

Maths Overview

Unit 1: Number & Place Value



The national curriculum for Maths aims to ensure that all pupils:

- 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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens given a number, identify one more and one less • 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 • read and write numbers from 1 to 20 in numerals and words. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • count in multiples of 6, 7, 9, 25 and 1000 • find 1000 more or less than a given number • count backwards through zero to include negative numbers • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1000 • identify, represent and estimate numbers using different representations • round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers • 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>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10,000 and 100,000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above.
<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • The position a digit is placed in a number determines its value. • The language used to name numbers does not 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • The position (place) of a digit in a number determines its value. Hence the term place value. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • The value of a digit is determined by its position in a number. • Place value is based on unitising, treating a 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Imagining the position of numbers on a horizontal number line helps us to order them: the number to the right 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Large numbers of six digits are named in a pattern of three: hundreds of thousands, tens of thousands, ones 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • For whole numbers, the more digits a number has, the larger it must be: any 4-digit whole number is larger than

<p>always expose the place value, for example the word 'twelve' does not make it transparent that the value of this number is ten and two. It is important that children develop a secure understanding of the value of each digit.</p>		<p>group of things as one 'unit'. This generalises to 3 units + 2 units = 5 units (where the units are the same size).</p>	<p>on a number line is the larger number. So 5 is greater than 4, as 5 is to the right of 4. But -4 is greater than -5 as -4 is to the right of -5.</p> <ul style="list-style-type: none"> • Rounding numbers in context may mean rounding up or down. Buying packets of ten cakes, we might round up to the nearest ten to make sure everyone gets a cake. • Estimating the number of chairs in a room for a large number of people we might round down to estimate the number of chairs to make sure there are enough. • We can think of place value in additive terms: 456 is 400 + 50 + 6, or in multiplicative terms: one hundred is ten times as large as ten. 	<p>of thousands, mirroring hundreds, tens and ones.</p> <ul style="list-style-type: none"> • It is helpful to relate large numbers to real-world contexts, for example the number of people that a local sports arena can hold. 	<p>any 3-digit whole number. But this is not true of decimal numbers: having more digits does not make a decimal number necessarily bigger. For example, 0.5 is larger than 0.35.</p> <ul style="list-style-type: none"> • Ordering decimal numbers uses the same process as for whole numbers ie we look at the digits in matching places in the numbers, starting from the place with the highest value i.e. from the left. The number with the higher different digit is the higher number. For example, 256 is greater than 247 because 256 has 5 tens but 247 has only 4 tens. Similarly 1.0843 is smaller than 1.524 because 1.0843 has 0 tenths but 1.524 has 5 tenths.
<p>Links to prior learning:</p> <p>Please see EYFS LTP</p>	<p>Links to prior learning:</p> <p>Y1, counting to and across 100</p>	<p>Links to prior learning:</p> <p>Y1, counting to and across 100 Y2, counting in steps of 2, 3 and 5</p>	<p>Links to prior learning:</p> <p>Y1, counting to and across 100 Y2, counting in steps of 2, 3 and 5 Y3, counting in multiples and recognising place value up to 1,000</p>	<p>Links to prior learning:</p> <p>Y1, counting to and across 100 Y2, counting in steps of 2, 3 and 5 Y3, counting in multiples and recognising place value up to 1,000 Y4, thinking of place value in additive or multiplicative</p>	<p>Links to prior learning:</p> <p>Y1, counting to and across 100 Y2, counting in steps of 2, 3 and 5 Y3, counting in multiples and recognising place value up to 1,000 Y4, thinking of place value in additive or multiplicative Y5, counting forwards and backwards with negative numbers</p>
<p>Links to future learning:</p> <p>Y2, counting to and across 100 Y3, counting in steps of 2, 3 and 5 Y4, counting in multiples and recognising place value up to 1,000 Y5, thinking of place value in additive or multiplicative Y6, counting forwards and backwards with negative numbers</p>	<p>Links to future learning:</p> <p>Y3, counting in steps of 2, 3 and 5 Y4, counting in multiples and recognising place value up to 1,000 Y5, thinking of place value in additive or multiplicative Y6, counting forwards and backwards with negative numbers</p>	<p>Links to future learning:</p> <p>Y4, counting in multiples and recognising place value up to 1,000 Y5, thinking of place value in additive or multiplicative Y6, counting forwards and backwards with negative numbers</p>	<p>Links to future learning:</p> <p>Y5, thinking of place value in additive or multiplicative Y6, counting forwards and backwards with negative numbers</p>	<p>Links to future learning:</p> <p>Y6, counting forwards and backwards with negative numbers</p>	<p>Links to future learning:</p> <p>KS3 - working interchangeably with terminating decimals and their corresponding fractions</p>

