

# Long Crendon School

## Mathematics Curriculum Progression Document

### **National Curriculum Statutory Requirements in the Early Years Foundation Stage**

Mathematics in EYFS involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure. All of these areas should enhance the child's love of learning in maths and prepare them for KS1 maths learning and beyond.

### **National Curriculum Statutory Requirements in Key Stage 1**

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. 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.

### **National Curriculum Statutory Requirements in Lower Key Stage 2**

The principal focus of mathematics teaching in Lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. 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.

### **National Curriculum Statutory Requirements – Key Stage 2**

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 four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

## Autumn term

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counts from 1-5 Counting real life objects Subitising 1-5 Number formation 1-5 Sorting into groups Comparing groups One more/one less Time – my day	Place Value within 10 Addition and subtraction within 10 Recognise 2D and 3D shapes Place Value within 20 Consolidation	Place Value to 100 Addition and subtraction to and across 100 Money combinations of coins and notes Multiplication; 2,5 and 10 tables	Place Value to 1,000 Addition and subtraction up to and across 1,000 Multiplication and division; 3,4 and 8 tables Consolidation	Place Value to 1,000 Addition and subtraction Length and perimeter Multiplication and division Consolidation	Place value to 100,000 Addition and subtraction Statistics Multiplication and division Measurement; perimeter and area Consolidation	-Place Value to 1,000,000 -Addition and subtraction -Four operations -Fractions -Position and direction -Consolidation

### Mastering number Autumn term

EYFS	Year 1	Year 2
<p><b>Pupils will build on previous experiences of number from their home and nursery environments, and further develop their subitising and counting skills. They will explore the composition of numbers within 5. They will begin to compare sets of objects and use the language of comparison.</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• identify when a set can be subitised and when counting is needed</li> <li>• subitise different arrangements, both unstructured and structured, including using the Hungarian number frame</li> <li>• make different arrangements of numbers within 5 and talk about what they can see, to develop their conceptual subitising skills</li> <li>• spot smaller numbers ‘hiding’ inside larger numbers</li> <li>• connect quantities and numbers to finger patterns and explore different ways of representing numbers on their fingers</li> <li>• 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</li> </ul>	<p>Pupils will have an opportunity to consolidate the Early Learning Goals and continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system.</p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• subitise within 5, including when using a rekenrek, and re-cap the composition of 5</li> <li>• develop their understanding of the numbers 6 to 9 using the ‘5 and a bit’ structure</li> <li>• compare numbers within 10 and use precise mathematical language when doing so</li> <li>• re-cap the order of numbers within 10 and connect this to ‘1 more’ and ‘1 less’ than a given number</li> <li>• explore the structure of even numbers (including that even numbers can be composed by doubling any number, and can be composed of 2s)</li> <li>• explore the structure of the odd numbers as being composed of 2s and 1 more</li> <li>• explore the composition of each of the numbers 6, 8, and 10</li> <li>• explore number tracks and number lines and identify the differences between them</li> </ul>	<p><b>Pupils will have an opportunity to consolidate their understanding and recall of number bonds within 10; they will re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system.</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• review the composition of the numbers 6 to 9 as ‘5 and a bit’</li> <li>• compare numbers using the language of comparison and use the symbols &lt; &gt; =</li> <li>• review the structure of even numbers (including exploring how even numbers can be composed of two odd parts or two even parts) and the composition of each of 6, 8 and 10</li> <li>• review the structure of odd numbers (including exploring how odd numbers can be composed of one odd part and one even part) and the composition of each of 7 and 9</li> <li>• consolidate their understanding of the numbers 10 and 20 as ‘10 and a bit’</li> <li>• consolidate their understanding of the linear number system to 20 and reason about midpoints</li> </ul>

<p>more than the previous number</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• compare sets of objects by matching</li> <li>• begin to develop the language of 'whole' when talking about objects which have parts</li> </ul>		
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**Spring term**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number bonds to 5 Counting to 6, 7 and 8 Counting to 9 and 10 Comparing groups up to 10 Combining two groups to find a whole Number bonds to 10 ten frame and part-whole model Spatial awareness 3D shapes 2D shapes	Addition and subtraction within 20 Place Value within 50. Multiples of 2, 5 and 10 Measure units of length and height Measure units of mass and capacity Consolidation	Division 2, 5 and 10 tables Statistics Properties of shape Fractions Length and height Consolidation	Multiplication and division Money Statistics Measurement: length and perimeter Fractions Consolidation	Multiplication and division Area Fractions Decimals Consolidation	Multiplication and division Fractions Decimals and percentages Consolidation	Decimals Percentages Algebra Time Perimeter, area and volume Ratio Consolidation

