



**Maths Progression**

**Intent of the curriculum**

At St Pauls CE Primary School, we follow the National Curriculum for mathematics.

The National Curriculum aims to ensure that children:

1. become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
2. reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
3. can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding through additional practice, before moving onto new concepts.

Our school values are reflected in our maths curriculum by giving children the real-life skills to flourish throughout their lives. Real-life examples are given in each unit to show how their learning links to our world. Through a variety of fluency, reasoning and problem solving, children are given a chance to improve their resilience to enable them to work through challenging mathematical activities. We aim to develop resilient and confident learners that are able to approach challenging mathematical concepts with confidence and not be afraid to take risks

We provide a maths curriculum which caters for the needs of all pupils that is both challenging and enjoyable, following the mastery approach. Our curriculum is designed to progressively develop children's knowledge and understanding of mathematical concepts from the Early Years through to the end of Y6. We incorporate sustained levels of challenge through varied and high-quality activities with a focus on fluency, reasoning and problem-solving. Frequent recap and recall strategies (Daily Practice) ensure that knowledge sticks. We provide a wide range of mathematical resources and teach pupils to show their workings in a concrete fashion before establishing ways of pictorially and formally representing their understanding, as set out in our school calculation policy.

We place a strong emphasis on children articulating their understanding. Children explore maths in depth using mathematical vocabulary to reason and explain their thinking/workings. We teach pupils to explain their choice of methods and develop their mathematical reasoning skills therefore developing a sense of enjoyment and resulting in a lifelong positive relationship with number.

**Early Learning Goals and National Curriculum Links**

EYFS	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<p>Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.</p>	<p>The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].</p> <p>At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.</p> <p>By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.</p>	<p>The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.</p> <p>At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.</p>	<p>The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.</p> <p>At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.</p>

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

**At St Pauls children will:**

	EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
<b>Number 1 - Number &amp; Place Value</b>	<p><b>Verbally count beyond 20, recognising the pattern of the counting system (ELG)</b></p> <p>Count objects, actions and sounds. (DM)</p> <p><b>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity (ELG)</b></p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers. (DM)</p> <p><b>Have a deep understanding of number to 10, including the composition of each number (ELG)</b></p> <p>Link the number symbol (numeral) with its cardinal number value. (DM)</p> <p><b>Subitise (recognise quantities without counting) up to 5 (ELG)</b></p>	<p><b>1N1a</b> Count to and across 100, forward and backwards, beginning with 0 or 1, or from any given number</p> <p><b>1N1b</b> Count in multiples of twos, fives and tens</p> <p><b>1N2a</b> Count, read and write numbers to 100 in