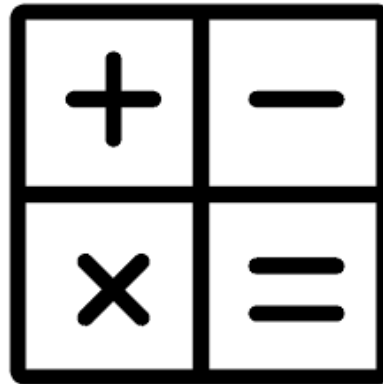




## Mathematics at Coningsby St. Michael's Church of England Primary school



We teach maths to develop independent, reflective problem solvers who can apply mathematical logic to everyday life experiences.

## Mathematics Vision statement

'Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.'

(National Curriculum, 2014)

A mastery approach is used to teach mathematics at Coningsby St Michael's to develop a deep and secure mathematical knowledge. We aim for all children to have a positive experience of maths through providing them with a concrete, pictorial abstract route to their learning. We aspire for all children to reason, conjecture and apply their mathematics using the correct mathematical vocabulary to a range of different problem solving situations including real life scenarios.

The mathematics curriculum is taught in discrete daily lessons in all year groups. Each day starts with 10 minutes of maths morning work to revisit, rehearse, recall, refresh and retrieve. Each year group also has a daily 15 minutes mental fluency session to teach practise and apply mental fluency and key instant recall facts. Within the daily mathematics sessions 2 minutes of counting and 2 minutes of language development occur everyday.

To ensure coverage of the National Curriculum Mathematics objectives we have created our own spiral curriculum. We use Power Maths, White Rose, Nrich, I See Maths Reasoning documents and NCTEM mastery documents to support teaching and learning.

## Long Term Plan

AUTUMN TERM – 14 WEEKS							
WK	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Reception Baseline Assessments	Measurement Time		Measurement Time		Number Number & Place Value	Number Number & Place Value
2							
3	Number - counting	Number Number and Place Value		Number Number and Place Value		Number Mental Methods	Number Mental Methods
4	Number – comparison					Number Addition	Number Addition & Subtraction
5						Number – cardinality	Number Subtraction
6	Measurement Geometry Properties of Shape						
7	Number – composition	Number Subtraction		Number Subtraction		Number Mental Methods	Number Division
8						Number Multiplication	
9	Number - counting	Measurement Money		Measurement Perimeter	Measurement Perimeter & Area	Number Division	Number Multiplication & Division Fractions
10	Number - counting			Number Multiplication and Division Number & Place Value		Number Multiplication & Division Measurement	Fractions
11	Pattern	Number Multiplication Number & Place Value		Number Multiplication	Number Multiplication & Division		
12				Number Division	Fractions	Fractions Measurement	
13	Spatial awareness	Geometry Properties of 2D shapes		Geometry Properties of Shape		Geometry Position & Direction	Geometry Position & Direction
14	Shape	Assessment		Assessment		Assessment Measurement	Assessment

**SPRING TERM – 12 WEEKS**

WK	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Number – counting	Number Number and Place Value		Number Number and Place Value		Number Number and Place Value	Number Number and Place Value
2		Number Addition		Number Addition		Number Addition	Number Addition & Subtraction Statistics
3	Number – counting	Number Subtraction		Number Subtraction		Number Subtraction	Number Multiplication & Division Fractions
4	Number – comparison			Statistics		Geometry Properties of Shape	Fractions
5	Number – composition	Number Multiplication Number & Place Value		Fractions		Number Multiplication	Ratio & Proportion
6		Number Division				Number Division	Ratio & Proportion Statistics
7	Measure – length, weight & capacity	Number Division		Number Multiplication & Division		Fractions	Measurement Algebra
8				Number Multiplication			Geometry Properties of Shape
9	Pattern	Number Fractions		Number Division		Number Multiplication & Division	Geometry Properties of Shape Measurement Algebra
10		Measurement Time				Geometry Properties of Shape Measurement	Ratio & Proportion
11	Spatial awareness	Geometry Properties of Shape		Measurement Money		Fractions	Algebra
12	Shape	Assessment		Assessment		Assessment Measurement	Assessment Measurement

**SUMMER TERM – 13 WEEKS**

WK	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
1	Number – counting	Number Number & Place Value	Statistics	Number Addition		Number Number and Place Value	Revision and Consolidation
2	Number – comparison	Number Addition		Number Subtraction		Number Addition	
3	Number – composition	Number Subtraction		Fractions		Number Subtraction	
4	Number – composition	Number Addition & Subtraction				Statistics	
5	Number – composition	Number Multiplication	Measurement Mass, Volume & Capacity		Measurement Different Measures Fractions	Number Multiplication and Division	KS2 Assessments
6	Number – composition	Number Division	Measurement Time			Number Multiplication	Measurement Time
7	Number – composition	Fractions				Number Division	Measurement Time Statistics
8		Geometry Position & Direction	Number Multiplication	Measurement Number Multiplication and Division	Number Multiplication		
9	Measure - time	Measurement Length & Height		Number Division		Measurement Time	Number Division
10	Shape	Measurement Mass/Weight		Number Multiplication and Division		Measurement Time Statistics	Measurement Number Multiplication and Division
11	Shape	Measurement Capacity & Volume	Measurement Capacity, Volume & Temperature	Geometry Properties of Shape		Fractions	Measurement Algebra
12	Pattern	Measurement Time		Geometry Properties of Shape	Geometry Position and Direction		Geometry Properties of Shape
13		Assessment		Assessment		Assessment Measurement	Assessment