EYFS	Year 1	Year 2
<p>Pupils will continue to develop their subitising and counting skills and explore the composition of numbers within and beyond 5. They will begin to identify when two sets are equal or unequal and connect two equal groups to doubles. They will begin to connect quantities to numerals.</p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• continue to develop their subitising skills for numbers within and beyond 5, and increasingly connect quantities to numerals • begin to identify missing parts for numbers within 5</li> <li>• explore the structure of the numbers 6 and 7 as '5 and a bit' and connect this to finger patterns and the Hungarian number frame</li> <li>• focus on equal and unequal groups when comparing numbers</li> </ul> <p style="padding-left: 40px;">Pupils will:</p> <ul style="list-style-type: none"> <li>• understand that two equal groups can be called a 'double' and connect this to finger patterns</li> <li>• sort odd and even numbers according to their 'shape'</li> <li>• continue to develop their understanding of the counting sequence and link cardinality and ordinality through the 'staircase' pattern</li> <li>• order numbers and play track games</li> <li>• join in with verbal counts beyond 20, hearing the repeated pattern within the counting numbers</li> </ul>	<p><b>Pupils will continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols).</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• explore the composition of each of the numbers 7 and 9</li> <li>• explore the composition of odd and even numbers, seeing that even numbers can be made of two odd or two even parts, and that odd numbers can be composed of one odd part and one even part</li> <li>• identify the number that is two more or two less than a given odd or even number, identifying that two more/ less than an odd number is the next/ previous odd number, and two more/ less than an even number is the next/ previous even number</li> </ul> <p>explore the aggregation and partitioning structures of addition and subtraction through systematically partitioning and re-combining numbers within 10 and connecting this to the part-part-whole diagram, including using the language of parts and wholes</p> <ul style="list-style-type: none"> <li>• explore the augmentation and reduction structures of addition and reduction using number stories, including introducing the 'first, then, now' language structure</li> </ul>	<p><b>Pupils will have an opportunity to use their knowledge of the composition of numbers within 10 to calculate within 20; they will explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50.</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• explore how the numbers 6 to 9 can be doubled using the '5 and a bit' and '10 and a bit' structure</li> <li>• use doubles to calculate near doubles</li> <li>• use bonds of 10 to reason about bonds of 20, in which the given addend is greater than 10</li> <li>• use known number bonds within 10 to calculate within 20, working within the 10-boundary <ul style="list-style-type: none"> <li>- use their knowledge of bonds of 10 to find three addends that sum to 10</li> </ul> </li> <li>• use their knowledge of the composition of numbers within 20 to add and subtract across the 10-boundary</li> <li>• use their understanding of the linear number system to 10 to position multiples of 10 on a 0 - 100 number line and reason about midpoints</li> </ul>

## Summer term

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Making simple patterns	Multiplication and division	Position and direction Problem solving	Fractions Time	Decimals Money	Decimals Properties of shape	Properties of shape Problem solving
Exploring more complex patterns	Fractions: halves and quarters	Time	Properties of shape	Time	Position and direction	Statistics
Adding by counting on	Movement turns	Mass, Capacity and temperature	Measurement: Mass and capacity	Statistics	Measurement: converting units	Investigations
Taking away by counting back	Place Value within 100	Investigations	Consolidation	Properties of shape Position and direction Consolidation	Volume Consolidation	Consolidation
Doubling	Money: coins and notes					
Halving and sharing	Time: sequence of events, on hour and half hour, days/ weeks/ months					
Odds and evens						
Length, height and distance	Consolidation					
Weight						
Capacity						

## Mastering Number Summer Term

EYFS	Year 1	Year 2
<p>Pupils will consolidate their counting skills, counting to larger numbers and developing a wider range of counting strategies. They will secure knowledge of number facts through varied practice.</p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• continue to develop their counting skills, counting larger sets as well as counting actions and sounds</li> <li>• explore a range of representations of numbers, including the 10-frame, and see how doubles can be arranged in a 10-frame</li> </ul>	<p><b>Pupils will explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories').</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• explore the composition of the numbers 11 to 19 as '10 and a bit' and compare numbers within 20</li> <li>• connect the composition of the numbers 11 to 19 to their position in the linear number system, including identifying the midpoints of 5, 10 and 15</li> <li>• compare numbers within 20</li> </ul>	<p><b>Pupils will have further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities.</b></p> <p>Pupils will:</p> <ul style="list-style-type: none"> <li>• continue to explore a range of strategies to subtract across the 10-boundary</li> <li>• review bonds of 20 in which the given addend is greater than 10, and reason about bonds of 20, in which the given addend is less than 10</li> <li>• practise previously explored strategies to support their reasoning about inequalities and equations</li> <li>• review doubles and near doubles and</li> </ul>