numerals</p> <p><b>1N2b</b> Given a number, identify one more and one less</p> <p><b>1N2c</b> Read and write numbers from 1 to 20 in numerals and words</p> <p><b>1N4</b> 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>2N1</b> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</p> <p><b>2N2a</b> Compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</p> <p><b>2N2c</b> Read and write numbers to at least 100 in numerals and in words</p> <p><b>2N3</b> Recognise the place value of each digit in a two-digit number (tens, ones)</p> <p><b>2N4</b> Identify, represent and estimate numbers using different representations, including the number line</p> <p><b>2N6</b> Use place value and number facts to solve problems</p>	<p><b>3N1</b> Count from 0 in multiples of 4, 8, 50 and 100.</p> <p><b>3N2a</b> Compare and order numbers up to 1000</p> <p><b>3N2b</b> Find 10 or 100 more or less than a given number</p> <p><b>3N2c</b> Read and write numbers to 1000 in numerals and words</p> <p><b>3N3</b> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p><b>3N4</b> Identify, represent and estimate numbers using different representations</p> <p><b>3N6</b> Solve number problems and practical problems involving 3N1 - 3N5</p>	<p><b>4N1</b> Count in multiples of 6, 9, 25 and 1000</p> <p><b>4N2</b> Order and compare numbers beyond 1000</p> <p><b>4N2b</b> Find 1000 more or less than a given number</p> <p><b>4N3a</b> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)</p> <p><b>4N3b</b> 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</p> <p><b>4N4a</b> Identify, represent and estimate numbers using different representations</p> <p><b>4N4b</b> Round any number to the nearest 10, 100 or 1000</p> <p><b>4N5</b> Count backwards through zero to include negative numbers</p> <p><b>4N6</b> Solve number and practical problems that involve 4N1-4N5 and with increasingly large positive numbers.</p>	<p><b>5N1</b> Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p><b>5N2</b> Read, write, order and compare numbers to at least 1 000 000</p> <p><b>5N3a</b> Determine the place value of each digit in numbers up to 1 000 000</p> <p><b>5n3b</b> Read Roman numerals to 1000(M) and recognise years written in Roman numerals</p> <p><b>5N4</b> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000, and 100 000</p> <p><b>5N5</b> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</p> <p><b>5N6</b> Solve number and practical problems that involve 5N1-5N5</p>	<p><b>6N2</b> Read, write, order and compare numbers to at least 10 000 000</p> <p><b>6N3</b> Determine the place value of each digit in numbers up to 10 000 000</p> <p><b>6N4</b> Round any whole number to a required degree of accuracy</p> <p><b>6N5</b> Use negative numbers in context and calculate intervals across zero</p> <p><b>6N6</b> Solve number and practical problems that involve 6N1-6N5</p>
<b>Vocabulary</b>	<p>zero number one, two, three ... to twenty and beyond teens numbers, eleven, twelve ... twenty nine 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</p>	<p>numeral, forwards, backwards, equal to, most, least, many, equal to, tens, ones, more than, less than, fewer than, greater than, partitioning,</p>	<p>hundred, thousand, sequence, continue, predict, greater than, less than, 1/2/3-digit number, place value, represents, count in steps, count in multiples, estimate, compare</p>	<p>factor of, relationship, Roman numerals, one hundred more/less, approximately, round, nearest</p>	<p>ten thousand, hundred thousand, million, consecutive, integer, positive, negative, minus, negative numbers</p>	<p>factor pair, greater than or equal to, less than or equal to, formula, divisibility, square number, prime number, ascending, descending,</p>	<p>factorise, prime factor, digit total,</p>

