

Barrow CEVC Primary School

Inspire, Create, Discover, Together

MATHS INTENT



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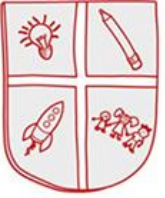
Maths – Intent

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

In line with the National Curriculum Objectives for Mathematics, our intent is 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

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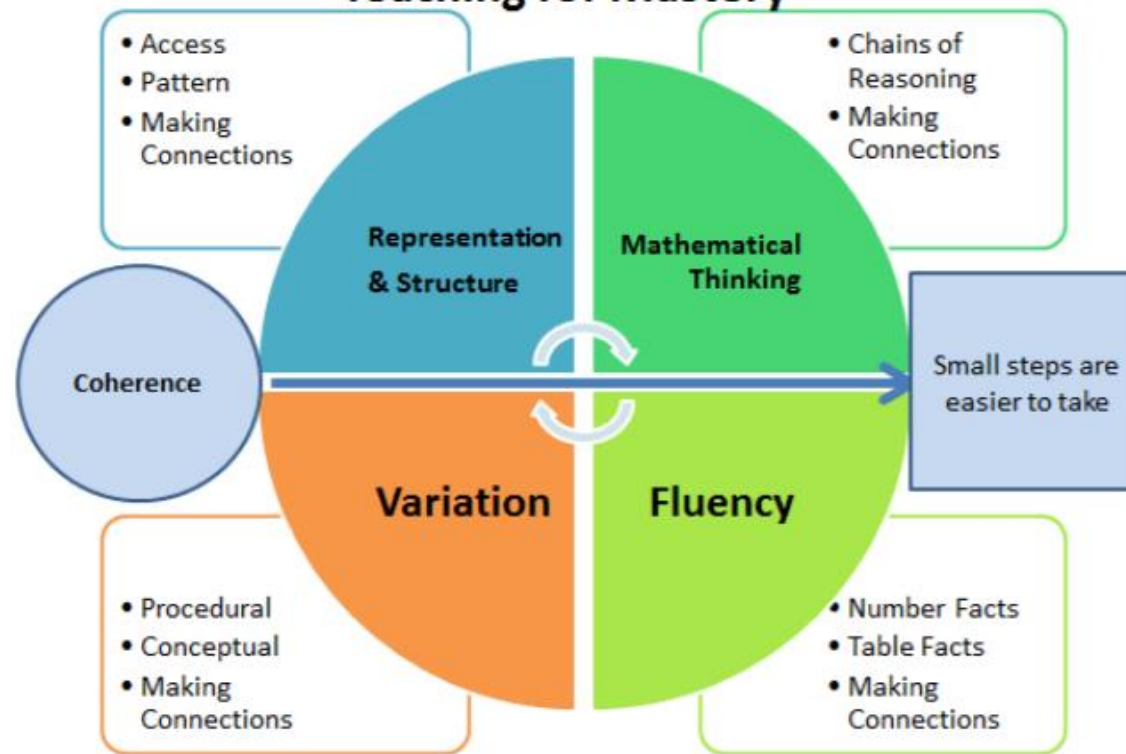


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Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programs of study are, by necessity, organised into apparently distinct domains, but pupils should make rich 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. Central to our approach are the 5 Big Ideas which underpin mastery in mathematics.

Teaching for Mastery



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Our curriculum builds on and develops from prior knowledge in each strand of Mathematics, allowing children to deeper and broaden their understanding .