Maths Overview

Unit 2: Addition and Subtraction, Multiplication and Division



The national curriculum for Maths aims to ensure that all pupils:

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- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems • 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>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • solve problems with addition and subtraction: <ul style="list-style-type: none"> ◦ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ◦ applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> ◦ a two-digit number and ones ◦ a two-digit number and tens ◦ two two-digit numbers ◦ adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • add and subtract numbers mentally, including: <ul style="list-style-type: none"> ◦ a three-digit number and ones ◦ a three-digit number and tens ◦ a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. • recall multiplication and division facts for multiplication tables up to 12×12 • 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 • recognise and use factor pairs and commutativity in mental calculations multiply two-digit and three-digit numbers by a one-digit number using formal written layout • solve problems involving multiplying and adding, including using the distributive law to multiply two digit 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • 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 • 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 • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts,

	<p>solve missing number problems.</p> <ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts 	<p>numbers times one-digit numbers, using mental and progressing to formal written methods</p> <ul style="list-style-type: none"> 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. 	<p>numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>a formal written method, including long multiplication for two-digit numbers</p> <ul style="list-style-type: none"> multiply and divide numbers mentally drawing upon known facts 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 multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 recognise and use square numbers and cube numbers, and the notation for squared and cubed solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. 	<p>deciding which operations and methods to use and why</p> <ul style="list-style-type: none"> solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given $8 + 7$, thinking of 7 as $2 + 5$ and adding the 2 to 8 to make 10 and then the 5 to total 15. Counting in steps of equal sizes is based on the big 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> When adding two numbers, it can be more efficient to put the larger number first. When adding three or more numbers, it is helpful to look for pairs of numbers that are easy to add. For example, given $5 + 8 + 2$ it is easier to add $8 + 2$ first than to begin with $5 + 8$. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. Subtraction bonds can be thought of in terms of addition: for example, in answering $15 - 8$, thinking what needs to be added to 8 to make 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> To know when to round a number before carrying out a calculation to get a size of the answer. For example, $4786 - 2135$ is close to $5000 - 2000$, so the answer will be around 3000 Looking at the numbers in a calculation and 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> To select whether to answer a question using the formal written methods or mentally. Carrying out an equivalent calculation might be easier than carrying out the given calculation. For example $3682 - 2996$ is equivalent to $3686 -$ 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. For example, calculating $8 \cdot 78 + 5 \cdot 26$ might involve calculating $8 \cdot 75 + 5 \cdot 25$ and then adjusting the answer.