<p style="text-align: center;"><b>Number 2 – Four Operations</b></p>	<p><b>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts (ELG)</b> Solve real world mathematical problems with numbers up to 5 (DM) Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. (DM)</p>	<p><b>1C1</b> Represent and use number bonds and related subtraction facts within 20 <b>1C2a</b> Add and subtract one-digit and two-digit numbers to 20, including zero ones <b>1C2b</b> Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs <b>1C4</b> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>\square + 7 = \quad - 9</math> <b>1C8</b> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher</p>	<p><b>2C1a</b> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 <b>2C1b</b> Add and subtract numbers mentally, including: • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers <b>2C2</b> Add and subtract numbers using concrete objects and pictorial representations, including: • a two-digit number and • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers <b>2C3</b> recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems <b>2C4</b> 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 method <b>2C6</b> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers <b>2C7</b> Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs <b>2C7b</b> Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs <b>2C8</b> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts <b>2C9a</b> Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot <b>2C9b</b> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p>	<p><b>3C1</b> Add and subtract numbers mentally, including: • a three digit number and ones • a three digit number and tens • a three digit number and hundreds <b>3C2</b> Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. <b>3C3</b> Estimate the answer to a calculation and use inverse operations to check answers <b>3C4</b> Solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction <b>3C6</b> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables <b>3C7</b> Write and calculate mathematical statements for multiplication using the multiplication tables that children know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods <b>3C7b</b> Write and calculate mathematical statements for division using the multiplication tables that children know, including for two-digit numbers divided by one-digit numbers, using mental and progressing to formal written methods <b>3C8</b> Solve problems, including missing number problems, involving X and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects</p>	<p><b>4C2</b> Add and subtract numbers with up to 4 digits, using formal written methods of columnar addition and subtraction <b>4C3</b> Estimate and use inverse operations to check answers to a calculation <b>4C4</b> solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. <b>4C6a</b> Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math> <b>4C6b</b> Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers <b>4C6c</b> Recognise and use factor pairs and commutativity in mental calculations <b>4C7</b> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout <b>4C7b</b> Divide numbers up to 3 digits by a one-digit number using the formal written method of short division <b>4C8</b> Solve problems involving X and +, including using the distributive law to multiply 2 digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects</p>	<p><b>5C1</b> Add and subtract numbers mentally with increasingly large numbers <b>5C2</b> Add and subtract numbers with more than 4 digits, using formal written methods of columnar addition and subtraction <b>5C3</b> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy <b>5C4</b> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. <b>5C5a</b> Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers <b>5C5b</b> Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers <b>5C5c</b> Establish whether a number up to 100 is prime and recall prime numbers up to 19 <b>5C5d</b> Recognise and use square numbers and cube numbers and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>) <b>5C6a</b> Multiply and divide numbers mentally drawing upon known facts <b>5C6b</b> Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 <b>5C7a</b> 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 <b>5C7b</b> Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context <b>5C8a</b> Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes <b>5C8b</b> Solve problems involving all 4 operations, combination of these, including understanding the meaning of the equals sign <b>5C8c</b> Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates</p>	<p><b>6C3</b> Use estimation to check answers to calculations, in the context of a problem, an appropriate degree of accuracy <b>6C4</b> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why <b>6C5</b> Identify common factors, common multiples and prime numbers <b>6C6</b> Perform mental calculations, including with mixed operations and large numbers <b>6C7a</b> Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication <b>6C7b</b> Divide numbers up to 4 digits by a two digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context <b>6C7c</b> Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division where appropriate, interpreting remainders according to the context <b>6C8</b> Solve problems involving addition, subtraction, multiplication and division <b>6C9</b> Use their knowledge of the order of operations to carry out calculations involving the four operations</p>
<p style="text-align: center;"><b>Vocabulary</b></p>	<p>add, more, and make, sum, total altogether double one more, two more ... ten 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, sharing doubling halving number patterns</p>	<p>addition, near double, half, halve, subtract, equals, is the same as, number bonds, missing number, multiplication, multiply, multiple, divide, division, dividing, array</p>	<p>groups of, times, repeated addition, divided by, share, share equally, groups, pairs, row, column, facts</p>	<p>hundreds boundary, factor, product, remainder</p>	<p>inverse, square, squared, cube, cubed,</p>	<p>tenths boundary,</p>	