<ul style="list-style-type: none"> <li>• compare quantities and numbers, including sets of objects which have different attributes Pupils will:</li> <li>• continue to develop a sense of magnitude, e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2</li> <li>• begin to generalise about 'one more than' and 'one less than' numbers within 10</li> <li>• continue to identify when sets can be subitised and when counting is necessary</li> <li>• develop conceptual subitising skills including when using a rekenrek</li> </ul>	<ul style="list-style-type: none"> <li>• understand how addition and subtraction equations can represent previously explored structures of addition and subtraction (aggregation/ partitioning/ augmentation/ reduction)</li> <li>• practise retrieving previously taught facts and reason about these</li> </ul>	<p>transform additions in which two addends are adjacent odd/ even numbers into doubles</p> <ul style="list-style-type: none"> <li>• consolidate previously taught facts and strategies through continued, varied practice</li> </ul>
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# Place Value

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Counts reliably with numbers from 1-20 placing them in order</p> <p>Tell which number is one more or less than a given number</p> <p>Write numerals up to 20 with increasing accuracy</p> <p>Records numbers from 1-20 and associates with objects</p> <p>Recognises 0 as none in stories and rhyme, counting and ordering</p>	<p>Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p> <p>Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p> <p>When given a number, identify one more and one less</p> <p>Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</p> <p>Read and write numbers from 1 to 20 in numerals and words.</p> <p>Recognise odd and even numbers up to 20.</p>	<p>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p>Recognise the place value of each digit in a two-digit number (tens, ones)</p> <p>Identify, represent and estimate numbers using different representations, including the number line</p> <p>Compare and order numbers from 0 up to 100; use and = signs</p> <p>read and write numbers to at least 100 in numerals and in words</p> <p>Reason and use place value and number facts to solve problems.</p>	<p>Count from 0 in multiples of 4, 8, 50 and 100 including counting up and down in tenths</p> <p>Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</p> <p>find 10 or 100 more or less than a given number</p> <p>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) and Compare and order numbers up to 1000</p> <p>Identify, represent and estimate numbers using different representations</p> <p>Read and write numbers up to 1000 in numerals and words</p> <p>Solve number problems involving these ideas.</p> <p>Pupils can use confidently multiples of 2, 3, 4, 5, 8, 10, 50 and 100 and recall the times tables for these.</p>	<p>Count in multiples of 6, 7, 9, 25, 100 including counting backwards through zero to include negative numbers.</p> <p>Recognise place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) and find 1000 more or less than a given number</p> <p>Identify, represent and estimate numbers using different representations.</p> <p>Round any number to the nearest 10,100 or 1000, Order and compare numbers beyond 1000</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers</p> <p>Read Roman Numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p>	<p>Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</p> <p>Count forwards or backwards in steps of power of 10 for any given number up to 1,000,000 which includes interpreting negative numbers in context, count forwards and backwards with positive and whole numbers, including through zero.</p> <p>Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000</p> <p>Solve number problems and practical problems that involve all of the above.</p> <p>Read roman numerals to 1000 (M) and recognise years written in Roman numerals.</p>	<p>To read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.</p> <p>Round any whole number to a required degree of accuracy.</p> <p>To use negative numbers in context, and calculate intervals across zero to calculate the interval from -20 to +100.</p> <p>To know and use the terms: ones, tens, hundreds, thousands, tens of thousands, hundreds of thousands, millions and tens of million correctly.</p>

## Subject specific vocabulary – place value

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
One more	Same as EYFS, plus:	Same as EYFS & Year 1, plus:	Same as EYFS & KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
One less	Forwards	Ones	Hundreds	Thousands	Ten thousands	Intervals across zero
Place	Backwards	Tens	Three-digit	Four- digit	Hundred thousands	Three decimal places
Order	Numerals	Two- digit	Ten more	Negative number	Millions	Hundredths
Number	Words	Estimate	One hundred more	One thousand more	Context	Thousandths
Count	Multiples	Place Value	Ten less	One thousand less	Steps of powers	Ten thousandths
Numbers up to twenty	Equal to	Solve	One hundred less	Decimal	Decimal equivalents	Numbers up to ten million
Number line	More than	Problems	Roman numeral	Decimal place	Two decimal places	
Pictorial	Less than	Greater than >	Numbers up to one thousand	Rounding	Thousandths	
Answer	Fewer	Less than <		Place holder	Numbers up to one million	
Equals	Most	Nearest ten		Nearest ten		
Read	Least	Number facts		Nearest hundred		
Write	Identify	Partition		Nearest thousand		
	Represent	Count in steps		One place		
	Digit	Zero		Whole number		
	Calculate	Compare		Integer		
	Odd	Determine		Tenths		
	Even	Value		Hundredth		
	Pattern					
	Numbers up to one hundred					