## Progression through the skills

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Counting	<ul style="list-style-type: none"> <li>- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>- Count numbers 10 100 in numerals; count in multiples of twos, fives and tens</li> </ul>	<ul style="list-style-type: none"> <li>- Count in steps of 2, 3 and 5 from 0, and in tens from any number forward and backward.</li> </ul>	<ul style="list-style-type: none"> <li>- Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> </ul>	<ul style="list-style-type: none"> <li>- Count in multiples of 6, 7, 9, 25 and 1000.</li> <li>- Count backwards through zero to include negative numbers.</li> </ul>	<ul style="list-style-type: none"> <li>- Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>- Count forwards and backwards with positive and negative whole numbers, including through zero.</li> </ul>	
Place Value: Represent	<ul style="list-style-type: none"> <li>- Identify and represent numbers using objects and pictorial representations.</li> <li>- Read and write numbers to 100 in numerals.</li> <li>- Read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<ul style="list-style-type: none"> <li>- Read and write numbers to at least 100 in numerals and in words.</li> <li>- Identify, represent and estimate numbers using different representations, including the number line.</li> </ul>	<ul style="list-style-type: none"> <li>- Identify, represent and estimate numbers using different representations.</li> <li>- Read and write numbers up to 1000 in numerals and in words.</li> </ul>	<ul style="list-style-type: none"> <li>- Identify, represent and estimate numbers using different representations.</li> <li>- Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li> </ul>	<ul style="list-style-type: none"> <li>- Read, write (order and compare) numbers to at least 1,000,000 and determine the value of each digit.</li> <li>- 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> </ul>
Place Value: Use PV and Compare	<ul style="list-style-type: none"> <li>- Given a number, identify one more and one less.</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise the place value of each digit in a two-digit number (tens, ones).</li> <li>- Compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</li> <li>- Compare and order numbers beyond 1000.</li> </ul>	<ul style="list-style-type: none"> <li>- Find 1000 more or less than a given number.</li> <li>- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones)</li> <li>- Order and compare numbers beyond 1000.</li> </ul>	<ul style="list-style-type: none"> <li>- (Read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> </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> </ul>
Place Value: Problems and Rounding		<ul style="list-style-type: none"> <li>- Use place value and number facts to solve problems.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve number problems and practical problems involving these ideas.</li> </ul>	<ul style="list-style-type: none"> <li>- Round any number to the nearest 10, 100 or 1000.</li> <li>- Solve number and practical problems that involve all the above and with increasingly large positive numbers.</li> </ul>	<ul style="list-style-type: none"> <li>- Interpret negative numbers in context.</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> </ul>	<ul style="list-style-type: none"> <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>

<b>Addition &amp; Subtraction: Recall, Represent, Use</b>	<ul style="list-style-type: none"> <li>- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</li> <li>- Represent and use number bonds and related subtraction facts within 20.</li> </ul>	<ul style="list-style-type: none"> <li>- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.</li> <li>- Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</li> <li>- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<ul style="list-style-type: none"> <li>- Estimate the answer to a calculation and use inverse operations to check answers.</li> </ul>	<ul style="list-style-type: none"> <li>- Estimate and use inverse operations to check answers to a calculation.</li> </ul>	<ul style="list-style-type: none"> <li>- Use rounding to check answers to calculations and determine in the context of a problem levels of accuracy.</li> </ul>	
<b>Addition &amp; Subtraction: Calculations</b>	<ul style="list-style-type: none"> <li>- Add and subtract one-digit and two-digit numbers to 20, including zero.</li> </ul>	<ul style="list-style-type: none"> <li>- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>a two-digit number and ones</li> <li>a two-digit number and tens</li> <li>two two-digit numbers adding three one-digit numbers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Add and subtract numbers mentally, including: <ul style="list-style-type: none"> <li>a three-digit number and ones</li> <li>a three-digit number and tens</li> <li>a three-digit number and hundreds.</li> </ul> </li> <li>- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li>- Add and subtract numbers mentally with increasingly large numbers.</li> </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> </ul>

<b>Addition &amp; Subtraction: Solve Problems</b>	<ul style="list-style-type: none"> <li>- Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing numbers problems such as <math>7 = ? - 9</math>.</li> </ul>	<ul style="list-style-type: none"> <li>- 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.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<ul style="list-style-type: none"> <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 and subtraction, multiplication and division and a combination of these including understanding the meaning of the equals sign.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>
<b>Multiplication &amp; Division: Recall, Represent, Use</b>		<ul style="list-style-type: none"> <li>- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</li> <li>- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</li> </ul>	<ul style="list-style-type: none"> <li>- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> </ul>	<ul style="list-style-type: none"> <li>- Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li>- 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.</li> <li>- Recognise and use factor pairs and commutativity in mental calculations.</li> </ul>	<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>- Recognise and use square numbers and cube numbers, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</li> </ul>	<ul style="list-style-type: none"> <li>- Identify common factors, common multiples and prime numbers.</li> <li>- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>

<b>Multiplication &amp; Division: Calculations</b>		<ul style="list-style-type: none"> <li>- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs.</li> </ul>	<ul style="list-style-type: none"> <li>- Write a 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.</li> </ul>	<ul style="list-style-type: none"> <li>- Multiply two-digit and three-digit numbers by a one-digit number using a formal layout.</li> </ul>	<ul style="list-style-type: none"> <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 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> </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 multiplications.</li> <li>- Divide numbers up to 4 digits by a two-digit whole number using 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> </ul>
	<b>Multiplication &amp; Division: Solve Problems</b>	<ul style="list-style-type: none"> <li>- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems involving multiplications and division, using materials, arrays and repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</li> <li>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li> </ul>

<b>Multiplication &amp; Division: Combined Operations</b>					<p>- Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p>	<p>- Use their knowledge of the order of operations to carry out calculations involving the four operations.</p>
<b>Fractions: Recognise and Write</b>	<p>- Recognise, find and name a half as one of two equal parts of an object, shape or quantity. - Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p>	<p>- Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</p>	<p>- Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. - Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. - Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.</p>	<p>- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p>	<p>- Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. - Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example, <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}</math>]</p>	
<b>Fractions: Compare</b>		<p>- Recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</p>	<p>- Recognise and show using diagrams, equivalent fractions with small denominators. - Compare and order unit fractions, and fractions with the same denominator.</p>	<p>- Recognise and show using diagrams, families of common equivalent fractions.</p>	<p>- Compare and order fractions whose denominators are all multiples of the same number.</p>	<p>- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. - Compare and order fractions, including fractions <math>&gt; 1</math></p>