Curriculum coverage - Maths

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Pupils develop their subitising and counting skills. explore the composition of numbers within 5	Previous Reception experiences and counting within 200	Numbers 10 to 100	Adding and subtracting across 10	Review of column addition and subtraction	Decimal fractions	Calculating using knowledge of structures [2]
			Calculations within 20		Numbers to 10,000	Money	
Autumn 2	compare sets of objects and use the language of comparison.	Comparison of quantities and part-whole relationships	Fluency add and subtract	Numbers to 1,000	Perimeter+ Area	Negative numbers	Multiples of 1000
		Numbers 0 - 5	Addition and subtraction of two-digit numbers [1]			Short multiplication and short division	Numbers up to 10,000,000
Spring 1	subitising and counting composition of numbers within and beyond 5. identify when two sets are equal or unequal	Recognise, compose, decompose and manipulate 2D and 3D shapes	Introduction to multiplication	Right angles	3, 5, 9 times tables	Area and scaling	Draw, compose and decompose shapes
		Numbers 0-50	Introduction to division structures	Manipulating the additive relationship and securing mental calculation	7 times table and patterns		Multiplication and division
Spring 2	connect two equal groups to doubles. connect quantities to numerals.	Additive structures	Shape	Column addition	Understanding and manipulating multiplicative relationships	Calculating with decimal fractions	Fractions and percentages
		Addition and subtraction facts within 10	Addition and subtraction of two-digit numbers [2]	2, 4, 8 times tables			
Summer 1	consolidate counting skills counting to larger numbers counting strategies.		Money	Column subtraction	Review of fractions	Factors, multiples and primes	Statistics
		Numbers 0-20	Fractions	Unit fractions	Fractions greater than 1		
Summer 2	secure knowledge of number facts through varied practice.	Unkiding and coin recognition	Multiplication and division – doubling, halving, quotitive and partitive division	Non-unit fractions	Symmetry in 2D shapes	Fractions	Ratio and proportion
			Sense of measure – capacity, volume, mass		Time		Division with remainders
		Position and direction	Geometry – position and direction	Parallel and perpendicular sides in polygons	Statistics	Conserving units	Solving problems with two unknowns
		Time	Statistics	Time	Triangles and angle	Angles	Order of operations
							Mean average

☐ No NCETM resources – WR or other



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Year 1	
1	Previous Reception experiences and counting within 100 <ul style="list-style-type: none"> 1NPV-1 Count within 100, forwards and backwards, starting with any number. 1.9 Composition of numbers: 20-100
2	Comparison of quantities and part-whole relationships <ul style="list-style-type: none"> 1NPV-1 Count within 100, forwards and backwards, starting with any number. 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1.1 Comparison of quantities and measures 1.2 Introducing 'whole' and 'parts': part-part-whole
3	Numbers 0 to 5 <ul style="list-style-type: none"> 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. 1.3 Composition of numbers: 0-5
4	Recognise, compose, decompose and manipulate 2D and 3D shapes <ul style="list-style-type: none"> 1G-1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. 1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.
5	Numbers 0 to 10 <ul style="list-style-type: none"> 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1AS-1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. 1.4 Composition of numbers: 6-10
6	Additive structures <ul style="list-style-type: none"> 1AS-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. 1.5 Additive structures: introduction to aggregation and partitioning 1.6 Additive structures: introduction to augmentation and reduction
7	Addition and subtraction facts within 10 <ul style="list-style-type: none"> 1NF-1 Develop fluency in addition and subtraction facts within 10. 1.7 Addition and subtraction: strategies within 10
8	Numbers 0 to 20 <ul style="list-style-type: none"> 1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. 1.10 Composition of numbers: 11-19
9	Unitising and coin recognition <ul style="list-style-type: none"> 1NF-2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. 2.1 Counting, unitising and coins
10	Position and direction <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
11	Time <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

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Light grey references are from the NCETM Primary Mastery Professional Development materials
Both are available online

Year 2	
1	Numbers 10 to 100 <ul style="list-style-type: none"> 2NPV-1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning. 2NPV-2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10. 1.8 Composition of numbers: multiples of 10 up to 100 1.9 Composition of numbers: 20-100
2	Calculations within 20 <ul style="list-style-type: none"> 2AS-1 Add and subtract across 10. 2AS-2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?". 1.11 Addition and subtraction: bridging 10 1.12 Subtraction as difference
3	Fluently add and subtract within 10 <ul style="list-style-type: none"> 2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice. 1.7 Addition and subtraction: strategies within 10
4	Addition and subtraction of two-digit numbers (1) <ul style="list-style-type: none"> 2AS-3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number. 1.13 Addition and subtraction: two-digit and single-digit numbers 1.14 Addition and subtraction: two-digit numbers and multiples of ten
5	Introduction to multiplication <ul style="list-style-type: none"> 2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. 2.2 Structures: multiplication representing equal groups 2.3 Times tables: groups of 2 and commutativity (part 1) 2.4 Times tables: groups of 10 and of 5, and factors of 0 and 1 2.5 Commutativity (part 2), doubling and halving
6	Introduction to division structures <ul style="list-style-type: none"> 2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). 2.6 Structures: quotitive and partitive division
7	Shape <ul style="list-style-type: none"> 2G-1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.
8	Addition and subtraction of two-digit numbers (2) <ul style="list-style-type: none"> 2AS-4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. 1.15 Addition: two-digit and two-digit numbers 1.16 Subtraction: two-digit and two-digit numbers
9	Money <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
10	Fractions <ul style="list-style-type: none"> 3.0 Guidance on the teaching of fractions in Key Stage 1
11	Time <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
12	Position and direction <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.
13	Multiplication and division – doubling, halving, quotitive and partitive division <ul style="list-style-type: none"> 2.5 Commutativity (part 2), doubling and halving 2.6 Structures: quotitive and partitive division
14	Sense of measure – capacity, volume, mass <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.

