



**St. Bernadette's RC Primary School**  
**Maths Progression – Knowledge and skills**

**EYFS**

**Number**

Children count reliably with numbers from 1 to 20, place them in order  
 Say which number is one more or one less than a given number  
 They solve problems

**Addition and subtraction**

Using quantities and objects, they add two single-digit numbers and count on to find the answer.

**Multiplication and division (including fractions)**

They solve problems, including doubling, **halving** and sharing.

**Geometry - position**

Children use everyday language to talk about  
 Position  
 They recognise, create and describe patterns.

**Geometry – properties of shape**

They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

**Measurement**

Children use everyday language to talk about size, weight, capacity, distance, time and money to compare quantities and objects and to solve problems.

Counting	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Count to and across 100, forwards and backwards, beginning with zero or 1, or from any given number.  Count numbers to	Count in steps of 2,3 and 5 from 0, and in tens from any number, forward and backward	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.	Count in multiples of 6,7,9,25 and 1000.  Count backwards through zero to include negative numbers.	Count forwards or backwards in steps of powers of 10 for any given number up to 1 million.  Count forwards and backwards with	

	<p>100 in numerals; count in multiples of twos, fives and tens</p> <p><b>Autumn 1</b> <b>Autumn 4</b> <b>Spring 2</b> <b>Summer 4</b></p>	<b>Autumn 1</b>	<b>Autumn 1</b> <b>Autumn 3</b>	<b>Autumn 1</b> <b>Autumn 4</b>	<p>positive and negative whole numbers, including through zero.</p> <p><b>Autumn 1</b></p>	
<b>Notes and Guidance (Non-statutory)</b>	<p>Pupils practise counting (1, 2, 3...), ordering (for example, first, second, third...), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent.</p> <p>They practise counting as reciting numbers and counting as enumerating objects, and counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system (for example, odd and</p>	<p>Using materials and a range of representations, pupils practise <b>counting</b>, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They <b>count</b> in multiples of three to support their later understanding of a third.</p> <p>Pupils should count in fractions up to 10, starting from any number and using the 2 1 and 4 2 equivalence on the number line (for example, 1 4 1 , 1 4</p>	<p>Using a variety of representations, including those related to measure, pupils continue to <b>count</b> in ones, tens and hundreds, so that they become fluent in the order and place value of numbers to 1000. count up and down in tenths</p>	<p>Pupils continue to practise counting forwards and backwards in simple fractions.</p>	<p>Pupils extend counting from year 4, using decimals and fractions including bridging zero, for example on a number line.</p>	

	<p>even numbers), including varied and frequent practice through increasingly complex questions.</p> <p>Pupils combine and increase numbers, counting forwards and backwards.</p>	<p>2 (or 1 2 1 ), 1 4 3 , 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.</p> <p>Pupils become fluent in counting and recognising coins.</p>				
<b>Place Value: Represent</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	<p>Identify and represent numbers using objects and pictorial representations.</p> <p>Read and write numbers to 100 in numerals.</p> <p>Read and write numbers from 1 to 20 in numerals and words.</p> <p>Autumn 1 Autumn 4 Spring 2 Summer 4</p>	<p>Read and write numbers to at least 100 in numerals and in words.</p> <p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Autumn 1</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>Autumn 1</p>	<p>Identify, represent and estimate numbers using different representations.</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>Autumn 1</p>	<p>Read, write (order and compare) numbers to at least 1, 000,000 and determine the value of each digit.</p> <p>Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p>Autumn 1</p>	<p>Read, write (order and compare) numbers up to 1, 000, 000 and determine the value of each digit.</p> <p>Autumn 1</p>
<b>Notes and Guidance (Non-statutory)</b>	<p><b>Using materials and a range of representations.</b></p> <p><b>Pupils begin to recognise place</b></p>	<p><b>As they become more confident with numbers up to 100, pupils are introduced to larger numbers to</b></p>	<p><b>Using a variety of representations, including those related to measure, pupils continue to count in ones, tens and hundreds, so that they become fluent in</b></p>	<p><b>Using a variety of representations, including measures, pupils become fluent in the order and place value of numbers beyond 1000, including</b></p>		<p><b>significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.</b></p>