<p><b>Number 3 – Fractions, Decimals &amp; Percentages</b></p>	<p>Split objects into equal and unequal groups</p>	<p><b>1F1a</b> Recognise, find and name a half as one of two equal parts of a object, shape or quantity <b>1F1b</b> Recognise, find and name a quarter as one of four equal parts of a object, shape or quantity</p>	<p><b>2F1a</b> 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 <b>2F1b</b> Write simple fractions [eg: <math>\frac{1}{2}</math> of 6 = 3] <b>2F2</b> Recognise the equivalence of <math>\frac{1}{2}</math> and <math>\frac{2}{4}</math></p>	<p><b>3F1a</b> 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 <b>3F1b</b> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators <b>3F1c</b> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators <b>3F2</b> Recognise and show, using diagrams, equivalent fractions with small denominators <b>3F3</b> Compare and order unit fractions and fractions with the same denominators <b>3F4</b> Add and subtract fractions with the same denominator within one whole eg <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math> <b>3F10</b> Solve problems that involve 3F1–3F4</p>	<p><b>4F1</b> Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten <b>4F2</b> Recognise and show, using diagrams, families of common equivalent fractions <b>4F4</b> Add and subtract fractions with the same denominator <b>4F6a</b> Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math> <b>4F6b</b> Recognise and write decimal equivalents of any number of tenths or hundredths <b>4F7</b> Round decimals with one decimal place to the nearest whole number <b>4F8</b> Compare numbers with the same number of decimal places up to two decimal places <b>4F9</b> Find the effect of dividing a 1- or 2 digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths <b>4F10a</b> 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>4F10b</b> Solve simple measure and money problems involving fractions and decimals to two decimal places</p>	<p><b>5F2a</b> 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 eg: <math>\frac{2}{5} + \frac{4}{5} = 1 \frac{1}{5}</math> <b>5F2b</b> Identify name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths <b>5F3</b> Compare and order fractions whose denominators are all multiples of the same number <b>5F4</b> Add and subtract fractions with the same denominator and denominators that are multiples of the same number <b>5F5</b> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams <b>5F6a</b> Read and write decimal numbers as fractions [eg: <math>0.71 = \frac{71}{100}</math>] <b>5F6b</b> Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents <b>5F7</b> Round decimals with two decimal places to the nearest whole number and to one decimal place <b>5F8</b> Read, write, order and compare numbers with up to three decimal places <b>5F10</b> Solve problems involving numbers up to three decimal places <b>5F11</b> Recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’; write percentages as a fraction with denominator hundred, and as a decimal <b>5F12</b> Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math> and <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25</p>	<p><b>6F2</b> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination <b>6F3</b> Compare and order fractions, including fractions <math>&gt;1</math> <b>6F4</b> Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions <b>6F5a</b> Multiply simple pairs of proper fractions, writing the answer in its simplest form eg <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math> <b>6F5b</b> Divide proper fractions by whole numbers eg <math>\frac{1}{3} \div 2 = \frac{1}{6}</math> <b>6F6</b> Associate a fraction with division to calculate decimal fraction equivalents (eg: 0.375) for a simple fraction [eg: <math>\frac{3}{8}</math>] <b>6F9a</b> Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places <b>6F9b</b> Multiply one-digit numbers with up to two decimal places by whole numbers <b>6F9c</b> Use written division methods in cases where the answer has up to 2-decimal places <b>6F10</b> Solve problems which require answers to be rounded to specified degrees of accuracy <b>6F11</b> Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p>
<p>Vocabulary</p>	<p>parts of a whole half quarter</p>	<p>fraction equal part equal grouping equal sharing, one of two equal parts</p>	<p>equivalent fractions, mixed number, numerator, denominator, one third</p>	<p>sixths, sevenths, eighths, tenths</p>	<p>hundredths, decimals, proportion,</p>	<p>proper fraction, improper fraction, reduced to, thousandths, percentage,</p>	<p>ratio,</p>
<p>Ratio</p>							<p><b>6R1</b> Solve problems involving the relative sizes of two quantities, where missing values can be found by using integer multiplication and division facts <b>6R2</b> Solve problems involving the calculation of percentages [eg: of measures such as 15% of 360] and the use of percentages for comparison <b>6R3</b> Solve problem involving similar shapes where the scale factor is known or can be found <b>6R4</b> Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</p>
<p>Vocabulary</p>							
<p>Algebra</p>							<p><b>6A1</b> Express missing number problems algebraically <b>6A2</b> Use simple formulae <b>6A3</b> Generate and describe linear number sequences</p>