<b>Fractions: Calculations</b>		- Write simple fractions for example $\frac{1}{2}$ of 6 =3.	- Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ ].	- Add and subtract fractions with the same denominator.	- Add and subtract fractions with the same denominator and denominators that are multiples of the same number. - Multiple proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. - Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ] - Divide proper fractions by whole numbers [for example $\frac{1}{3} \div 2 = \frac{1}{6}$ ]
<b>Fractions: Solve Problems</b>			- Solve problems that involve all of the above	- 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.		
<b>Decimals: Recognise and Write</b>				- Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ .	- Read and write decimal numbers as fractions [for example $0.71 = \frac{71}{100}$ ]. - Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	- Identify the value of each digit in numbers given to three decimal places.
<b>Decimals: Compare</b>				- Round decimals with one decimal place to the nearest whole number. - Compare numbers with the same number of decimal places up to two decimal places.	- Round decimals with two decimal places to the nearest whole number and to one decimal place. Read, write, order and compare numbers with up to three decimal places.	

<b>Decimals: Calculations &amp; Problems</b>				<ul style="list-style-type: none"> <li>- Find the effect of dividing a one or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems involving numbers up to three decimal places.</li> </ul>	<ul style="list-style-type: none"> <li>- Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</li> <li>- Multiple 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> </ul>
<b>Fractions, Decimals and Percentages</b>				<ul style="list-style-type: none"> <li>- Solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>	<ul style="list-style-type: none"> <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}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{12}{5}</math>, <math>\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>- Associate a fraction with division and calculate decimal fraction equivalents [for example 0.375]for a simple fractions [for example <math>\frac{3}{8}</math>]</li> <li>- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>

<b>Ratio and Proportion</b>						<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>
<b>Algebra</b>	<ul style="list-style-type: none"> <li>- Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems such as <math>7 = ? - 9</math></li> </ul>	<ul style="list-style-type: none"> <li>- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<ul style="list-style-type: none"> <li>- Solve problems including missing number problems.</li> </ul>			<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>

<b>Measurement: Using Measures</b>	<ul style="list-style-type: none"> <li>- Compare, describe and solve practical problems for: Lengths and heights [for example, long/short, longer/shorter, tall/short. double/half], Mass/weight [for example heavy/light, heavier than, lighter than] Capacity and volume {for example full/empty, more than, less than, half full, half, full, quarter] Time [for example quicker, slower, earlier, later] - Measure and begin to record the following: Lengths and heights Mass/weight Capacity and volume Time (hours, minutes, seconds)</li> </ul>	<ul style="list-style-type: none"> <li>- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using ruler, scales, thermometers and measuring vessels.</li> <li>- Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</li> </ul>	<ul style="list-style-type: none"> <li>- Measure, compare, add and subtract: Lengths (m/cm/mm); Mass (kg/g); Volume/capacity (l/ml).</li> </ul>	<ul style="list-style-type: none"> <li>- Convert between different units of measure {for example, kilometre to metre; hour to minute}.</li> <li>- Estimate, compare and calculate different measures.</li> </ul>	<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 millimetre).</li> <li>- Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</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> </ul>
<b>Measurement: Money</b>	<ul style="list-style-type: none"> <li>- Recognise and know the value of different denominations of coins and notes.</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</li> <li>- Find different combinations of coins that equal the same amounts of money.</li> <li>- Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> </ul>	<ul style="list-style-type: none"> <li>- Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> </ul>	<ul style="list-style-type: none"> <li>- Estimate, compare and calculate different measures, including money in pounds and pence.</li> </ul>	<ul style="list-style-type: none"> <li>- Use all four operations to solve problems involving measure [for example money]</li> </ul>	

## Measurement: Time

- Sequence events in chronological order using language [for example before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- Recognise and use language relating to dates, including days of the week, weeks, months and years.
- Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

- Compare and sequence intervals of time.
- 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.
- Know the number of minutes in an hour and the number of hours in a day.

- Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12 hour and 24 hour clocks.
- Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight.
- Know the number of seconds in a minute and the number of days in each month, year and leap year.
- Compare durations of events [for example to calculate the time taken by particular events or tasks]

- Read, write and convert time between analogue and digital 12 and 24 hour clocks.
- Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

- Solve problems involving converting between units of time.

- Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger units, and vice versa.

<b>Measurement: Perimeter, Area, Volume</b>			<ul style="list-style-type: none"> <li>- Measure the perimeter of simple 2-D shapes.</li> </ul>	<ul style="list-style-type: none"> <li>- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</li> <li>- Find the area of rectilinear shapes by counting squares.</li> </ul>	<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> <li>- Estimate volume [for example using 1cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example using water]</li> </ul>	<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>Geometry: 2-D Shapes</b>	<ul style="list-style-type: none"> <li>- Recognise and name common 2-D shapes [for example rectangles (including squares), circles and triangles]</li> </ul>	<ul style="list-style-type: none"> <li>- Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li>- Identify 2-D shapes on the surface of 3-D shapes (for example, a circle on a cylinder and a triangle on a pyramid)</li> <li>- Compare and sort common 2-D shapes and everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>- Draw 2-D shapes</li> </ul>	<ul style="list-style-type: none"> <li>- Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes.</li> <li>- Identify lines of symmetry in 2-D shapes presented in different orientations.</li> </ul>	<ul style="list-style-type: none"> <li>- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> <li>- Use the properties of rectangles to deduce related facts and find missing lengths and angles.</li> </ul>	<ul style="list-style-type: none"> <li>- Draw 2-D shapes using given dimensions and angles.</li> <li>- Compare and classify geometric shapes based on their properties and sizes.</li> <li>- Illustrate and name parts of a circle, including radius, diameter and circumference and know that the diameter is twice the radius.</li> </ul>
<b>Geometry: 3-D Shapes</b>	<ul style="list-style-type: none"> <li>- Recognise and name common 3-D shapes [for example cuboids (including cubes) pyramids and spheres]</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise and name common 3-D shapes [for example cuboids (including cubes) pyramids and spheres].</li> <li>- Compare and sort common 3-D shapes and everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>- Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</li> </ul>		<ul style="list-style-type: none"> <li>- Identify 3-D shapes including cubes and other cuboids from 2-D representations.</li> </ul>	<ul style="list-style-type: none"> <li>- Recognise, describe and build simple 3-D shapes including making nets.</li> </ul>