	value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations..	develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations.	the order and place value of numbers to 1000.	counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice.		
<b>Place Value: Use and compare</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	Given a number, identify 1 more, 1 less.  <b>Autumn 1 Autumn 4 Spring2 Summer 4</b>	Recognise the place value of each digit in a two-digit number (tens, ones).  Compare and order numbers from 0 up to 100; use <, > and = signs  <b>Autumn 1</b>	Recognise the place value of each digit in a three-digit number (hundreds, tens and ones).  Compare and order numbers up to 1000.  <b>Autumn 1</b>	Find 1000 more or less than a given number.  Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones).  Order and compare numbers beyond 1000.  <b>Autumn 1</b>	Read, write, order and compare numbers up to at least 1, 000, 000 and determine the value of each digit.  <b>Autumn 1</b>	Read, write, order and compare numbers up to 10, 000, 000 and determine the value of each different.  <b>Autumn 1</b>
<b>Notes and Guidance (Non-statutory)</b>	Pupils begin to recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported	Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least				



		digit in two-digit numbers. They begin to understand zero as a place holder				
Addition and subtraction	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<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</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>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:</p> <ul style="list-style-type: none"> <li>• a two-digit number and ones</li> <li>• a two-digit number and tens</li> </ul>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> <li>• a three-digit number and ones</li> <li>• a three-digit number and tens</li> <li>• a three-digit number and hundreds</li> </ul> <p>Two 2-digit numbers across 100 (non-statutory guidance)</p> <p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>Estimate the answer to a calculation and use inverse operations to check answers</p>	<p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate (So mental strategy as appropriate)</p> <p>Estimate and use inverse operations to check answers to a calculation</p> <p>Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Add and subtract numbers mentally with increasingly large numbers eg 5-digit – 4-digit multiple of 10 e.g <math>12\,462 - 2300 = 10\,162</math></p> <p>Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations</p>	<p>Use their knowledge of the order of operations to carry out calculations involving the four operations.</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p>

	<p>and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</p> <p><b>Autumn 2 Spring 1</b></p>	<ul style="list-style-type: none"> <li>•two two-digit numbers</li> <li>•adding three one-digit numbers</li> </ul> <p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> <li>•using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>•applying their increasing knowledge of mental and written methods</li> </ul> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p><b>Autumn 2</b></p>	<p>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> <p><b>Autumn 2</b></p>		<p>and methods to use and why.</p> <p><b>Autumn 2</b></p>	
<p><b>Notes and Guidance (Non-statutory)</b></p>	<p>Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, <math>9 + 7 = 16</math>; <math>16 - 7 = 9</math>; <math>7 = 16 - 9</math>). They should realise the effect of</p>	<p>Pupils extend their understanding of the language of addition and subtraction to include sum and difference. Pupils practise addition and</p>	<p>Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.</p>	<p>Using a variety of representations, including measures, pupils become fluent in the order and place value of numbers beyond 1000, including</p>	<p>Pupils identify the place value in large whole numbers. They continue to use number in context, including measurement. Pupils extend and</p>	<p>Solve problems involving addition, subtraction, multiplication and division</p> <ul style="list-style-type: none"> <li>• use estimation to check answers to</li> </ul>

	<p>adding or subtracting zero. This establishes addition and subtraction as related operations. Pupils combine and increase numbers, counting forwards and backwards. They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.</p>	<p>subtraction to 20 to become increasingly fluent in deriving facts such as using <math>3 + 7 = 10</math>; <math>10 - 7 = 3</math> and <math>7 = 10 - 3</math> to calculate <math>30 + 70 = 100</math>; <math>100 - 70 = 30</math> and <math>70 = 100 - 30</math>. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, <math>5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5</math>). This establishes commutativity and associativity of addition. Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.</p>	<p>Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent</p>	<p>counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice. They begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far. They connect estimation and rounding numbers to the use of measuring instruments. Roman numerals should be put in their historical context so pupils understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time.</p>	<p>apply their understanding of the number system to the decimal numbers and fractions that they have met so far. They should recognise and describe linear number sequences, including those involving fractions and decimals, and find the term-to-term rule. They should recognise and describe linear number sequences (for example, 3, 3 and a half) including those involving fractions and decimals, and find the term-to-term rule in words (for example, add a half).</p>	<p>calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>
<b>Multiplication and Division.</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	<p>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the</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>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables and others they may know.</p> <p>Write and calculate</p>	<p>Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math> (facts for 6,7,9,11,12 are new)</p> <p>Use place value, known and derived</p>	<p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <p>know and use the</p>	<p>Use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>Identify common factors, common</p>