<p>idea of 'unitising' ; treating a group of, say, five objects as one unit of five.</p> <ul style="list-style-type: none"> Working with arrays helps pupils to become aware of the commutative property of multiplication, that 2×5 is equivalent to 5×2. 	<ul style="list-style-type: none"> The = sign means equivalent to. Understand the patterns within tables and connections between them (e.g. $5x$ is half of $10x$). Division is both grouping and sharing. Multiplication and division are inverse operations. 	<p>15. Counting on for subtraction is a useful strategy that can also be applied to larger numbers.</p> <ul style="list-style-type: none"> To be able to use these facts to figure out others and to use in problems. It is also important for children to be able to link facts within the tables (e.g. $5x$ is half of $10x$). 	<p>their relationship to each other can help make calculating easier. For example, $3012 - 2996$</p> <ul style="list-style-type: none"> Noticing that the numbers are close to each other might mean this is more easily calculated by thinking about subtraction as difference. It is also important for children to be able to link facts within the tables (e.g. $5x$ is half of $10x$). The distributive law can be used to partition numbers in different ways to create equivalent calculations. For example, $4 \times 27 = 4 \times (25 + 2) = (4 \times 25) + (4 \times 2) = 108$. 	<p>3000 (constant difference).</p> <ul style="list-style-type: none"> Factors and multiples are connected ideas: 48 is a multiple of 6 and 6 is a factor of 48 	<ul style="list-style-type: none"> The associative rule helps when adding three or more numbers: $367 + 275 + 525$ is probably best thought of as $367 + (275 + 525)$ rather than $(367 + 275) + 525$ Standard written algorithms use the conceptual structures of the mathematics to produce efficient methods of calculation. Standard written multiplication method involves a number of partial products. For example, 36×24 is made up of four partial products 30×20, 30×4, 6×20, 6×4. There are connections between factors, multiples and prime numbers and between fractions, division and ratios
<p>Links to prior learning:</p> <p>Please see EYFS LTP</p>	<p>Links to prior learning:</p> <p>Y1, unitising & working with arrays</p>	<p>Links to prior learning:</p> <p>Y1, unitising & working with arrays Y2, understanding patterns within tables and inverse operations</p>	<p>Links to prior learning:</p> <p>Y1, unitising & working with arrays Y2, understanding patterns within tables and inverse operations Y3, subtraction bonds and making links between numbers</p>	<p>Links to prior learning:</p> <p>Y1, unitising & working with arrays Y2, understanding patterns within tables and inverse operations Y3, subtraction bonds and making links between numbers Y4, distributive law and partitioning numbers to make equivalent calculations</p>	<p>Links to prior learning:</p> <p>Y1, unitising & working with arrays Y2, understanding patterns within tables and inverse operations Y3, subtraction bonds and making links between numbers Y4, distributive law and partitioning numbers to make equivalent calculations Y5, factors and multiples</p>
<p>Links to future learning:</p> <p>Y2, unitising & working with arrays Y3, understanding patterns within tables and inverse operations Y4, subtraction bonds and making links between numbers Y5, distributive law and partitioning numbers to make equivalent calculations Y6, factors and multiples</p>	<p>Links to future learning:</p> <p>Y3, understanding patterns within tables and inverse operations Y4, subtraction bonds and making links between numbers Y5, distributive law and partitioning numbers to make equivalent calculations Y6, factors and multiples</p>	<p>Links to future learning:</p> <p>Y4, subtraction bonds and making links between numbers Y5, distributive law and partitioning numbers to make equivalent calculations Y6, factors and multiples</p>	<p>Links to future learning:</p> <p>Y5, distributive law and partitioning numbers to make equivalent calculations Y6, factors and multiples</p>	<p>Links to future learning:</p> <p>Y6 factors and multiples</p>	<p>Links to future learning:</p> <p>KS3 - use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative</p>



Unit 3: Fractions, Decimals and Percentages

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- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • 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>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity • write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • 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 • recognise and show, diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions • count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • 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 • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ • 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 • 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 • solve simple measure and money problems 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number • 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 > 1 as a mixed number • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • 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 • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • 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 • divide proper fractions by whole numbers • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified

			involving fractions and decimals to two decimal places.	<ul style="list-style-type: none"> up to three decimal places • solve problems involving number up to three decimal places • recognise the percent 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 • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$ and those fractions with a denominator of a multiple of 10 or 25. 	<ul style="list-style-type: none"> degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Fractions express a relationship between a whole and equal parts of the whole. Ensure children express this relationship when talking about fractions. • Halving involves partitioning an object, shape or quantity into two equal parts. • The two parts need to be equivalent in, for example, area, mass or quantity 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Fractions involve a relationship between a whole and parts of a whole. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Fractions are equal parts of a whole. • Equal parts of shapes do not need to be congruent but need to be equal in area. • Decimal fractions are linked to other fractions. • The number line is a useful representation that helps children to think about fractions as numbers. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Fractions arise from solving problems, where the answer lies between two whole numbers. • Fractions express a relationship between a whole and equal parts of a whole. Children should recognise this and speak in full sentences when answering a question involving fractions. For example, in response to the question What fraction of the chocolate bar is shaded? the pupil might say Two sevenths of the whole chocolate bar is shaded. • Equivalency in relation to fractions is important. Fractions that look very different in their symbolic notation can mean the same thing. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Representations that may appear different sometimes have similar underlying ideas. For example $\frac{1}{4}$, 0.25 and 25% are used in different contexts but are all connected to the same idea. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Equivalent fractions are connected to the idea of ratio: keeping the numerator and denominator of a fraction in the same proportion creates an equivalent fraction. • Putting fractions in place on the number lines helps understand fractions as numbers in their own right.
<p>Links to prior learning: Please see EYFS LTP</p>	<p>Links to prior learning: Y1, identifying the different parts of a fraction and understanding that two parts need to be equivalent</p>	<p>Links to prior learning: Y1, identifying the different parts of a fraction and understanding that two parts need to be</p>	<p>Links to prior learning: Y1, identifying the different parts of a fraction and understanding that two parts need to be</p>	<p>Links to prior learning: Y1, identifying the different parts of a fraction and understanding that two parts need to be</p>	<p>Links to prior learning: Y1 identifying the different parts of a fraction and understanding that two parts need to be</p>

		equivalent Y2, understanding the relationship between a whole and parts of a whole	equivalent Y2, understanding the relationship between a whole and parts of a whole Y3, the link between fractions and decimal fractions	equivalent Y2, understanding the relationship between a whole and parts of a whole Y3, the link between fractions and decimal fractions Y4, solving problems linked to fractions	equivalent Y2, understanding the relationship between a whole and parts of a whole Y3, the link between fractions and decimal fractions Y4, solving problems linked to fractions Y5, linking fractions to different contexts e.g. percentage and decimal equivalents
Links to future learning: Y2, identifying the different parts of a fraction and understanding that two parts need to be equivalent Y3, understanding the relationship between a whole and parts of a whole Y4, the link between fractions and decimal fractions Y5, solving problems linked to fractions Y6, linking fractions to different contexts e.g. percentage and decimal equivalents	Links to future learning: Y3, understanding the relationship between a whole and parts of a whole Y4, the link between fractions and decimal fractions Y5, solving problems linked to fractions Y6, linking fractions to different contexts e.g. percentage and decimal equivalents	Links to future learning: Y4, the link between fractions and decimal fractions Y5, solving problems linked to fractions Y6, linking fractions to different contexts e.g. percentage and decimal equivalents	Links to future learning: Y5, solving problems linked to fractions Y6, linking fractions to different contexts e.g. percentage and decimal equivalents	Links to future learning: Y6, linking fractions to different contexts e.g. percentage and decimal equivalents	Links to future learning: KS3 - <ul style="list-style-type: none"> define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100% interpret fractions and percentages as operators

Maths Overview

Unit 4: Measurement



The national curriculum for Maths aims to ensure that all pupils:

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- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> compare, describe and solve practical problems for: <ul style="list-style-type: none"> lengths and heights 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> Convert between different units of measure [for example, kilometre to metre; hour to minute] 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> solve problems involving the calculation and conversion of units of measure, using decimal notation up to