<b>Geometry: Angles and Lines</b>			<ul style="list-style-type: none"> <li>- Recognise angles as a property of shape or a description of a turn.</li> <li>- 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.</li> <li>- Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> </ul>	<ul style="list-style-type: none"> <li>- Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li>- Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li>- Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<ul style="list-style-type: none"> <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.</li> <li>- Identify: Angles at a point and one whole turn (total 360°) Angles at a point on a straight line and ½ a turn (total 180°) Other multiples of 90°</li> </ul>	<ul style="list-style-type: none"> <li>- Find unknown angles in any triangles, quadrilaterals and regular polygons.</li> <li>- Recognise angles where they meet at a point, are on a straight line or are vertically opposite and find missing angles.</li> </ul>
<b>Geometry: Position &amp; Direction</b>	<ul style="list-style-type: none"> <li>- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>	<ul style="list-style-type: none"> <li>- Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li>- Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation a turn and in terms of right angles for quarter, half and three-quarters turns (clockwise and anti-clockwise)</li> </ul>		<ul style="list-style-type: none"> <li>- Describe positions on a 2-D grid as coordinates in the first quadrant.</li> <li>- Describe movements between positions as translations of a given units to the left/right and up/down.</li> <li>- Plot specified points and draw sides to complete a given polygon.</li> </ul>	<ul style="list-style-type: none"> <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>- 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>Statistics: Present and Interpret</b>		<ul style="list-style-type: none"> <li>- Interpret and construct simple pictograms, tally chart, block diagrams and simple tables.</li> </ul>	<ul style="list-style-type: none"> <li>- Interpret and present data using bar charts, pictograms and tables.</li> </ul>	<ul style="list-style-type: none"> <li>- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> </ul>	<ul style="list-style-type: none"> <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> </ul>

<b>Statistics: Solve Problems</b>		<ul style="list-style-type: none"><li>- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</li><li>- Ask and answer questions about totalling and comparing categorical data.</li></ul>	<ul style="list-style-type: none"><li>- Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</li></ul>	<ul style="list-style-type: none"><li>- Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li></ul>	<ul style="list-style-type: none"><li>- Solve comparison, sum and difference problems using information presented in a line graph.</li></ul>	<ul style="list-style-type: none"><li>- Calculate and interpret the mean as an average.</li></ul>
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# Counting Progression Map