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Year 3	
1	<p>Adding and subtracting across 10</p> <ul style="list-style-type: none"> 2AS-1 Add and subtract across 10. 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. 1.11 Addition and subtraction: bridging 10
2	<p>Numbers to 1,000</p> <ul style="list-style-type: none"> 3NPV-1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. 3NPV-2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. 3NPV-4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. 3AS-1 Calculate complements to 100. 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). 1.17 Composition and calculation: 100 and bridging 100 1.18 Composition and calculation: three-digit numbers
3	<p>Right angles</p> <ul style="list-style-type: none"> 3G-1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.
4	<p>Manipulating the additive relationship and securing mental calculation</p> <ul style="list-style-type: none"> 3AS-3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. 1.19 Securing mental strategies: calculation up to 999
5	<p>Column addition</p> <ul style="list-style-type: none"> 3AS-2 Add and subtract up to three-digit numbers using columnar methods. 1.20 Algorithms: column addition
6	<p>2, 4, 8 times tables</p> <ul style="list-style-type: none"> 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division. 3NF-2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). 2.7 Times tables: 2, 4 and 8, and the relationship between them
7	<p>Column subtraction</p> <ul style="list-style-type: none"> 3AS-2 Add and subtract up to three-digit numbers using columnar methods. 1.21 Algorithms: column subtraction
8	<p>Unit fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F-2 Find unit fractions of quantities using known division facts (multiplication tables fluency). 3F-3 Reason about the location of any fraction within 1 in the linear number system. 3.1 Preparing for fractions: the part-whole relationship 3.2 Unit fractions: identifying, representing and comparing
9	<p>Non-unit fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3F-3 Reason about the location of any fraction within 1 in the linear number system. 3F-4 Add and subtract fractions with the same denominator, within 1. 3.3 Non-unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole
10	<p>Parallel and perpendicular sides in polygons</p> <ul style="list-style-type: none"> 3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

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Year 4	
1	<p>Review of column addition and subtraction</p> <ul style="list-style-type: none"> 3AS-2 Add and subtract up to three-digit numbers using columnar methods. 1.20 Algorithms: column addition 1.21 Algorithms: column subtraction
2	<p>Numbers to 10,000</p> <ul style="list-style-type: none"> 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). 1.22 Composition and calculation: 1,000 and four-digit numbers
3	<p>Perimeter</p> <ul style="list-style-type: none"> 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. 2.16 Multiplicative contexts: area and perimeter 1
4	<p>3, 6, 9 times tables</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number. 2.8 Times tables: 3, 6 and 9, and the relationship between them
5	<p>7 times table and patterns</p> <ul style="list-style-type: none"> 4NF-1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number. 2.9 Times tables: 7 and patterns within/across times tables
6	<p>Understanding and manipulating multiplicative relationships</p> <ul style="list-style-type: none"> 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. 4MD-3 Understand and apply the distributive property of multiplication. 4NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) 2.10 Connecting multiplication and division, and the distributive law 2.13 Calculation: multiplying and dividing by 10 or 100
7	<p>Coordinates</p> <ul style="list-style-type: none"> 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
8	<p>Review of fractions</p> <ul style="list-style-type: none"> 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. 3.1 Preparing for fractions: the part-whole relationship
9	<p>Fractions greater than 1</p> <ul style="list-style-type: none"> 4F-1 Reason about the location of mixed numbers in the linear number system. 4F-2 Convert mixed numbers to improper fractions and vice versa. 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. 3.5 Working across one whole: improper fractions and mixed numbers
10	<p>Symmetry in 2D shapes</p> <ul style="list-style-type: none"> 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.
11	<p>Time</p> <ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.
12	<p>Division with remainders</p> <ul style="list-style-type: none"> 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders. 2.12 Division with remainders