<ul style="list-style-type: none"> ○ mass/weight ○ capacity and volume ○ time ● measure and begin to record the following: <ul style="list-style-type: none"> ○ lengths and heights ○ mass/weight ○ capacity and volume ○ time (hours, minutes, seconds) ● recognise and know the value of different denominations of coins and notes ● 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. 	<p>(kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <ul style="list-style-type: none"> ● compare and order lengths, mass, volume/capacity and record the results using >, < and = ● recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value ● find different combinations of coins that equal the same amounts of money ● solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change ● 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. 	<ul style="list-style-type: none"> ● measure the perimeter of simple 2-D shapes ● add and subtract amounts of money to give change, using both £ and p in practical contexts ● 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, a.m./p.m., 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]. 	<ul style="list-style-type: none"> ● measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres ● find the area of rectilinear shapes by counting squares ● estimate, compare and calculate different measures, including money in pounds and pence ● 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. 	<p>centimetre and millimetre; gram and kilogram; litre and millilitre)</p> <ul style="list-style-type: none"> ● understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints ● measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres ● calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate ● the area of irregular shapes ● estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] ● solve problems involving converting between units of time ● use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. 	<p>three decimal places where appropriate</p> <ul style="list-style-type: none"> ● 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 ● convert between miles and kilometres ● recognise that shapes with the same areas can have different perimeters and vice versa ● recognise when it is possible to use formulae for area and volume of shapes ● calculate the area of parallelograms and triangles ● calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres, and extending to other units [for example, mm³ and km³].
<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● Measurement is about comparison, for example measuring to find out which rope is the longest. ● Measurement is about equivalence, for example how many cubes are equivalent to the length of the table or the mass of the teddy? ● Standard units can initially be introduced through using a unit that is greater than the things being compared, for example 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● We need standard units of measure in order to compare things more accurately and consistently. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● To begin to develop their estimation skills i.e. The height of a door frame, for example, is approximately 2 metres, and a bag of sugar weighs approximately 1 kilogram. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● The smaller the unit, the greater the number of units needed to measure (that is, there is an inverse relationship between size of unit and measure) 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● The relationship between area and perimeter is not a simple one. Increasing or decreasing area does not necessarily mean the perimeter increases or decreases respectively, or vice versa. ● Area is measured in square units. For rectangles, measuring the length and breadth is a shortcut to finding 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> ● To read a scale, first work out how much each mark or division on the scale represents. ● The unit of measure must be identified before measuring. Selecting a unit will depend on the size and nature of the item to be measured and the degree of accuracy required.

comparing the capacity of a cup and a carton by filling each and pouring into matching bottles to compare the two.				out how many squares would fit into each of these dimensions.	
Links to prior learning: Please see EYFS LTP	Links to prior learning: Y1, identifying standard units and measuring length and mass	Links to prior learning: Y1, identifying standard units and measuring length and mass Y2, compare things accurately and consistently	Links to prior learning: Y1, identifying standard units and measuring length and mass Y2, compare things accurately and consistently Y3, develop their estimation skills	Links to prior learning: Y1, identifying standard units and measuring length and mass Y2, compare things accurately and consistently Y3, develop their estimation skills Y4, understanding that the smaller the unit, the greater the number	Links to prior learning: Y1 identifying standard units and measuring length and mass Y2, compare things accurately and consistently Y3, develop their estimation skills Y4, understanding that the smaller the unit, the greater the number Y5, the relationship between area and perimeter
Links to future learning: Y2, identifying standard units and measuring length and mass Y3, compare things accurately and consistently Y4, develop their estimation skills Y5, understanding that the smaller the unit, the greater the number Y6, the relationship between area and perimeter	Links to future learning: Y3, compare things accurately and consistently Y4, develop their estimation skills Y5, understanding that the smaller the unit, the greater the number Y6, the relationship between area and perimeter	Links to future learning: Y4, develop their estimation skills Y5, understanding that the smaller the unit, the greater the number Y6, the relationship between area and perimeter	Links to future learning: Y5, understanding that the smaller the unit, the greater the number Y6, the relationship between area and perimeter	Links to future learning: Y6 the relationship between area and perimeter	Links to future learning: KS3 - use standard units of mass, length, time, money and other measures, including with decimal quantities

Maths Overview

Unit 5: Geometry



The national curriculum for Maths aims to ensure that all pupils:

- 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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> 2-D shapes [for example, rectangles] 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify and describe the 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> identify 3-D shapes, including cubes and other cuboids, from 2-D representations know angles are measured in degrees: 	Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> draw 2-D shapes using given dimensions and angles recognise, describe and build simple 3-D shapes, including making nets