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
AUTUMN TERM 1	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1 or from any given number</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of tens from any number, forwards and backwards</li> <li>count in steps of 2 and 5 from 0, forwards and backwards</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 100</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables (Y2 checkpoint)</li> <li>2s, 5s, 10s</li> <li>count in fractions (halves and quarters), starting from any number and using the <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math> equivalence on the number line</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps and 1ks</li> </ul>	<ul style="list-style-type: none"> <li>count in multiples of 1000</li> <li>recall and use multiplication and division facts for the 2, 5, 10, 4, 8 and 1 multiplication tables (Y2/3 checkpoint)</li> <li>2s, 5s, 10s, 4s, 8s, 1ks</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>Continue to use all the multiplication tables, and corresponding division facts, in order to maintain their fluency, including: <ul style="list-style-type: none"> <li>- multiplying and dividing by powers of 10, 100 and 1000</li> </ul> </li> <li>Several counting from year 4, using decimals and fractions including bridging zero, for example on a number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	
AUTUMN TERM 2	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count in multiples of two, five and ten</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 4 and 5 from 0, and in tens from any number, forward and backward</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>1ks</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps, 2ps and 5ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, and 100</li> <li>recall and use multiplication and division facts for the 4 and 8 multiplication tables</li> <li>2s, 4s, 8s, 5s, 10s</li> <li>count in fractions (halves, quarters and thirds), starting from any number and recognising equivalence on the number line</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps and 1ks</li> </ul>	<ul style="list-style-type: none"> <li>Count in multiples of 1000, 6, and 7</li> <li>recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>2s, 5s, 10s, 4s, 8s, 6s, 7s, 9s</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>Continue to use all the multiplication tables, and corresponding division facts, in order to maintain their fluency, including: <ul style="list-style-type: none"> <li>- multiplying and dividing by powers of 10, 100 and 1000</li> </ul> </li> <li>Several counting from year 4, using decimals and fractions including bridging zero, for example on a number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	
SPRING TERM 1	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count in multiples of two, five and ten</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 4 and 5 from 0, and in tens from any number, forward and backward</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>1ks, 2s</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps, 2ps and 5ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, and 100</li> <li>recall and use multiplication and division facts for the 4 and 8 multiplication tables</li> <li>2s, 4s, 8s, 5s, 10s</li> <li>count in fractions (halves, quarters and thirds), starting from any number and recognising equivalence on the number line</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps and 1ks</li> </ul>	<ul style="list-style-type: none"> <li>Count in multiples of 1000, 6, 7 and 9</li> <li>recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>2s, 5s, 10s, 4s, 8s, 6s, 7s, 9s</li> <li>count backwards through zero to include negative numbers</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</li> <li>Continue to use all the multiplication tables, and corresponding division facts, in order to maintain their fluency, including: <ul style="list-style-type: none"> <li>- multiplying and dividing by powers of 10, 100 and 1000</li> <li>- cube numbers</li> </ul> </li> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>Count using decimals, fractions and percentages including bridging zero</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	
SPRING TERM 2	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count in multiples of two, five and ten</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 4 and 5 from 0, and in tens from any number, forward and backward</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>1ks, 2s, 5s</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps, 2ps and 5ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, and 100</li> <li>recall and use multiplication and division facts for the 4, 8 and 10 multiplication tables</li> <li>2s, 4s, 8s, 5s, 10s, 5s</li> <li>count in fractions (halves, quarters and thirds), starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths (as a fraction)</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps and 1ks</li> </ul>	<ul style="list-style-type: none"> <li>Count in multiples of 1000, 6, 7, and 9</li> <li>recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>2s, 5s, 10s, 4s, 8s, 6s, 7s, 9s, 11s, 12s</li> <li>count backwards through zero to include negative numbers</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths as a decimal</li> <li>count up and down in hundredths (fractions and decimals)</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>Count using decimals, fractions and percentages including bridging zero</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	
SUMMER TERM 1	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count in multiples of two, five and ten</li> <li>3s, 10s, 2s, 5s</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 4, and 5 from 0, and in tens from any number, forward and backward</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>1ks, 2s, 5s</li> <li>count in fractions (halves and quarters) up to 10, starting from any number and using the <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math> equivalence on the number line</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps, 2ps and 5ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100</li> <li>recall and use multiplication and division facts for the 4, 8 and 10 multiplication tables</li> <li>2s, 4s, 8s</li> <li>5s, 10s</li> <li>3s</li> <li>count in fractions (halves, quarters and thirds), starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths and fifths as fractions</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps, 6ps and 10ps</li> </ul>	<ul style="list-style-type: none"> <li>Count in multiples of 1000, 6, 7, 9 and 25</li> <li>recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>2s, 5s, 10s, 4s, 8s, 6s, 7s, 9s, 11s, 12s</li> <li>count backwards through zero to include negative numbers</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths as a decimal</li> <li>count up and down in hundredths (fractions and decimals)</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Continue to use all the multiplication tables, and corresponding division facts, in order to maintain their fluency, including: <ul style="list-style-type: none"> <li>- multiplying and dividing by powers of 10, 100 and 1000</li> <li>- square numbers</li> <li>- cube numbers</li> </ul> </li> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>count up and down in thousandths (fractions and decimals)</li> <li>Several counting from year 4, using decimals and fractions including bridging zero, for example on a number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	
SUMMER TERM 2	<ul style="list-style-type: none"> <li>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>count in multiples of two, five and ten</li> <li>3s, 10s, 2s, 5s</li> <li>counting around the clock on the hour</li> </ul>	<ul style="list-style-type: none"> <li>count in steps of 2, 4, and 5 from 0, and in tens from any number, forward and backward</li> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>1ks, 2s, 5s</li> <li>count in fractions (halves and quarters) up to 10, starting from any number and using the <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math> equivalence on the number line</li> <li>counting around the clock in 5 minutes</li> <li>counting in 10ps, 2ps and 5ps</li> </ul>	<ul style="list-style-type: none"> <li>count from 0 in multiples of 4, 8, 50 and 100</li> <li>recall and use multiplication and division facts for the 4, 8 and 10 multiplication tables</li> <li>2s, 4s, 8s</li> <li>5s, 10s</li> <li>3s</li> <li>count in fractions (halves, quarters and thirds), starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths and fifths as fractions</li> <li>counting around the clock in 15 minutes / quarter of hours</li> <li>counting in 10ps, 2ps, 5ps, 6ps and 10ps</li> </ul>	<ul style="list-style-type: none"> <li>Count in multiples of 1000, 6, 7, 9 and 25</li> <li>recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>2s, 5s, 10s, 4s, 8s, 6s, 7s, 9s, 11s, 12s</li> <li>count backwards through zero to include negative numbers</li> <li>count in fractions starting from any number and recognising equivalence on the number line</li> <li>count up and down in tenths as a decimal</li> <li>count up and down in hundredths (fractions and decimals)</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	<ul style="list-style-type: none"> <li>Continue to use all the multiplication tables, and corresponding division facts, in order to maintain their fluency, including: <ul style="list-style-type: none"> <li>- multiplying and dividing by powers of 10, 100 and 1000</li> <li>- square numbers</li> <li>- cube numbers</li> </ul> </li> <li>Count forwards and backwards with positive and negative whole numbers, including through zero</li> <li>count up and down in thousandths (fractions and decimals)</li> <li>Several counting from year 4, using decimals and fractions including bridging zero, for example on a number line</li> <li>use contexts for counting such as clocks, money and measure</li> </ul>	

## A Journey Through Mental Calculation Strategies – Addition & Subtraction

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
<b>AUTUMN 1</b>	Counting forwards and backwards <i>(P4-5)</i>	Counting forwards and backwards <i>(P9-10)</i>	Counting forwards and backwards <i>(P18-19)</i>  Reordering <i>(P19-20)</i>	Counting forwards and backwards <i>(P28-29)</i>  Reordering <i>(P29-30)</i>	Counting forwards and backwards <i>(P38-39)</i>  Reordering <i>(P39-40)</i>  Partitioning: Counting on or back <i>(P41-42)</i>	Counting forwards and backwards <i>(P48-49)</i>  Reordering <i>(P49-50)</i>  Partitioning: Counting on or back <i>(P51-52)</i>
<b>AUTUMN 2</b>	Reordering <i>(P5-6)</i>	Reordering <i>(P10-11)</i>	Partitioning: Counting on or back <i>(P21-23)</i>	Partitioning: Counting on or back <i>(P31-32)</i>	Partitioning using near doubles <i>(P40-41)</i>  Partitioning: compensating <i>(P44)</i>	Partitioning using near doubles <i>(P50-51)</i>  Partitioning: compensating <i>(P54-55)</i>
<b>SPRING 1</b>	Consolidate and extend from Aut 1 & 2 <i>(P4-6)</i>	Partitioning: Counting on or Back <i>(P12-13)</i>	Partitioning: Bridging Multiples of 10 <i>(P23-24)</i>	Partitioning: Bridging Multiples of 10 <i>(P32-33)</i>	Partitioning: Bridging Multiples of 10 <i>(P42-43)</i>	Partitioning: Bridging Multiples of 10 <i>(P53-54)</i>
<b>SPRING 2</b>	Partitioning using Near Doubles (adjust through addition, e.g. $6 + 7 = \text{double } 6 \text{ and add } 1$ ) <i>(P6-7)</i>	Partitioning: Using Near Doubles <i>(P11-12)</i>  Partitioning: Bridging Multiples of 10 <i>(P14-15)</i>	Partitioning using near doubles <i>(P20-21)</i>  Partitioning: compensating <i>(P24-25)</i>	Partitioning using near doubles <i>(P30-31)</i>  Partitioning: compensating <i>(P34)</i>	Partitioning: Bridging through 60 to Calculate a Time Interval <i>(P45-46)</i>	Partitioning: Bridging through 60 to Calculate a Time Interval <i>(P55-57)</i>
<b>SUMMER 1</b>	Partitioning using Near Doubles (adjust through subtraction e.g. $6 + 7 = \text{double } 7 \text{ and subtract } 1$ ) <i>(P6-7)</i>	Partitioning: Compensating <i>(P15-16)</i>	Partitioning: Bridging through 60 to Calculate a Time Interval <i>(P25-26)</i>	Partitioning: Bridging through 60 to Calculate a Time Interval <i>(P35-36)</i>	Consolidation of Aut 1, 2 and Spr 1 strategies (focus on calculating with decimals) <i>(P38-44)</i>	Making appropriate choice of range of strategies and justifying choices
<b>SUMMER 2</b>	Making appropriate choice of range of strategies (e.g. $5 + 13$ ... not a near double, counting on from 5 is inefficient but to reorder to $13 + 5$ and count on better) <i>(P4-7)</i>	Making appropriate choice from a range of strategies and justifying choices				