# Calculations

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Using quantities and objects, adds and subtracts two single-digit numbers and counts on or back to find the answer.</p> <p>Using numbers up to 10, solves problems involving addition or subtraction, including comparing two sets to find a numerical difference.</p> <p>Begins to know by heart all pairs of whole numbers with totals up to 10 and uses these facts to add or subtract a pair of numbers mentally.</p> <p>Moves forwards and backwards using a number line to 20.</p> <p>Solves problems, including doubling, halving and sharing.</p> <p>Recognises, reads and identifies number positions on a number line to 20.</p> <p>Understands that 0 can be used as a place holder.</p> <p>Understands the operations of multiplication and division as repeated addition and subtraction</p>	<p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</p> <p>Represent and use number bonds and related subtraction facts within 20</p> <p>Add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math>.</p> <p>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p> <p>Recall the multiplication facts for the 2, 5, 10 multiplication table and use them to derive division facts (using any method).</p>	<p>Solve problems with addition and subtraction:</p> <p>Using concrete objects and pictorial representations, including those involving numbers, quantities and measures</p> <p>Applying their increasing knowledge of mental and written methods</p> <p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: A two-digit number and ones; a two-digit number and tens; two two-digit numbers; and adding three one-digit numbers</p> <p>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <p>Recognise and use the inverse</p>	<p>Can add and subtract mentally: A three-digit number and tens</p> <p>Can add and subtract numbers with 2 digits, using formal written methods – Columnar addition and subtraction.</p> <p>Can estimate the answer to a calculation and can use the inverse operation to check answers.</p> <p>To solve problems, including missing number problems using number facts, place value.</p> <p>Write and calculate mathematical statements for multiplication and division using the tables that you know.</p> <p>Calculate 2 digit by 1 digit in a written method with occasional errors</p> <p>Solve problems including missing numbers involving multiplication, positive and negative integers which include calculating 2 digits by 1 digit in a written method with occasional errors</p>	<p>Add and subtract numbers with 3 digits using formal written methods of columnar addition and subtraction where appropriate.</p> <p>Solve addition and subtraction two-step problems in context deciding on which operation to use and estimate and use inverse operation too check answers to a calculation.</p> <p>Recall all multiplication facts for multiplication tables up to <math>12 \times 12</math>.</p> <p>Use place value, know and derived facts to multiply and divide mentally including: multiplying by 0 and 1; and dividing by 1.</p> <p>Multiply mentally using a variety of strategies 3 one-digit numbers.</p> <p>Multiply two-digit numbers by a one-digit number using formal written methods.</p> <p>Multiply up to 4 digits by 1 digit using a formal written method</p>	<p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Use rounding to check answers to calculations and determine, in context of a problem, levels of accuracy.</p> <p>Add and subtract mentally with increasingly large numbers.</p> <p>Solve addition and subtraction multi step problems in contexts</p> <p>Identify multiples and factors, including finding all factor pairs of a number and common factors of two numbers.</p> <p>To know and use vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19.</p>	<p>Multiply multi-digit numbers up to a two-digit whole number using the formal written method of long multiplication. To use estimation to check answers and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division and interpret remainders according to the context. To use estimation to check answers and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>To identify common factors, common multiples and prime numbers.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p> <p>To solve problems involving the calculation of percentages</p> <p>To solve problems</p>

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Can use doubling and halving facts for numbers up to 10 and other significant double (E.g. 50 doubled is 100)</p>	<p>relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (<math>=</math>) signs</p> <p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p>				<p>involving similar shapes where the scale factor is known or can be found.</p>