							<p><b>6A4</b> Find pairs of numbers that satisfy an equation with two unknowns</p> <p><b>6A5</b> Enumerate possibilities of combinations of two variables</p>
Vocabulary							formulae, equation, unknown, variable,
Measurement	<p>Make comparisons between objects relating to size, length, weight and capacity. (DM)</p> <p>Compare length, weight and capacity. (DM)</p> <p>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' (DM)</p>	<p><b>1M1</b> Compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> <li>lengths and heights [eg: long/short, longer/longer/longest]</li> <li>mass/weight [eg: heavy/light, heavier than, lighter than]</li> <li>capacity and volume [eg: full/empty, more than, less than, half, half full, quarter]</li> <li>time [eg: quicker, slower, earlier, later] shorter, tall/short, double/half</li> </ul> <p><b>1M2</b> 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><b>1M3</b> Recognise and know the value of different denominations of coins and notes</p> <p><b>1M4a</b> Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times</p> <p><b>1M4b</b> Sequence events in chronological order using language [eg: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p><b>1M4c</b> Recognise and use language relating to dates, including days of the week, weeks, months and years</p>	<p><b>2M1</b> Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</p> <p><b>2M2</b> 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 rulers, scales, thermometers and measuring vessels</p> <p><b>2M3a</b> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p><b>2M3b</b> Find different combinations of coins that equal the same amounts of money</p> <p><b>2M4a</b> 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>2M4b</b> Compare and sequence intervals of time</p> <p><b>2M4c</b> Know the number of minutes in an hour and the number of hours in a day</p> <p><b>2M9</b> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p>	<p><b>3M1a</b> Compare lengths (m/cm/mm)</p> <p><b>3M1b</b> Compare mass (kg/g)</p> <p><b>3M1c</b> Compare volume / capacity (l/ml)</p> <p><b>3M2a</b> Measure lengths (m/cm/mm)</p> <p><b>3M2b</b> Measure mass (kg/g)</p> <p><b>3M2c</b> Measure volume / capacity (l/ml)</p> <p><b>3M4a</b> Tell and write the time from an analogue clock; 12-hour clocks</p> <p><b>3M4b</b> Tell and write the time from an analogue clock; 24-hour clocks</p> <p><b>3M4c</b> Tell and write the time from an analogue clock, including using Roman numerals from I to XII</p> <p><b>3M4d</b> Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock/a.m./p.m., morning, afternoon, noon and midnight</p> <p><b>3M4e</b> Know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p><b>3M4f</b> Compare durations of events, [eg: to calculate the time taken by particular events or tasks]</p> <p><b>3M7</b> Measure the perimeter of simple 2-D shapes</p> <p><b>3M9a</b> Add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p><b>3M9b</b> Add and subtract lengths (m/cm/mm)</p> <p><b>3M9c</b> Add and subtract mass (kg/g)</p> <p><b>3M9d</b> Add and subtract volume / capacity (l/ml)</p>	<p><b>4M1</b> Compare different measures, including money in pounds and pence</p> <p><b>4M2</b> Estimate different measures, including money in pounds and pence</p> <p><b>4M4a</b> Read, write and convert time between analogue and digital 12-hour clocks</p> <p><b>4M4b</b> Read, write and convert time between analogue and digital 24-hour clocks</p> <p><b>4M4c</b> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p> <p><b>4M5</b> Convert between different units of measurement [eg: kilometre to metre; hour to minute]</p> <p><b>4M7a</b> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p><b>4M7b</b> Find the area of rectilinear shapes by counting squares</p> <p><b>4M9</b> Calculate different measures, including money in pounds and pence</p>	<p><b>5M4c</b> Solve problems involving converting between units of time</p> <p><b>5M5</b> Convert between different units of metric measure [eg: kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]</p> <p><b>5M6</b> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p><b>5M7a</b> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p><b>5M7b</b> 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</p> <p><b>5M8</b> Estimate volume [eg: using 1cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [eg: using water]</p> <p><b>5M9a</b> Use all four operations to solve problems involving measure [money] using decimal notation, including scaling</p> <p><b>5M9b</b> Use all four operations to solve problems involving measure [eg: length] using decimal notation, including scaling</p> <p><b>5M9c</b> Use all four operations to solve problems involving measure [eg: mass] using decimal notation, including scaling</p> <p><b>5M9d</b> Use all four operations to solve problems involving measure [eg: volume] using decimal notation, including scaling</p>	<p><b>6M5</b> 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 of up to three decimal places</p> <p><b>6M6</b> Convert between miles and kilometres</p> <p><b>6M7a</b> Recognise that shapes with the same areas can have different perimeters and vice versa</p> <p><b>6M7b</b> Calculate the area of parallelograms and triangles</p> <p><b>6M7c</b> Recognise when it is possible to use the formulae for the area of shapes</p> <p><b>6M8a</b> Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [eg: mm<sup>3</sup> and km<sup>3</sup>]</p> <p><b>6M8b</b> Recognise when it is possible to use the formulae for the volume of shapes</p> <p><b>6M9</b> Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p>
Vocabulary	<p>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 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 weigh, weighs, balances heavy, light heavier than, lighter than heaviest, lightest scales</p>	<p>measurement, roughly, centimetre, ruler, metre stick, kilogram, litre, capacity, volume, more than, less than, quarter full, months, seasons, weekend, earlier, later, change dear, costs more cheap, costs less, cheaper costs the same as how much ...? how many ...? total</p>	<p>measuring scale, further, furthest, tape measure, gram, millilitre, temperature, degree, contains, fortnight, minutes past, seconds, digital, analogue,</p>	<p>division, approximately, millimetre, kilometre, mile, distance apart, perimeter, centigrade, century, calendar, earliest, latest, am, pm, 12-hour/24hour</p>	<p>unit, standard unit, metric unit, breadth, edge, area, covers, square centimetre, mass, weights, measuring cylinder, leap year, millennium, noon, timetable, arrive, depart</p>	<p>imperial unit, square metre, square millimetre, pint, gallon, currency,</p>	<p>yard, foot, feet, inch, inches, circumference, tonne, pound, ounce, GMT, BST, profit, loss,</p>