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Year 5	
Decimal fractions	<ul style="list-style-type: none"> SNPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. SNPV-2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. SNPV-3 Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. SNPV-4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. SNF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). 1.23 Composition and calculation: tenths 1.24 Composition and calculation: hundredths and thousandths
Money	<ul style="list-style-type: none"> 1.25 Addition and subtraction: money
Negative numbers	<ul style="list-style-type: none"> 1.27 Negative numbers: counting, comparing and calculating
Short multiplication and short division	<ul style="list-style-type: none"> SMD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. SMD-4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. 2.14 Multiplication: partitioning leading to short multiplication 2.15 Division: partitioning leading to short division
Area and scaling	<ul style="list-style-type: none"> 5G-2 Compare areas and calculate the area of rectangles (including squares) using standard units. 2.16 Multiplicative contexts: area and perimeter 1 2.17 Structures: using measures and comparison to understand scaling
Calculating with decimal fractions	<ul style="list-style-type: none"> SMD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. 2.19 Calculation: \times/\div decimal fractions by whole numbers 2.29 Decimal place-value knowledge, multiplication and division
Factors, multiples and primes	<ul style="list-style-type: none"> SMD-2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. 2.20 Multiplication with three factors and volume 2.21 Factors, multiples, prime numbers and composite numbers
Fractions	<ul style="list-style-type: none"> SNPV-5 Convert between units of measure, including using common decimals and fractions. 5F-1 Find non-unit fractions of quantities. 5F-2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. 5F-3 Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$, and for multiples of these proper fractions. 3.6 Multiplying whole numbers and fractions 3.7 Finding equivalent fractions and simplifying fractions 3.10 Linking fractions, decimals and percentages
Converting units	<ul style="list-style-type: none"> 5NPV-5 Convert between units of measure, including using common decimals and fractions.
Angles and transformations	<ul style="list-style-type: none"> 5G-1 Compare angles, estimate and measure angles in degrees ($^{\circ}$) and draw angles of a given size.

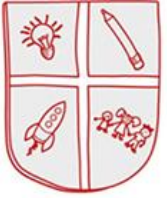
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Year 6	
Calculating using knowledge of structures (1)	<ul style="list-style-type: none"> 6AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 1.28 Common structures and the part-part-whole relationship 1.29 Using equivalence and the compensation property to calculate
Multiples of 1,000	<ul style="list-style-type: none"> 1.26 Composition and calculation: multiples of 1,000 up to 1,000,000
Numbers up to 10,000,000	<ul style="list-style-type: none"> 6NPV-1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). 6NPV-2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. 6NPV-3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts. 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. 1.30 Composition and calculation: numbers up to 10,000,000
Draw, compose and decompose shapes	<ul style="list-style-type: none"> 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
Multiplication and division	<ul style="list-style-type: none"> 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 2.18 Using equivalence to calculate 2.23 Multiplication strategies for larger numbers and long multiplication 2.24 Division: dividing by two-digit divisors 2.25 Using compensation to calculate
Area, perimeter, position and direction	<ul style="list-style-type: none"> 2.30 Multiplicative contexts: area and perimeter 2
Fractions and percentages	<ul style="list-style-type: none"> 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions. 6F-2 Express fractions in a common denominator and use this to compare fractions that are similar in value. 6F-3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denominator as a comparison strategy. 3.8 Common denominator: more adding and subtracting 3.9 Multiplying fractions and dividing fractions by a whole number 3.10 Linking fractions, decimals and percentages
Statistics	<ul style="list-style-type: none"> This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Primary Mastery PD Materials.
Ratio and proportion	<ul style="list-style-type: none"> 6AS/MD-3 Solve problems involving ratio relationships. 2.27 Scale factors, ratio and proportional reasoning
Calculating using knowledge of structures (2)	<ul style="list-style-type: none"> 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. 1.29 Using equivalence and the compensation property to calculate
Solving problems with two unknowns	<ul style="list-style-type: none"> 6AS/MD-4 Solve problems with 2 unknowns. 1.31 Problems with two unknowns
Order of operations	<ul style="list-style-type: none"> 2.22 Combining multiplication with addition and subtraction 2.28 Combining division with addition and subtraction
Mean average	<ul style="list-style-type: none"> 2.26 Mean average and equal shares

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EYFS

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.