# Key Instant Recall Facts

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Autumn 1	I know the number names in order to, at least, 5.	I can read and write numbers 1-10, at least, in numerals	I can automatically recall addition and subtraction number bonds for numbers to, at least, 20	I know the number of days in each month	I can tell the time to the nearest minute	I know commutative facts for all multiplication tables	I can use my knowledge of multiplication facts to derive scaled facts of whole numbers (e.g. $60 \times 4$ using $6 \times 4$ )
	I know how to touch count to, at least, 3.	I can identify one more than a given number to, at least, 50	I can tell the time to quarter past the hour	I know 1, 10 and 100 more or less than a given number to 1000	I know 1, 10, 100 and 1000 more or less than a given number to 10,000	I know decimal equivalents of $\frac{1}{4}$ , $\frac{1}{2}$ and $\frac{3}{4}$	I know factor pairs
Autumn 2	I know the number names in order to, at least, 10.	I can identify one more and one less than a given number to, at least, 50	I know 1 and 10 more or less than a given number to 100	I know addition and subtraction facts to 1000, using my number bonds	I know multiplication and division facts for the 6x table	I know inverse facts for all multiplication tables	I can use my knowledge of division facts to derive scaled facts of whole numbers (e.g. $240 \div 6$ using $24 \div 6$ )
	I know how to recognise small quantities without counting to, at least, 3.	I know the days of the week and can use language such as yesterday and tomorrow	I know how to double and half numbers, to at least, 20	I can identify the nearest multiple of 10 for any number, to 1000	I can round any number to the nearest 10 within 10,000	I can round any number to the nearest 10, 100 and 1000 within 100,000	I know the formula for finding the perimeter of shapes
Spring 1	I can instantly show the correct number of fingers when given a number to, at least, 5	I can read and write numbers 1-20, at least, in numerals	I know multiplication and division facts for the 10x table	I know multiplication and division facts for the 4x table	I know multiplication and division facts for the 7x table	I can multiply and divide whole numbers by 10, 100 and 1000	I can use my knowledge of multiplication facts to derive scaled facts of numbers including decimals (e.g. $0.6 \times 4$ using $6 \times 4$ )
	I can say one more/less than any number to, at least, 5	I can recognise and name 2D shapes	I can tell the time to quarter to the hour	I can identify the nearest multiple of 10 and 100 for any number, to 1000	I can round any number to the nearest 10 and 100 within 10,000	I can recall square numbers up to $12^2$	I can convert between standard units of metric measure
Spring 2	I can instantly show the correct number of fingers when given a number to 10	I can automatically recall addition number bonds for numbers to, at least, 10	I know multiplication and division facts for the 2x table	I know multiplication and division facts for the 8x table	I know multiplication and division facts for the 11x and 12x table	I can multiply and divide numbers involving decimals by 10, 100 and 1000	I can use my knowledge of division facts to derive scaled facts of numbers including decimals (e.g. $2.4 \div 6$ using $24 \div 6$ )
	I can say one more/less than any number to, at least, 10	I can identify one more and one less than a given number to, at least, 100	I can tell the time to five minutes using 'past the hour'	I know how many mm = cm, cm = m and m = km	I can multiply and divide one digit numbers by 10	I can identify multiples of a given number	I know fraction, decimal and percentage equivalents
Summer 1	I know which pairs make a given number to, at least, 5	I can automatically recall addition and subtraction number bonds for numbers to, at least, 10	I know multiplication and division facts for the 5x table	I know multiplication and division facts for the 3x table	I know multiplication and division facts for the 9x table	I can round decimal numbers	I know the formula for finding the area of shapes
	I can count beyond 10, forwards and backwards	I can tell the time to the hour and half past the hour	I can tell the time to five minutes using 'to the hour'	I know the complement of any number to 100	I can multiply and divide one digit numbers by 10 and 100	I can identify factors of a given number	I can find unit fractions of amounts
Summer 2	I know which pairs make a given number to, at least, 10	I know how to double and half numbers, to at least, 10	I know multiplication and division facts for the 2x, 5x and 10x tables	I know multiplication and division facts for the 3x, 4x and 8x tables	I know multiplication and division facts to $12 \times 12$	I can multiply together three single-digit numbers	I know the formula for finding the volume of shapes
	I can automatically recall number bonds for numbers to, at least, 5	I can recognise and name 3D shapes	I know addition and subtraction facts to 100, using my number bonds	I know how many g = kg and ml = l	I know decimal equivalents of any number of tenths or hundredths	I know fraction, decimal and percentage equivalents of $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{1}{5}$ and $\frac{1}{10}$	I can convert between units of time

“The national curriculum for mathematics reflects the importance of spoken language in pupils’ development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.”