	<p>support of the teacher.</p> <p><b>Summer 1</b></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 (=) signs .</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>mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> <p>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> <p><b>Autumn 3</b> <b>Spring 1</b></p>	<p>facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>Recognise and use factor pairs and commutativity in mental calculations</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>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>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p> <p>Multiply and divide numbers mentally drawing upon known facts</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication</p>	<p>multiples and prime numbers</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</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 as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate,</p>
--	---	---	---	--	--	--

		<p><b>Autumn 4</b> <b>Spring 1</b></p>		<p><b>Autumn 4</b> <b>Spring 1</b></p>	<p>for two-digit numbers</p> <p>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</p> <p>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p> <p>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>solve problems involving</p>	<p>interpreting remainders according to the context</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Solve problems involving addition, subtraction, multiplication and division.</p> <p><b>Autumn 2</b></p>
--	--	--	--	--	--	--

					<p>multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p><b>Autumn 4</b> <b>Spring 1</b> <b>Summer 1</b></p>	
<p><b>Notes and Guidance (Non-statutory)</b></p>	<p>Pupils should observe and talk about changes in the weather and the seasons.</p> <p><b>Note:</b> Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.</p>		<p>Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them answer questions about how light behaves.</p> <p>They should think about why it is important to protect their eyes from bright lights. They should look for, and measure shadows and find out how they are formed and what might cause shadows to change.</p> <p><b>Note:</b> Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.</p>		<p>Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night.</p> <p>Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006).</p> <p>They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).</p> <p><b>Note:</b> Pupils should be warned that it is not safe to look directly at the Sun, even when wearing</p>	<p>Pupils should build on the work in year 3, exploring the way that light behaves, including light sources, reflection and shadows.</p> <p>They should talk about what happens and make predictions.</p>

					<p>dark glasses.</p> <p>Pupils should find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus</p>	
<b>Fractions</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	<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><b>Summer 2</b></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</p> <p>Recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></p> <p><b>Spring 4</b></p>	<p>Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>Recognise and use fractions as numbers: unit fractions and non-unit fractions with</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 increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</p>	<p>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</p> <p>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [for example, <math>\frac{2}{5} + \frac{4}{5}</math></p>	<p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>Compare and order fractions, including fractions <math>&gt; 1</math></p> <p>Associate a fraction with division and</p>

			<p>small denominators</p> <p>Recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>Compare and order unit fractions, and fractions with the same denominators</p> <p><b>Spring 5</b> <b>Summer 1</b></p>	<p>Recognise and show, using diagrams, families of common equivalent fractions</p> <p>Compare numbers with the same number of decimal places up to two decimal places</p> <p>Recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math></p> <p>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</p> <p>Round decimals with one decimal place to the nearest whole number</p> <p>Add and subtract fractions with the</p>	<p>= 1 <math>\frac{1}{5}</math></p> <p>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>Compare and order fractions whose denominators are all multiples of the same number</p> <p>Read and write decimal numbers as fractions [for example, <math>0.71 = \frac{71}{100}</math>]</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place</p>	<p>calculate decimal fraction equivalents [for example, 0.375] for a simple fraction of <math>\frac{3}{8}</math></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 up to three decimal places</p> <p>Multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>Use written division methods in cases where the answer has 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</p>
--	--	--	--	---	---	---

				<p>same denominator</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p><b>Spring 3</b></p>	<p>Read, write, order and compare numbers with up to three decimal places</p> <p>Add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>Solve problems involving number up to three decimal places</p> <p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p> <p><b>Spring 2</b> <b>Spring 3</b></p>	<p>fractions, writing the answer in its simplest form [for example, <math>\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}</math></p> <p>Divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math></p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</p> <p><b>Autumn 3</b> <b>Spring 1</b> <b>Spring 2</b></p>
--	--	--	--	---	---	---