## Subject specific vocabulary – calculations

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>	<b><u>Addition and Subtraction</u></b>
Add	Same as EYFS, plus:	Same as EYFS & Year 1, plus:	Same as EYFS & KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
Subtract	One step problem	Columnar addition	Three-digit number	Two step problems	Increasingly large numbers	Estimation
Addition	Concrete object	Columnar Subtraction	Hundreds	Context	More than 4 digits	Mixed operations
Subtraction	Pictorial representation	Tens	Estimate	Four-digit	Rounding	<b><u>Multiplication and Division</u></b>
Adding	Missing number	Order	Number facts	<b><u>Multiplication and Division</u></b>	Determine	Same as previous year groups, plus:
Subtracting	Problem	Inverse	<b><u>Multiplication and Division</u></b>	Same as previous year groups, plus:	Context	Scale factor
Number	Read	Relationship Calculation	Same as KS1, plus:	Derived facts	Multi-step problems	Long division
Number line	Write	Solve problems	Missing number problem	Factors	<b><u>Multiplication and Division</u></b>	Whole number remainders
Single digit	Interpret	Missing number problems	Estimate	Factor pairs	Same as previous year groups, plus:	Fractions
Count on	Equals =	Quantities	Inverse	Scaling problems	Decimals	Rounding
Count back	Signs	Measures	Formal written method	Three-digit	Four-digit	Mixed operations
Answer	One-digit	Formal Written method	Mathematical statement		Long multiplication	
Doubling	Two-digit	Mental method	Recall		Short division	
Halving	Ones	Method	Integer		Remainders	
Sharing	Mental	Operation	Two- digit		Context	
Numbers to twenty	Mentally	Apply	One- digit		Common factors	
Check	<b><u>Multiplication and Division</u></b>	Whole number			Common multiples	
	Multiples	<b><u>Multiplication and Division</u></b>			Prime numbers	
	Twos	Same as Year 1, plus:			Prime factors	
	Fives	Multiplication facts			Composite numbers	
	Tens	Division facts			Square number	
	Number	Multiplication tables			Cube number	
	Multiply	Odd numbers			Notation	
	Divide	Even numbers			Squares	
	Multiplication	Share			Cubes	
	Division	Equally				
	One step problem	Repeated division				
	Answer					
	Concrete object					

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Pictorial representation Arrays Count Equals Write	Calculate				

# Fractions

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</p>	<p>Recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</p> <p>Write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</p>	<p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators and recognise and use fractions as numbers with small denominators.</p> <p>Recognise and show, using diagrams, equivalent fractions and compare and order fractions with the same denominators.</p> <p>Solve problems involving fractions.</p>	<p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>Solve problems involving fractions to calculate quantities, including non-unit fractions where the answer is a whole number.</p> <p>Add and subtract fractions with the same denominator</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths. (<math>\frac{1}{4}</math> <math>\frac{1}{2}</math> <math>\frac{3}{4}</math>)</p> <p>Compare numbers with the same number of decimal places by rounding decimals with one decimal place to the nearest whole number</p>	<p>-Compare and order fractions whose denominations are all multiples of the same number.</p> <p>-Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundreds.</p> <p>-Recognise mixed numbers and improper fractions and can convert between the two.</p> <p>-Add and subtract fractions with the same denomination including multiples of the denominators.</p> <p>-Read, write and make connections between fractions and decimals and know the relationships between decimals, percentages and fractions.</p> <p>-Round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>-Solve problems with decimals up to two decimal places.</p>	<p>-Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</p> <p>-Multiply simple pairs of proper fractions, writing the answer in its simplest form and divide proper fractions by whole numbers.</p> <p>-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 to up to 3 decimal places.</p> <p>-To multiply one-digit numbers with up to two decimal places by whole numbers and to use written division methods in cases where the answer has up to two decimal places</p> <p>-To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p> <p>-To know and find 1% of a value, 25%,</p>

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						<p>50% and 75% of a value.</p> <ul style="list-style-type: none"><li>-Solve problems involving similar shapes where the scale factor is known or can be found.</li><li>-To locate direction in two quadrants accurately</li><li>-To use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li></ul>

## Subject Specific Vocabulary – Fractions

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Fraction	Same as EYFS & Year 1, plus:	Same as EYFS & KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
	Half	Simple fractions	Tenths	Hundredths	Thousandths	Common factors
	Equal parts	Equivalent	Unit fractions	Decimal	Multiples	Common multiples
	One whole	Equivalence	Non- unit fractions	Decimal place	Three decimal places	Decimal fraction equivalents
	Object	Count	Numerator	One decimal place	Per cent	Simplest form
	Shape		Denominator	Two decimal places	Number of parts per hundred	
	Quantity		Compare	Round decimals	Percentages	
	Quarter		Order	Whole number	Decimal fraction	
			Add	Common equivalent fractions	Mixed numbers	
			Subtract	Decimal equivalents	Improper fraction	
			Solve problems	Dividing	Proper fraction	
				Ones	Convert	
				Tenths	Mathematical statements	
				Hundredths	Multiply	
				Simple measure	Percentage and decimal equivalents	
				Money problems		