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RECEPTION LONG TERM PLAN 2023-2024



	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
GENERAL THEMES	MARVELLOUS ME AND MY FABULOUS FRIENDS	FUN, FOOD AND CELEBRATIONS!	WE LOVE STORIES!	ARE WE THERE YET?	MINIBEAST MADNESS!	UNDER THE SEA!
MATHS MASTERING NUMBER (NCETM)	<ul style="list-style-type: none"> connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers hear and join in with the counting sequence, and connect this to the 'staircase' pattern of the counting numbers, seeing that each number is made of one more than the previous number develop counting skills and knowledge, including: that the last number in the count tells us 'how many' (cardinality); to be accurate in counting, each thing must be counted once and once only and in any order; the need for 1:1 correspondence; understanding that anything can be counted, including actions and sounds compare sets of objects by matching begin to develop the language of 'whole' when talking about objects which have parts <ul style="list-style-type: none"> understand that two equal groups can be called a 'double' and connect this to finger patterns sort odd and even numbers according to their 'shape' continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern order numbers and play track games join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers <ul style="list-style-type: none"> begin to generalise about 'one more than' and 'one less than' numbers within 10 continue to identify when sets can be subitised and when counting is necessary develop conceptual subitising skills including when using a rekenrek 					

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Key stage 1 - years 1 and 2

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 4 operations, including with practical resources [for example, concrete objects and measuring tools].

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.

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.

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

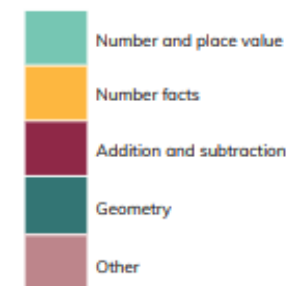


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Year 1 overview

	Unit	Unit name
Autumn 1	1	Previous Reception experiences and counting within 100
Autumn 2	2	Comparison of quantities and part-whole relationships
	3	Numbers 0 to 5
Spring 1	4	Recognise, compose, decompose and manipulate 2D and 3D shapes
	5	Numbers 0 to 10
Spring 2	6	Additive structures
	7	Addition and subtraction facts within 10
Summer 1	8	Numbers 0 to 20
Summer 2	9	Unitising and coin recognition
	10	Position and direction
	11	Time



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Year 1

Curriculum map



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Year 1 Programme of study



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	<i>Pupils will be taught to...</i>
Number - number and place value	<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 2s, 5s and 10s• given a number, identify 1 more and 1 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
Number - addition and subtraction	<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 0• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$
Number - multiplication and division	<ul style="list-style-type: none">• 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
Number - fractions	<ul style="list-style-type: none">• recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity• recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity



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Year 1 Programme of study (cont)

Measurement	<ul style="list-style-type: none">• compare, describe and solve practical problems for:• lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]• mass/weight [for example, heavy/light, heavier than, lighter than]• capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]• time [for example, quicker, slower, earlier, later]• 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
Geometry - properties of shapes	<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 (including squares), circles and triangles]• 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]
Geometry - position and direction	<ul style="list-style-type: none">• describe position, direction and movement, including whole, half, quarter and three-quarter turns

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Year 2 overview

	Unit	Unit name	
Autumn 1	1	Numbers 10 to 100	Number and place value
	2	Calculations within 20	Addition and subtraction
	3	Fluently add and subtract within 10	Number facts
Autumn 2	4	Addition and subtraction of two-digit numbers (1)	Addition and subtraction
	5	Introduction to multiplication	Multiplication and division
Spring 1	6	Introduction to division structures	Multiplication and division
	7	Shape	Geometry
Spring 2	8	Addition and subtraction of two-digit numbers (2)	Addition and subtraction
	9	Money	Other
Summer 1	10	Fractions	Other
	11	Time	Other
	12	Position and direction	Other
Summer 2	13	Multiplication and division – doubling, halving, quotitive and partitive division	Multiplication and division
	14	Sense of measure – capacity, volume, mass	Other

Year 2

Curriculum map



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Year 2 Programme of study

	<i>Pupils will be taught to...</i>
Number - number and place value	<ul style="list-style-type: none">• count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward• recognise the place value of each digit in a two-digit number (10s, 1s)• 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
Number - addition and subtraction	<ul style="list-style-type: none">• solve problems with addition and subtraction:• using concrete objects and pictorial representations, including those involving numbers, quantities and measures• applying their increasing knowledge of mental and written methods• 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 1s• a two-digit number and 10s• 2 two-digit numbers• adding 3 one-digit numbers• show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
Number - multiplication and division	<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 2 numbers can be done in any order (commutative) and division of 1 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