<p><b>Notes and Guidance (Non-statutory)</b></p>	<p>Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.</p>	<p>Pupils use fractions as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet <math>\frac{3}{4}</math> as the first example of a non-unit fraction. Pupils should count in fractions up to 10, starting from any number and using the <math>\frac{1}{2}</math> and <math>\frac{2}{4}</math> equivalence on the number line (for example, <math>1 \frac{1}{2}</math></p>	<p>Pupils connect tenths to place value, decimal measures and to division by 10. They begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. They should go beyond the <math>[0, 1]</math> interval, including relating this to measure. Pupils understand the relation between unit fractions as operators (fractions of), and division by integers. They continue to recognise fractions in the context of parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity. Pupils practise</p>	<p>Pupils should connect hundredths to tenths and place value and decimal measure. They extend the use of the number line to connect fractions, numbers and measures. Pupils understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths. Pupils make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities. Pupils use factors and multiples to recognise equivalent fractions and simplify where</p>	<p>Pupils connect equivalent fractions <math>&gt; 1</math> that simplify to integers with division and other fractions <math>&gt; 1</math> to division with remainders, using the number line and other models, and hence move from these to improper and mixed fractions. Pupils connect multiplication by a fraction to using fractions as operators (fractions of), and to division, building on work from previous years. This relates to scaling by simple fractions, including fractions <math>&gt; 1</math>. Pupils practise adding and subtracting fractions to become fluent through a variety of increasingly complex problems. They extend their understanding of adding and subtracting fractions to calculations that exceed 1 as a mixed number. Pupils continue to practise counting forwards and backwards in simple fractions. Pupils continue to develop their</p>	<p>Pupils should practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (for example, <math>2 \frac{1}{4} + 8 \frac{1}{8} = 8 \frac{5}{8}</math>) and progress to varied and increasingly complex problems. Pupils should use a variety of images to support their understanding of multiplication with fractions. This follows earlier work about fractions as operators</p>
--	--	---	---	--	--	--

		<p>4, <math>1 \frac{2}{4}</math>).</p> <p>This reinforces the concept of fractions as numbers and that they can add up to more than one.</p>	<p>adding and subtracting fractions with the same denominator through a variety of increasingly complex problems to improve fluency.</p>	<p>appropriate (for example, <math>\frac{6}{9} = \frac{2}{3}</math>.) Pupils continue to practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole. Pupils are taught throughout that decimals and fractions are different ways of expressing numbers and proportions. Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths. This includes relating the decimal notation to division of whole number by 10</p>	<p>understanding of fractions as numbers, measures and operators by finding fractions of numbers and quantities.</p>	<p>(fractions of), as numbers, and as equal parts of objects, for example as parts of a rectangle. Pupils use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (for example, if <math>\frac{1}{4}</math> of a length is 36cm, then the whole length is <math>36 \times 4 = 144</math>cm).</p>
--	--	--	--	--	--	---



				<p>and later 100. They practise counting using simple fractions and decimals, both forwards and backwards. Pupils learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in several ways, such as on number lines.</p>		
<b>Decimals: Recognise and write</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
				Recognise and write decimal equivalents of any number of	Read and write decimal numbers as fractions, for	Identify the value of each digit in numbers given to

				<p>tenths or hundredths.</p> <p>Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math> and <math>\frac{3}{4}</math></p> <p><b>Spring 4</b> <b>Summer 1</b></p>	<p>example, <math>0.1 = \frac{71}{100}</math>).</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p><b>Spring 3</b></p>	<p>three decimal places.</p> <p><b>Spring 1</b></p>
<p><b>Notes and Guidance (Non-statutory)</b></p>				<p>They practise counting using simple decimals, both forwards and backwards. Pupils learn decimal notation and the language associated with it, including in the context of measurements. They make comparisons and order decimal amounts and quantities that are expressed to the same number of decimal places. They should be able to represent numbers with one or two decimal places in several ways, such as on number lines</p>	<p>Pupils say, read and write decimal fractions and related tenths, hundredths and thousandths accurately and are confident in checking the reasonableness of their answers to problems.</p> <p>They practise adding and subtracting decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 (for example, <math>0.83 + 0.17 = 1</math>).</p> <p>Pupils should go beyond the measurement and money models of</p>	<p><b>Pupils are introduced to the division of decimal numbers by one-digit whole number, initially, in practical contexts involving measures and money. They recognise division calculations as the inverse of multiplication.</b></p> <p><b>Pupils also develop their skills of rounding and estimating as a means of predicting and checking the order of magnitude of</b></p>

					decimals, for example, by solving puzzles involving decimals.	<b>their answers to decimal calculations. This includes rounding answers to a specified degree of accuracy and checking the reasonableness of their answers.</b>
<b>Decimals: Compare</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
				<p>Round decimals with one decimal place to the nearest whole number.</p> <p>Compare numbers with the same number of decimal places up to two decimal places.</p> <p><b>Summer 1</b></p>	<p>Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Read, write, order and compare numbers with up to three decimal places.</p> <p><b>Spring 3</b></p>	
<b>Notes and Guidance (Non-statutory)</b>						
<b>Decimals: Calculations and problems</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
				Find the effect of dividing a one or two- digit number	Solve problems involving number up to three decimal	Multiply and divide numbers by 10, 100 and 1000 giving