## Measurement

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Uses everyday language to talk about size and weight to compare quantities and objects and orders them by a given criteria.	Compare, describe and solve practical problems for: - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]	-choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	Measure, compare and add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	To convert between different units of measure	Convert between different units of measure (for example, km and m, cm and m)	To use decimal notation to three decimal places to solve calculations with measures.
Uses everyday language to talk about capacity to compare quantities and to solve problems.	- mass/weight [for example, heavy/light, heavier than, lighter than]	Measure the perimeter of simple 2d shapes.	Measure the perimeter of simple 2d shapes.	Measure and calculate the perimeter of rectilinear (including squares) in centimetres and meters.	Understand and use approximate equivalences between metric and common imperial units such as inches, pounds and pints.	To use compound units for speed such as miles per hour
Measures and orders	- capacity and volume	capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Find the area of rectilinear shapes by counting the squares.	Measure and calculate perimeter of composite	To read and convert between standard units, converting measurements of length, mass, volume
		-compare and order	Tell and write time from	Estimate, compare and calculate different		

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>more than 2 objects using direct comparison.</p> <p>Has the opportunity to use coins and notes in role play or in everyday environments.</p> <p>Starts to become familiar with coins and their names.</p> <p>Looks for the value of the coin by finding the number on it.</p> <p>Orders everyday events logically.</p> <p>Begins to use the vocabulary of time.</p> <p>Begins to show awareness of ways of measuring time e.g. clocks, watches.</p> <p>Follows own timetable independently.</p>	<p>[for example, full/empty, more than, less than, half, half full, quarter]</p> <p>- time [for example, quicker, slower, earlier, later]</p> <p>Measure and begin to record the following:</p> <p>- Lengths and heights</p> <p>- Mass/weight</p> <p>- Capacity and volume</p> <p>- Time (hours, minutes, seconds)</p> <p>Recognise and know the value of different denominations of coins and notes</p> <p>Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>Recognise and use language relating to dates, including days of the week, weeks, months and years</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>	<p>lengths, mass, volume/capacity and record the results using</p> <p>&gt;, &lt; and =</p> <p>-recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>-find different combinations of coins that equal the same amounts of money</p> <p>-Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p> <p>-compare and sequence intervals of time</p> <p>-tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</p> <p>-Know the number of minutes in an hour and the number of hours in a day.</p>	<p>an analogue clock, 12- and 24-hour clock (Ten past 2 = 2:10) and can compare durations of events (calculate how long tasks have taken.</p> <p>To know the number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>To know and use the roman numerals I to XII with relation to the clock.</p> <p>Estimate and read time with increasing accuracy to the nearest minute using correct vocabulary.</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year.</p>	<p>measures, including money in pounds and pence.</p> <p>Read, write and convert time between analogue and digital 12- and 24-hour clock</p>	<p>rectilinear shapes in cm and m.</p> <p>Calculate and compare the area of rectangles (including squares) and including using standard units squared centimetres and squared m and estimate the area of irregular shapes.</p> <p>Estimate volume and capacity of shapes.</p> <p>Solve problems involving converting between units of time.</p>	<p>and time from smaller units of measure.</p> <p>Use, add and subtract positive and negative integers (money and temperature)</p> <p>Convert larger numbers in cm – m, ml-l, g – kg and minutes to hours.</p> <p>Can covert miles and kilometres.</p> <p>To recognise that shapes with the same area can have different perimeters.</p> <p>Can draw a number of shapes with the same perimeter.</p> <p>I can recognise when it is possible to use formula for area and volume.</p> <p>I can find the area of a triangle using the formula. I can find the area of a parallelogram using formula</p>