Year 2 Programme of study (cont)



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<p>Number - fractions</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>Measurement</p>	<ul style="list-style-type: none"> choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}$C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels 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
<p>Geometry - properties of shapes</p>	<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 properties of 3-D shapes, including the number of edges, vertices and faces 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
<p>Geometry - position and direction</p>	<ul style="list-style-type: none"> order and arrange combinations of mathematical objects in patterns and sequences 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 (clockwise and anti-clockwise)
<p>Statistics</p>	<ul style="list-style-type: none"> interpret and construct simple pictograms, tally charts, block diagrams and 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



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Lower key stage 2 - Years 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 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.

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.

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.



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Year 3 overview

	Unit	Unit name
Autumn 1	1	Adding and subtracting across 10
	2	Numbers to 1,000
Autumn 2		
Spring 1	3	Right angles
	4	Manipulating the additive relationship and securing mental calculation
Spring 2	5	Column addition
	6	2, 4, 8 times tables
	7	Column subtraction
Summer 1	8	Unit fractions
Summer 2	9	Non-unit fractions
	10	Parallel and perpendicular sides in polygons
	11	Time

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

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Year 3

Curriculum map



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Year 3 Programme of study

Number - fractions	<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 10recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominatorsrecognise and use fractions as numbers: unit fractions and non-unit fractions with small denominatorsrecognise and show, using diagrams, equivalent fractions with small denominatorsadd and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]compare and order unit fractions, and fractions with the same denominatorssolve problems that involve all of the above
Measurement	<ul style="list-style-type: none">measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)measure the perimeter of simple 2-D shapesadd and subtract amounts of money to give change, using both £ and p in practical contextstell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocksestimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnightknow the number of seconds in a minute and the number of days in each month, year and leap yearcompare durations of events [for example, to calculate the time taken by particular events or tasks]
Geometry - properties of shapes	<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 themrecognise angles as a property of shape or a description of a turnidentify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angleidentify horizontal and vertical lines and pairs of perpendicular and parallel lines
Statistics	<ul style="list-style-type: none">interpret and present data using bar charts, pictograms and tablessolve 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

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Year 3 Programme of study (cont)

Number - fractions	<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 10recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominatorsrecognise and use fractions as numbers: unit fractions and non-unit fractions with small denominatorsrecognise and show, using diagrams, equivalent fractions with small denominatorsadd and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]compare and order unit fractions, and fractions with the same denominatorssolve problems that involve all of the above
Measurement	<ul style="list-style-type: none">measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)measure the perimeter of simple 2-D shapesadd and subtract amounts of money to give change, using both £ and p in practical contextstell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocksestimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnightknow the number of seconds in a minute and the number of days in each month, year and leap yearcompare durations of events [for example, to calculate the time taken by particular events or tasks]
Geometry - properties of shapes	<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 themrecognise angles as a property of shape or a description of a turnidentify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angleidentify horizontal and vertical lines and pairs of perpendicular and parallel lines
Statistics	<ul style="list-style-type: none">interpret and present data using bar charts, pictograms and tablessolve 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

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Year 4 overview

	Unit	Unit name
Autumn 1	1	Review of column addition and subtraction
	2	Numbers to 10,000
	3	Perimeter
Autumn 2		
Spring 1	4	3, 6, 9 times tables
	5	7 times table and patterns
Spring 2	6	Understanding and manipulating multiplicative relationships
	7	Coordinates
Summer 1	8	Review of fractions
	9	Fractions greater than 1
Summer 2	10	Symmetry in 2D shapes
	11	Time
	12	Division with remainders

	Number and place value
	Number facts
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

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Year 4

Curriculum map



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Year 4 Programme of study



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	<i>Pupils will be taught to...</i>
Number - number and place value	<ul style="list-style-type: none"> count in multiples of 6, 7, 9, 25 and 1,000 find 1,000 more or less than a given number count backwards through 0 to include negative numbers recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) order and compare numbers beyond 1,000 identify, represent and estimate numbers using different representations round any number to the nearest 10, 100 or 1,000 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 0 and place value
Number - addition and subtraction	<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
Number - multiplication and division	<ul style="list-style-type: none"> 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 3 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 numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects
Number - fractions (including decimals)	<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 100 and dividing tenths by 10 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 hundreds 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 1 decimal place to the nearest whole number compare numbers with the same number of decimal places up to 2 decimal places solve simple measure and money problems involving fractions and decimals to 2 decimal places