<p>(including squares), circles and triangles]</p> <ul style="list-style-type: none"> 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. 	<p>properties of 3-D shapes, including the number of edges, vertices and faces</p> <ul style="list-style-type: none"> identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> recognise angles as a property of shape or a description of a turn 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 identify horizontal and vertical lines and pairs of perpendicular and parallel lines. 	<ul style="list-style-type: none"> identify acute and obtuse angles and compare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presented in different orientations complete a simple symmetric figure with respect to a specific line of symmetry. describe positions on a 2-D grid as coordinates in the first quadrant describe movements between positions as translations of a given unit to the left/right and up/down plot specified points and draw sides to complete a given polygon. 	<p>estimate and compare acute, obtuse and reflex angles</p> <ul style="list-style-type: none"> draw given angles, and measure them in degrees ($^{\circ}$) Identify: <ul style="list-style-type: none"> angles at a point and one whole turn (total 360°) angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) other multiples of 90° use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 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. 	<ul style="list-style-type: none"> compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
<p>Essential Knowledge:</p> <ul style="list-style-type: none"> It is important for children to be familiar with a range of 2-D and 3-D shapes and not just recognise them in specific orientations. It is preferable to introduce 3-D shapes before 2-D shapes, since 2-D shapes only exist in the real world as faces of 3-D shapes. An emphasis should be placed upon identifying and describing the properties of shapes. It is important that pupils develop the correct mathematical language to do so. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> It is important for pupils to know what the properties are that make up certain shapes, and for them not to just learn the names of typical proto looking shapes. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> To identify and draw symmetrical and non-symmetrical polygons. Recognise that angles are about the amount of turn - the lengths of the lines used to represent angles do not affect the size of the angle. Recall facts such as, the opposite sides of any rectangle will always be equal, not that rectangles have a pair of long sides and a pair of short sides. 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Pupils increase the range of 2-D and 3-D shapes that they are familiar with. They know the correct names for these shapes, but, more importantly, they are able to say why certain shapes are what they are by referring to their properties, including lengths of sides, size of angles and number of lines of symmetry. The naming of shapes sometimes focuses on angle properties (e.g. a rectangle is right-angled), and sometimes on properties of sides (e.g. an equilateral triangle is 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Regular shapes have to have all sides and all angles the same. Although non-square rectangles have four equal angles, the fact that they do not have four equal sides means that they are not regular. Some properties of shapes are dependent upon other properties. For example, a rectangle has opposite sides equal because it has four right angles. A rectangle is defined as a quadrilateral with four right angles. It does not have to be defined as a quadrilateral with four 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> Shapes can be alike in essentially two different ways: congruent and similar. Congruent shapes are alike in all ways: they could occupy exactly the same space. Similar shapes share identical geometrical properties but can differ in size. All equilateral triangles are similar, but only identically sized ones are congruent. Not all isosceles triangles are similar. Angle properties are a mix of necessary conditions and conventions. It is a necessary condition

			<p>an equal sided triangle).</p> <ul style="list-style-type: none"> • Shapes can belong to more than one classification. For example, a square is a rectangle, a parallelogram, a rhombus and a quadrilateral. 	<p>right angles and two pairs of equal sides.</p> <ul style="list-style-type: none"> • 3-D shapes they think about the faces as well as the number of vertices and through considering nets think about the 2-D shapes that define the 3-D shapes. 	<p>that angles on a straight line combine to a complete half turn. That we measure the half turn as 180° is conventional.</p>
<p>Links to prior learning: Please see EYFS LTP</p>	<p>Links to prior learning: Y1, able to identify the difference between 2-D and 3-D shapes</p>	<p>Links to prior learning: Y1, able to identify the difference between 2-D and 3-D shapes Y2, identifying the properties that make up certain shapes</p>	<p>Links to prior learning: Y1, able to identify the difference between 2-D and 3-D shapes Y2, identifying the properties that make up certain shapes Y3, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts</p>	<p>Links to prior learning: Y1, able to identify the difference between 2-D and 3-D shapes Y2, identifying the properties that make up certain shapes Y3, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts Y4, understanding that shapes can belong to more than one classification and understanding their angle properties</p>	<p>Links to prior learning: Y1 able to identify the difference between 2-D and 3-D shapes Y2, identifying the properties that make up certain shapes Y3, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts Y4, understanding that shapes can belong to more than one classification and understanding their angle properties Y5, understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>
<p>Links to future learning: Y2, able to identify the difference between 2-D and 3-D shapes Y3, identifying the properties that make up certain shapes Y4, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts Y5, understanding that shapes can belong to more than one classification and understanding their angle properties Y6, understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>	<p>Links to future learning: Y3, identifying the properties that make up certain shapes Y4, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts Y5, understanding that shapes can belong to more than one classification and understanding their angle properties Y6, understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>	<p>Links to future learning: Y4, drawing and identifying symmetrical and non-symmetrical polygons and recalling facts Y5, understanding that shapes can belong to more than one classification and understanding their angle properties Y6, understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>	<p>Links to future learning: Y5, understanding that shapes can belong to more than one classification and understanding their angle properties Y6, understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>	<p>Links to future learning: Y6 understanding the properties of regular and irregular shapes and using 3-D shape vocabulary such as nets, faces and vertices</p>	<p>Links to future learning: KS3 - derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)</p>