## Subject specific vocabulary – Measurement

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measure	Same as EYFS, plus:	Same as EYF & Year 1, plus:	Same as EYFS & KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
Measurement	Length	Greater than >	Duration	Estimate	Square centimetres (cm <sup>2</sup> )	Decimal notation
Size	Height	Less than <	Time taken	Rectilinear figure	Square metres (m <sup>2</sup> )	Cubic centimetres (cm <sup>3</sup> )
Weight	Long	Equals =	Nearest minute	Area	Irregular shapes	Cubic metres (m <sup>3</sup> )
Capacity	Short	Intervals	Record	Rectilinear shapes	Volume (cm <sup>3</sup> )	Cubic millimetre (mm <sup>3</sup> )
Compare	Longer	Standard units	Seconds	Convert	Cubes	Cubic kilometre (Km <sup>3</sup> )
Solve	Shorter	Estimate	a.m.		Cuboids	Decimal places
Problems	Tall	Direction	p.m.		Square numbers	Formulae
Object	Double	Temperature	noon		Cube numbers	Miles
Time	Half	Unit	midnight		Metric measure	
	Mass	Scales	kilometre		Metric units	
	Heavy	Rulers	add		Imperial units	
	Light	Thermometers	subtract		Inches	
	Heavier than	Measuring vessels	millimetres		Pounds	
	Lighter than	Metres	perimeter		Pints	
	Volume	Centimetres	simple 2-D shapes			
	Full	Kilograms	analogue clock			
	Empty	Grams	roman numerals			
	More than	Degrees	12-hour			
	Less than	Celsius	24-hour			
	Half	Litres	Leap year			
	Half full	Millilitres				
	Quarter	Symbols				
	Quicker	Money				
	Slower	Pounds (£)				
	Earlier	Pence (p)				
	Later	Different combinations				
	Sequence events	Change				
	Chronological order	Five past				
	Before					
	After					

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Next First Today Yesterday Tomorrow Morning Afternoon Evening Record Hours Minutes Hour Half past O clock Hands Clock face Seconds Coins Notes Dates Days Weeks Months Years						

# Geometry

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Recognises, creates and describes patterns.</p> <p>Explores characteristics of everyday objects and shapes and uses mathematical language to describe them, using basic properties such as large, small, rectangle, triangle.</p> <p>Responds to mathematical language describing properties of 2d and 3d shapes, and, when prompted, indicates a given property e.g. side, edge, vertex or face.</p> <p>Responds to comparative language with regard to shape, and, when prompted, indicates which shape is larger or smaller.</p> <p>Uses everyday language for properties and positions e.g., 'top', 'bottom', 'side'.</p> <p>Recognises terms describing position such as 'on top', 'in front of', 'behind', 'in the middle' and 'in between'.</p> <p>Recognises directional symbols such as arrows.</p>	<p>Recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> <li>-2-D shapes [for example, rectangles (including squares) circles and triangles]</li> <li>-3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul> <p>Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</p>	<p>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>Compare and sort common 2-D and 3-D shapes and everyday objects.</p> <p>Order and arrange combinations of mathematical objects in patterns and sequences</p> <p>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 anticlockwise).</p>	<p>To draw 2d shapes accurately and to make 3d shapes using modelling materials.</p> <p>Recognise 3d shapes in different orientations and describe them using their properties which include recognising angles as a property of shapes or a description of a turn.</p> <p>Identify right angles, recognise that two angles make a half turn, three make three quarters of a turn and four a complete turn and to identify whether angles are greater or less than a right angle.</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>	<p>Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit number by a one digit.</p> <p>Plot specific points and draw sides to complete a given polygon.</p> <p>To interpret and present discrete and continuous data using appropriate graphical methods: bar charts and time graphs this includes solving comparison, sum and difference problems using information presented in bar charts, pictograms and line graphs.</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to years.</p>	<p>To identify 3d shapes including cubes and other cuboids from 2d representations</p> <p>To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles and to draw accurately given angles and measure them in degrees.</p> <p>Identify angles at a point and one whole turn (total 360) and identify angles at a point on a straight line and <math>\frac{1}{2}</math> turn total 180 degrees.</p> <p>Use properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>Distinguish between regular and irregular polygons based in reasoning about equal sides and angles.</p> <p>To identify, describe and represent position of a shape following a reflection or translation using appropriate language and know that the shape has not changed.</p>	<p>To draw shapes using given dimensions and angles (including estimating angles) and to recognise, describe and build simple 3d shapes including nets.</p> <p>Can classify triangles in terms of their properties.</p> <p>To describe triangles, squares and rectangles according to their properties.</p> <p>To know the properties of parallelogram, trapezium and rhombus.</p> <p>To know that angles in a triangle add up to 180 degrees and to know four angles of a quadrilateral add up to 360 degrees.</p> <p>To know the parts of a circle: Diameter, radius and circumference and to know the diameter is twice the radius.</p> <p>To know where angles meet at a point are on a straight line, or are vertically opposite, and find the missing angles. (Triangles, quadrilaterals, parallelogram, rhombus and trapezium.</p> <p>Point out parallel planes and symmetry</p>

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						associated with 3d shape. Describe positions on a full coordinate grid (all four quadrants) To draw and translate and reflect shapes in two quadrants.