<p><b>Geometry 1- Shape</b></p>	<p>Select, rotate and manipulate shapes to develop spatial reasoning skills (DM)</p> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. (DM)</p> <p>Combine shapes to make new ones – an arch, a bigger triangle, etc. (DM)</p> <p>Talk about and explore 2D shapes (for example, circles, rectangles, triangles) using informal and mathematical language: ‘sides’, ‘corners’, ‘straight’, ‘flat’, ‘round’. (DM)</p> <p>Talk about and explore 3D shapes (for example cuboids) using informal and mathematical language: ‘sides’, ‘corners’, ‘straight’, ‘flat’, ‘round’. (DM)</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. (DM)</p>	<p><b>1G1a</b> Recognise and name common 2-D shapes [eg: rectangles (including squares), circles and triangles]</p> <p><b>1G1b</b> Recognise and name common 3-D shapes [eg: cuboids (including cubes), pyramids and spheres]</p>	<p><b>2G1a</b> Compare and sort common 2-D shapes and everyday objects</p> <p><b>2G1b</b> Compare and sort common 3-D shapes and everyday objects</p> <p><b>2G2a</b> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p><b>2G2b</b> Identify and describe the properties of 3-D shapes including the number of edges, vertices and faces</p> <p><b>2G3</b> Identify 2-D shapes on the surface of 3-D shapes,</p>	<p><b>3G2</b> Identify horizontal, vertical lines and pairs of perpendicular and parallel lines</p> <p><b>3G3a</b> Draw 2–D shapes</p> <p><b>3G3b</b> Make 3–D shapes using modelling materials; recognise 3–D shapes in different orientations and describe them</p> <p><b>3G4a</b> Recognise that angles are a property of shape or a description of a turn</p> <p><b>3G4b</b> 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>4G2a</b> Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes</p> <p><b>4G2b</b> Identify lines of symmetry in 2–D shapes presented in different orientations</p> <p><b>4G2c</b> Complete a simple symmetric figure with respect to a specific line of symmetry</p> <p><b>4G4</b> Identify acute and obtuse angles and compare and order angles up to two right angles by size</p>	<p><b>5G2a</b> Use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p><b>5G2b</b> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles</p> <p><b>5G3b</b> Identify 3–D shapes including cubes and other cuboids, from 2–D representations</p> <p><b>5G4a</b> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p><b>5G4b</b> Identify:</p> <ul style="list-style-type: none"> <li>angles at a point and one whole turn (total 360°)</li> <li>angles at a point on a straight line and a 1/2 turn (total 180°) <ul style="list-style-type: none"> <li>other multiples of 90°</li> </ul> </li> </ul> <p><b>5G4c</b> Draw given angles and measure them in degrees</p>	<p><b>6G2a</b> Compare and classify geometric shapes based on their properties and sizes</p> <p><b>6G2b</b> Describe simple 3–D shapes</p> <p><b>6G3a</b> Draw 2–D shapes using given dimensions and angles</p> <p><b>6G3b</b> Recognise and build simple 3D shapes, including making nets</p> <p><b>6G4a</b> Find unknown angles in any triangles, quadrilaterals and regular polygons</p> <p><b>6G4b</b> Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</p> <p><b>6G5</b> Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p>