**National Curriculum in England, Department for Education, 2013**

**EYFS Mathematical Vocabulary List**

<b>Number</b>	<b>Measure</b>	<b>Geometry</b>	<b>Statistics</b>	<b>General</b>
<b>Number and place value</b>  Number zero number one, two, three...to twenty and beyond teens numbers, eleven...twenty none how many...? count, count (up) to, count on (from to), count back (from, to) count in ones, twos, fives, tens is the same as more, less odd, even few pattern pair  Place value ones tens digit the same number as, as many as more, larger, bigger, greater fewer, smaller, less	measure size compare guess, estimate enough, not enough too much, too little too many, too few nearly, close to, about the same as just over, just under  Length metre length, height, width, depth long, short, tall high, low wide, narrow thick, thin, longer, shorter, taller, higher..and so on longest, shortest, tallest, highest...and so on far, near, close  Weight weigh, weighs, balances	<b>Properties of shape</b>  shape, pattern flat curved, straight round hollow, solid sort make, build, draw size bigger, larger, smaller, symmetrical pattern, repeating pattern match  2-D shape corner, side rectangle (including square) circle triangle  3-D shape face, edge, vertex, vertices cube pyramid sphere	count, sort group, set list	pattern puzzle what could we try next? how did you work it out? recognise describe draw compare sort

<p>fewest, smallest, least  most, biggest, largest, greatest  one more, ten more  one less, ten less  compare  order size  first, second, third...twentieth  last, last but one  before, after  next between</p> <p>Estimating  guess  how many..?  estimate  nearly  close to  about the same as  just over, just under  too many, too few  enough, not enough</p> <p><b>Addition and Subtraction</b>  add, more, and  make, sum, total  altogether  double  one more, two more....10 more  how many more to make?  how many more is... than...?  how much more is...?  take away  how many are left/left over?  how many have gone?  one less, two less, ten less...  how many fewer is... than...?  how much less is...?  difference between</p> <p><b>Multiplication and division</b>  sharing  doubling</p>	<p>heavy, light  heavier than, lighter than  heaviest, lightest  scales</p> <p>Capacity and volume  full  empty  half full  holds  container</p> <p>Time  time  days of the week, Monday,  Tuesday...  day, week  birthday, holiday  morning, afternoon, evening, night  bedtime, dinner time, playtime  today, yesterday, tomorrow  before, after  next, last  now, soon, early, late  quick, quicker, quickest, quickly  slow, slower, slowest, slowly  old, older, oldest  new, newer, newest  takes longer, takes less time  hour, o'clock  clock, watch, hands</p> <p>Money  money  coin  penny, pence, pound  price, cost  buy, sell  spend, spent  pay</p>	<p>cone</p> <p>Position and direction  position  over, under  above, below  top, bottom, side  on, in  outside, inside  around  in front, behind  front, back  beside, next to  opposite  apart  between  middle, edge  corner  direction  left, right  up, down  forwards, backwards, sideways  across  next to, close, near, far  along  through  to, from, towards, away from  movement  slide  roll  turn  stretch, bend  whole turn, half turn</p>		
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halving number patterns				
<b>Fractions</b> parts of a whole half quarter				

**Year One Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

Number	Measure	Geometry	Statistics	General
<b>Number and place value</b>  Number numeral twenty-one, twenty-two.. one hundred forwards backwards equal to equivalent to most, least many multiple of  Place value equal to half-way between above, below  Estimating roughly  <b>Addition and Subtraction</b> addition near double half, halve subtract equals is the same as number bonds/pairs missing number	measurement roughly  Length centimetre ruler metre stick  Weight kilogram, half kilogram  Capacity and volume litre, half litre capacity volume more than less than quarter full  Time months of the year (January, February..) seasons:spring, summer, autumn, winter weekend, month, year earlier, later first midnight date how long ago..? how long will it be to..?	<b>Properties of shape</b>  symmetry, symmetrical pattern  2-D shape point, pointed  3-D shape cuboid cylinder  Position and direction underneath centre journey quarter turn, three-quarter turn	vote table	problem, problem solving mental, mentally explain your thinking

<p><b>Multiplication and division</b>  multiplication  multiply  multiplied by  multiple  division  dividing  grouping  array</p> <p><b>Fractions</b>  fraction  equal part  equal grouping  equal sharing  one of two equal parts  one of four equal parts</p>	<p>how long will it take to..?  how often?  always, never, often, sometimes  usually  once, twice  half past, quarter past, quarter to  clock face  hour hand, minute hand  hours, minutes</p> <p>Money  change  dear, costs more  cheap, costs less, cheaper  costs the same as  how much..?  how many..?  total</p>			
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**Year Two Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

<b>Number</b>	<b>Measure</b>	<b>Geometry</b>	<b>Statistics</b>	<b>General</b>
<p><b>Number and place value</b></p> <p>Number  one hundred, two hundred...one thousand  count in threes, fours and so on  tally  sequence  continue  predict  rule  &gt; greater than  &lt; less than</p> <p>Place value  hundreds  one, two or three-digit number  place, place value  stands for, represents  exchange</p>	<p>measuring scale</p> <p>Length  further, furthest  tape measure</p> <p>Weight  gram</p> <p>Capacity and volume  millilitre  contains</p> <p>Temperature  temperature  degree</p> <p>Time  fortnight</p>	<p><b>Properties of shape</b></p> <p>surface  line symmetry</p> <p>2-D shape  rectangular  circular  triangular  pentagon  hexagon  octagon</p> <p>Position and direction  route  higher, lower  clockwise, anticlockwise  right angle  straight line</p>	<p>tally  graph, block  graph,  pictogram  represent  label, title  most popular,  most common  least popular,  least common</p>	<p>show how  you...  explain your  method  describe the  pattern  describe the  rule  investigate  mental  calculation  written  calculation</p>