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Year 4 Programme of study (cont)

Measurement	<ul style="list-style-type: none">• convert between different units of measure [for example, kilometre to metre; hour to minute]• 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
Geometry - properties of shapes	<ul style="list-style-type: none">• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes• identify acute and obtuse angles and compare and order angles up to 2 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
Geometry - position and direction	<ul style="list-style-type: none">• 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
Statistics	<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

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Upper Key Stage 2 Years 5 and 6

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.

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.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly

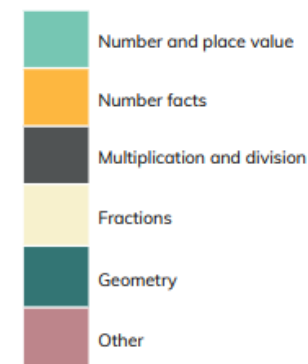


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Year 5 overview

	Unit	Unit name
Autumn 1	1	Decimal fractions
	2	Money
	3	Negative numbers
Autumn 2	4	Short multiplication and short division
	5	Area and scaling
Spring 1	6	Calculating with decimal fractions
	7	Factors, multiples and primes
Spring 2	8	Fractions
	9	Converting units
Summer 1	10	Angles
Summer 2		



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Year 5

Curriculum map



Summer 2021



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Year 5 Programme of study

	<i>Pupils will be taught to...</i>
Number - Number and Place Value:	<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 0• round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000• solve number problems and practical problems that involve all of the above• read Roman numerals to 1,000 (M) and recognise years written in Roman numerals
Number - addition and subtraction	<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.
Number - multiplication and division	<ul style="list-style-type: none">• identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 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 a formal written method, including long multiplication for two-digit numbers• 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 1,000• recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)• 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

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Year 5 Programme of study (cont)

<p>Number - fractions (including decimals and percentages)</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 [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] 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 2 decimal places to the nearest whole number and to 1 decimal place read, write, order and compare numbers with up to 3 decimal places solve problems involving number up to 3 decimal places recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25
<p>Measurement</p>	<ul style="list-style-type: none"> convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] 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), 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

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Year 5 Programme of study (cont)



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Geometry - properties of shapes	<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: estimate and compare acute, obtuse and reflex angles• draw given angles, and measure them in degrees ($^{\circ}$)• identify:<ul style="list-style-type: none">○ angles at a point and 1 whole turn (total 360°)○ angles at a point on a straight line and half 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.
Geometry - position and direction	<ul style="list-style-type: none">• 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• different denominators• Use algorithm and conversion of fractions for multiplying and dividing fractions and mixed numbers
Statistics	<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



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Year 6 overview

	Unit	Unit name
Autumn 1	1	Calculating using knowledge of structures (1)
	2	Multiples of 1,000
Autumn 2	3	Numbers up to 10,000,000
	4	Draw, compose and decompose shapes
Spring 1	5	Multiplication and division
	6	Area, perimeter, position and direction
Spring 2	7	Fractions and percentages
	8	Statistics
Summer 1		KS2 tests
Summer 2	9	Ratio and proportion
	10	Calculating using knowledge of structures (2)
	11	Solving problems with two unknowns
	12	Order of operations
	13	Mean average

	Number and place value
	Addition and subtraction
	Multiplication and division
	Fractions
	Geometry
	Other

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Year 6 Curriculum map



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Year 6 Programme of study

	<i>Pupils will be taught to...</i>
Number - Number and Place Value:	<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 0 • solve number and practical problems that involve all of the above
Number - addition, subtraction, multiplication and division	<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 4 operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • 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
Number - fractions (including decimals and percentages)	<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 [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • 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 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places • multiply one-digit numbers with up to 2 decimal places by whole numbers • use written division methods in cases where the answer has up to 2 decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

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Primary School**

Inspire, Create, Discover, Together

Year 6 Programme of study (cont)

Measurement	<ul style="list-style-type: none">• solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate• 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 3 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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]
Geometry - properties of shapes	<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• 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
Geometry - position and direction	<ul style="list-style-type: none">• describe positions on the full coordinate grid (all 4 quadrants)• draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Statistics	<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

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