<p><b>Vocabulary</b></p>	<p>shape, pattern flat curved, straight round hollow, solid sort make, build, draw size</p>	<p>symmetry, cuboid, cylinder,</p>	<p>surface, line symmetry, circular, triangular, pentagon, hexagon, octagon</p>	<p>perimeter, pentagonal, hexagonal, octagonal, quafrilateral, right-angled, parallel, perpendicular, hemisphere, prism</p>	<p>line, construct, sketch, centre, angle, square based, reflect, regular irregular, 2D, blong, equilater, isosceles, scalene, heptagon, parallelogram, polygon, 3D, spherical, polyhedron</p>	<p>radius, diameter, congruent, axis of symmetry, quadrant, octagedron,</p>	<p>circumference, concentric, arc, net, open, closed, intersecting, intersection, plane, kite,</p>
<p><b>Geometry 2 – Position &amp; Direction</b></p>	<p>Continue, copy and create repeating patterns. (DM)</p> <p>Understand position through words alone – for example, “The bag is under the table,” – with no pointing. (DM)</p> <p>Describe a familiar route. (DM)</p> <p>Discuss routes and locations, using words like ‘in front of’ and ‘behind’. (DM)</p>	<p><b>1P2</b> Describe position, directions and movement, including half, quarter and three-quarter turns</p>	<p><b>2P1</b> Order and arrange combinations of mathematical objects in patterns and sequences</p> <p><b>2P2</b> Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clock-wise and anti-clockwise)</p>		<p><b>4P2</b> Describe movements between positions as translations of a given unit to the left/right and up/down</p> <p><b>4P3a</b> Describe positions on a 2–D grid as co-ordinates in the first quadrant</p> <p><b>4P3b</b> Plot specified points and draw sides to complete a given polygon</p>	<p><b>5P2</b> 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>6P2</b> Draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes</p> <p><b>6P3</b> Describe positions on the full co-ordinate grid (all four quadrants)</p>
<p><b>Vocabulary</b></p>	<p>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</p>	<p>underneath, centre, journey, quarter turn, three-quarter turn,</p>	<p>route, higher, lower, clockwise, anticlockwise, right angle, straight line,</p>	<p>compass point, north, south, east, west, vertical, horizontal, diagonal, angle, acute, obtuse,</p>	<p>north-east, north-west, south-east, south-west, translate, translation, rotate, degree, reflection, ruler, compass,</p>	<p>coordinate, protractor,</p>	<p>reflex angle,</p>
<p><b>Statistics</b></p>	<p>Sort objects into groups by characteristics (e.g. by colour, size, shape)</p>		<p><b>2S1</b> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p> <p><b>2S2a</b> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</p> <p><b>2S2b</b> Ask and answer questions about totalling and comparing categorical data</p>	<p><b>3S1</b> Interpret and present data using bar charts, pictograms and tables</p> <p><b>3S2</b> Solve one-step and two- step questions [eg: ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts, pictograms and tables</p>	<p><b>4S1</b> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</p> <p><b>4S2</b> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</p>	<p><b>5S1</b> Complete, read and interpret information in tables, including timetables</p> <p><b>5S2</b> Solve comparison, sum and difference problems using information presented in a line graph</p>	<p><b>6S1</b> Interpret and construct pie charts and line graphs and use these to solve problems</p> <p><b>6S3</b> Calculate and interpret the mean as an average</p>
<p><b>Vocabulary</b></p>	<p>count, sort, group, set list</p>	<p>vote, table</p>	<p>tally, graph, block graph, pictogram, represent, label, title, most popular, most common, least.</p>	<p>chart, bar chart, frequency, carroll diagram, venn diaram, axis, axes, diagram</p>	<p>survey, questionnaire, data,</p>	<p>database, bar line chart, line grapgh, maximum, minimum, outcome</p>	<p>pie chart, mean, statistics, distribution</p>