<p>twenty-first, twenty-second...</p> <p>Estimating exact, exactly</p> <p><b>Addition and Subtraction</b> 100 more one hundred less facts tens boundary</p> <p><b>Multiplication and division</b> groups of times once, twice, three times...ten times repeated addition divide, divided by, divided into share, share equally left, left over one each, two each, three each...ten each group in pairs, threes...tens equal groups of row, column multiplication table multiplication fact, division fact</p> <p><b>Fractions</b> equivalent fraction mixed number numerator, denominator two halves two quarters, three quarters one third, two thirds one of three equal parts</p>	<p>5, 10, 15...minutes past digital/analogue, clock/watch, timer seconds</p> <p>Money bought, sold</p>			
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**Year Three Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

Number	Measure	Geometry	Statistics	General
<p><b>Number and place value</b></p> <p>Number count in eights, fifties and so on to hundreds factor of relationship Roman numerals</p> <p>Place value one hundred more one hundred less</p> <p>Estimating approximate, approximately round, nearest, round to the nearest ten/hundred round up, round down</p> <p><b>Addition and Subtraction</b> hundreds boundary</p> <p><b>Multiplication and division</b> factor product remainder</p> <p><b>Fractions</b> sixths, sevenths, eights, tenths...</p>	<p>division approximately</p> <p>Length millimetre, kilometre, mile distance apart... between... to... from perimeter</p> <p>Temperature centigrade</p> <p>Time century calendar earliest, latest am, pm Roman numerals 12-hour clock time, 24-hour clock time</p>	<p><b>Properties of shape</b></p> <p>perimeter</p> <p>2-D shape pentagonal hexagonal octagonal quadrilateral right-angles parallel, perpendicular</p> <p>3-D shape hemisphere prism, triangular prism</p> <p>Position and direction compass point north, south, east, west, N, S, E, W horizontal, vertical, diagonal angle.... Is a greater/smaller angle than acute angle obtuse angle</p>	<p>chart, bar chart, frequency table Carroll diagram, Venn diagram axis, axes diagram</p>	<p>greatest value, least value statement</p>

**Year Four Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

Number	Measure	Geometry	Statistics	General
<p><b>Number and place value</b>            ten thousand, hundred thousand, million            count in, sixes, sevens, nines, twenty-fives            next, consecutive            integer, positive, negative            above/below zero, minus            negative numbers</p> <p>Place value            one thousand more            one thousand less</p> <p>Estimating            round to the nearest thousand</p> <p><b>Addition and Subtraction</b>            inverse</p> <p><b>Multiplication and division</b>            inverse            square, squared            cube, cubed</p> <p><b>Fractions</b>            hundredths            decimal, decimal fraction, decimal point, decimal place,            decimal equivalent            proportion</p>	<p>unit, standard unit            metric unit</p> <p>Length            breadth            edge            area, covers            square centimetre (cm<sup>2</sup>)</p> <p>Weight            mass: big, bigger, small, smaller            weight: heavy/light, heavier/lighter,            heaviest/lightest</p> <p>Capacity and volume            measuring cylinder</p> <p>Time            leap year, millennium            noon            date of birth            timetable, arrive, depart</p>	<p><b>Properties of shape</b></p> <p>line            construct, sketch            centre            angle, right-angled            base, square-based            reflect, reflection            regular, irregular</p> <p>2-D shape            2-D, two-dimensional            oblong            rectilinear            equilateral triangle, isosceles triangle, scalene            triangle            heptagon            parallelogram, rhombus, trapezium            polygon</p> <p>3-D shape            3_D, three-dimensional            spherical            cylindrical            tetrahedron, polyhedron</p> <p>Position and direction            north-east, north-west, south-east, south-            west, NE, NW, SE, SW            translate, translation            rotate, rotation            degree            reflection            ruler, set square            angle measurer, compass</p>	<p>survey,            questionnaire,            data</p>	<p>justify            make a            statement</p>

**Year Five Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

Number	Measure	Geometry	Statistics	General
<p><b>Number and place value</b>  factor pair  <math>\geq</math> greater than or equal to  <math>\leq</math> less than or equal to  formula  divisibility  square number  prime number  ascending/descending order</p> <p>Estimating  round to the nearest ten thousand</p> <p><b>Addition and Subtraction</b>  ones boundary, tenths boundary</p> <p><b>Fractions (including decimals and percentages)</b>  proper/improper fraction  equivalent, reduced to, cancel  thousandths  in every, for every  percentage, per cent, %</p>	<p>imperial unit</p> <p>Length  square metre (m<sup>2</sup>), square millimetre (mm<sup>2</sup>)</p> <p>Capacity and volume  pint, gallon</p> <p>Money  discount  currency</p>	<p><b>Properties of shape</b></p> <p>radius, diameter  congruent  axis of symmetry, reflective symmetry</p> <p>2-D shape  x-axis, y-axis, quadrant</p> <p>3-D shape  octahedron</p> <p>Position and direction  coordinate  protractor</p>	<p>database  bar line chart  line graph  maximum/minimum  value  outcome</p>	<p>explain your reasoning</p>

**Year Six Mathematical Vocabulary List**  
**All previous year groups' vocabulary plus these additional words**

Number	Measure	Geometry	Statistics	General
<p><b>Number and place value</b></p> <p>Number factorise prime factor digit total</p> <p><b>Fractions (including decimals and percentages)</b> ratio</p> <p><b>Algebra</b> formulae equation unknown variable</p>	<p>Length yard, foot, feet, inch, inches circumference</p> <p>Weight tonne, pound, ounce</p> <p>Capacity and volume centilitre cubic centimetres (cm<sup>3</sup>), cubic metres (m<sup>3</sup>), cubic millimetres (mm<sup>3</sup>), cubic kilometres (km<sup>3</sup>)</p> <p>Time Greenwich Mean Time, British Summer Time, International Date Line</p> <p>Money profit, loss</p>	<p><b>Properties of shape</b></p> <p>circumference, concentric, arc net, open, closed intersecting, intersection plane</p> <p>2-D shape kite</p> <p>3-D shape dodecahedron net, open, closed</p> <p>Position and direction reflex angle</p>	<p>pie chart mean (mode, median, range as estimates for this) statistics, distribution</p>	