Maths Overview

Unit 6: Statistics



The national curriculum for Maths aims to ensure that all pupils:

- 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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • interpret and present data using bar charts, pictograms and tables • 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. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables. 	<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.
	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Data is collected in order to answer enquiry questions. • Tally charts are used to collect data over time (cars passing the school, birds on the bird table). 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Data is collected in order to answer enquiry questions. • Tally charts are used to collect data over time (cars passing the school, birds on the bird table). 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Discrete data are counted and have fixed values, for example the number of children who chose red as their favourite colour (this has to be a whole number and cannot be anything in between) • Continuous data are measured, for example at what time did each child finish the race? 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Different representations highlight different aspects of data. • It is important to be able to answer questions about data using inference and deduction, not just direct retrieval 	<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • Pie charts visually display relative proportions, for example, that the proportion of pupils at School A liking reading is greater than the proportion at School B
		<p>Links to prior learning: Y2, interpreting and constructing tables and charts and collecting data</p>	<p>Links to prior learning: Y2, interpreting and constructing tables and charts and collecting data Y3, solving one and two-step questions linked to information presented on a graph or table</p>	<p>Links to prior learning: Y2, interpreting and constructing tables and charts and collecting data Y3, solving one and two-step questions linked to information presented on a graph or table</p>	<p>Links to prior learning: Y2, interpreting and constructing tables and charts and collecting data Y3, solving one and two-step questions linked to information presented on a graph or table</p>

				Y4, interpreting and presenting discrete and continuous data using appropriate graphical methods	Y4, interpreting and presenting discrete and continuous data using appropriate graphical methods Y5, solving and comparing data and reading and interpreting timetables
	Links to future learning: Y3, interpreting and constructing tables and charts and collecting data Y4, solving one and two-step questions linked to information Y5, interpreting and presenting discrete and continuous data using appropriate graphical methods Y6, solving and comparing data and reading and interpreting timetables	Links to future learning: Y4, solving one and two-step questions linked to information presented on a graph or table Y5, interpreting and presenting discrete and continuous data using appropriate graphical methods Y6, solving and comparing data and reading and interpreting timetables	Links to future learning: Y5, interpreting and presenting discrete and continuous data using appropriate graphical methods Y6, solving and comparing data and reading and interpreting timetables	Links to future learning: Y6 solving and comparing data and reading and interpreting timetables	Links to future learning: KS3 -describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)

Maths Overview

Unit 7: Ratio and Proportion

The national curriculum for Maths aims to ensure that all pupils:

- 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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Subject Content: <i>Pupils should be taught to:</i> <ul style="list-style-type: none"> • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison



					<ul style="list-style-type: none"> • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
					<p>Essential Knowledge: It is important to distinguish between situations with an additive change or a multiplicative change (which involves ratio). For example, if four children have six sandwiches to share and two more children join them, although two more children have been added, the number of sandwiches then needed for everyone to still get the same amount is calculated multiplicatively.</p>
					<p>Links to future learning: KS3 - record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale</p>

Maths Overview

Unit 8: Algebra



The national curriculum for Maths aims to ensure that all pupils:

- 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.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<p>Subject Content: <i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables.
					<p>Essential Knowledge:</p> <ul style="list-style-type: none"> • The rules of the four operations can be used for solving simple formulae • Missing number problems might require the inverse operation
					<p>Links to future learning: KS3 - substitute numerical values into formulae and expressions, including scientific formulae</p>