## Subject specific vocabulary – Geometry

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Properties of shape	Properties of shape	Properties of shape	Properties of shape	Properties of shape	Properties of shape	Properties of shape
Shape	Same as EYFS, plus:	Same as EYFS & Year 1, plus:	Same as EYFS & KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
Square	2-D Shapes	Properties	Angle	Lines of symmetry	Angles	Radius
Rectangle	3-D Shapes	Compare	Turn	Symmetric figure	Measure	Diameter
Circle	Two- Dimensional	Common	Right angles	Classify	Degrees	Circumference
Triangle	Three- Dimensional	Line symmetry	Quarter of a turn	Geometric shapes	Missing lengths	Nets
Sides	Cuboid	Vertical line	Half-turn	Quadrilaterals	Missing angles	
Straight side	Cube	Edges	Three quarters of a turn	Acute angle	Regular polygons	<u>Position and direction</u>
Curved side	Pyramid	Faces	Complete turn	Obtuse angle	Irregular polygons	Same as previous year groups, plus:
<u>Position and direction</u>	Cylinder	Vertices	Horizontal lines	<u>Position and direction</u>	Degrees	Four quadrants
Position	Sphere	Pentagon	Vertical lines	Same as previous year groups, plus:	Estimate	
Distance		Hexagon	Perpendicular lines	Co-ordinates	Compare	
Direction	<u>Position and direction</u>	Heptagon	Parallel lines	Quadrant	Reflex angle	
Move	Same as EYFS, plus:	Octagon		Grid	Point	
Movement	Half turn	Nonagon	<u>Position and direction</u>	Translate	Straight line	
Patterns	Quarter turn	Decagon	Same as EYFS & Year 1	Translation	Multiples	
	Three-quarter turn	Kite		Axis		<u>Position and direction</u>
	Left	Rhombus		X- axis	Same as previous year groups, plus:	
	Right	Polygon		Y-axis	Reflection	
	Up	Square-based pyramid		Spaces		
	Down	Triangular pyramid		Unit		
		Triangular prism		Plot		
		Rectangular prism		Point		
		Pentagonal prism		Polygon		
		Hexagonal prism				
		Octagonal prism				
		Octahedron				
		Dodecahedron				
		Tetrahedron				
		Rectangular pyramid				

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Pentagonal pyramid Hexagonal pyramid Octagonal pyramid  <u>Position and direction</u> Same as EYFS & Year 1, plus: Rotation Right angle Clockwise Anti-clockwise Order Arrange Sequence				

# Statistics

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Organises and records pictorial data on simple charts or tables where one symbol represents one unit e.g. pictogram, block graph.	<p>Children start to organise and group objects using simple properties to match objects.</p> <p>Can answer simple questions about groupings.</p> <p>E.g. How many reds are there?</p>	<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</p> <p>Ask and answer questions about totalling and comparing categorical data.</p>	<p>To interpret data using bar charts, pictograms and tables which includes one step and two step questions.</p> <p>To present data in a variety of ways including a range of different tables, bar charts and pictograms.</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Identify lines of symmetry in 2d shapes presented in different orientations and to complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p>Describe positions on a 2d grid as coordinates in the first quadrant</p> <p>Describe movements between positions as translations of a given unit to the left/right and up/down</p>	<p>To solve comparison, sum and difference problems using information presented in a line graph and complete, read and interpret information in tables, including timetables.</p> <p>Can read different graphs with different scales.</p> <p>To read pie charts with different segments that are divisible by 10.</p> <p>To construct different bar charts according to the data collected.</p>	<p>To interpret and construct pie charts, line charts, bar charts and various charts (Venn and Carroll) and use them to solve problems.</p> <p>To read different charts with different scales and can work out and label the scales of different charts.</p> <p>Can construct own line graphs using information that I have collected and make choices about the scales that I use.</p> <p>I know the term 'mean' is the average to find the averages of a given set of numbers. (mean, median, mode, range)</p>

## Subject specific vocabulary - Statistics

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Interpret	Same as KS1, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:	Same as previous year groups, plus:
		Construct	Present	Time graphs	Timetables	Pie chart
		Pictogram	Presented	Problems	Line graph	Calculate
		Tally chart	Graph			Mean
		Block diagrams	Statistics			Average
		Horizontal	Bar charts			
		Vertical	Tables			
		x- axis	Solve			
		y-axis	One- step questions			
		key title	Two- step questions			
		chart title	Information			
		Simple tables				
		Ask				
		Answer				
		Questions				
		Counting				
		Objects				
		Category				
		Sort				
		Quantity				
		Total				
		Compare				
		Data				