				<p>by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</p> <p><b>Spring 4</b></p>	<p>places.</p> <p><b>Summer 1</b></p>	<p>answers up to three decimal places.</p> <p>Multiply one – digit numbers with up to two decimal places by whole numbers.</p> <p>Use written division methods in cases where the answer has up to two decimal places.</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy.</p> <p><b>Spring 1</b></p>
Notes and Guidance (Non-statutory)						

Fractions, Decimals and percentages	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

				<p>Solve simple measure and money problems involving fractions and decimal to two decimal places</p>	<p>Recognise the percent symbol (%) and understand that percent relates to number of parts per hundred, and write percentages as a fraction with denominator 100, and as a decimal.</p> <p>Solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and those fractions with a denominator of a multiple of 10 or 25.</p> <p><b>Spring 3</b></p>	<p>Associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375)</p> <p>For a simple fraction (for example, <math>\frac{3}{8}</math>)</p> <p>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p> <p><b>Spring 1</b> <b>Spring 2</b></p>
Notes and Guidance (Non-statutory)						
Ratio and proportion	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

						<p>Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication and division facts.</p> <p>Solve problems involving the calculation of percentages ( For example, of measures, and such as 15% of 360) and the use of percentages for comparison.</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p><b>Spring 6</b></p>
--	--	--	--	--	--	---

Notes and Guidance (Non-statutory)						
Algebra	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Note that although algebraic notation is not introduced until Year 6, algebraic thinking starts much earlier as exemplified by the missing number objectives from Years 1, 2, 3</b></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>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	<p>Solve problems including missing number problems.</p>			<p>Use simple formulae</p> <p>Generate and describe linear number sequences.</p> <p>Express missing number problems algebraically.</p> <p>Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>Enumerate possibilities of combinations of two variables.</p> <p><b>Spring 3</b></p>

Notes and Guidance (Non-statutory)						
Measurement: Using measures	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Compare, describe and solve practical problems for:</p> <p>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</p> <p>mass/weight [for example, heavy/light, heavier than, lighter than]</p> <p>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</p> <p>time [for example, quicker, slower,</p>	<p>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p>Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</p>	<p>Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p>	<p>Convert between different units of measure [for example, kilometre to metre; hour to minute]</p> <p>Estimate, compare and calculate different measures.</p>	<p>Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p> <p>Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>Use all four operations to solve</p>	<p><b>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</b></p> <p><b>Convert between miles and kilometres</b></p> <p><b>Solve problems involving the calculation and conversion of units of measure, using</b></p>



	<p>earlier, later]</p> <p>Measure and begin to record the following:</p> <p>lengths and heights</p> <ul style="list-style-type: none"> <li>•mass/weight</li> <li>•capacity and volume</li> <li>•time (hours, minutes, seconds)</li> </ul> <p><b>Spring 3</b></p> <p><b>Spring 4</b></p> <p><b>Summer 6</b></p>	<p><b>Spring 5</b></p> <p><b>Summer 4</b></p>	<p><b>Spring 4</b></p> <p><b>Summer 4</b></p>	<p><b>Autumn 2</b></p> <p><b>Spring 2</b></p> <p><b>Summer 4</b></p>	<p>problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling.</p> <p><b>Summer 1</b></p> <p><b>Summer 4</b></p> <p><b>Summer 5</b></p>	<p><b>decimal notation up to three decimal places where appropriate.</b></p> <p><b>Spring 4</b></p>
<p>Notes and Guidance (Non-statutory)</p>	<p>The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage.</p> <p>Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for</p>	<p>Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations.</p> <p>Comparing</p>	<p>Pupils continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (for example, 1 kg and 200g) and simple equivalents of mixed units (for example, 5m =</p>	<p>Pupils build on their understanding of place value and decimal notation to record metric measures.</p> <p>They use multiplication to convert from larger to smaller units.</p>	<p>Pupils use their knowledge of place value and multiplication and division to convert between standard units.</p>	<p>pupils connect conversion (for example, from kilometres to miles) to a graphical representation as preparation for understanding linear/proportional graphs.</p> <p>They know approximate conversions and are able to tell if an</p>

	<p>example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units.</p> <p>In order to become familiar with standard measures, pupils begin to use measuring tools such as a ruler, weighing scales and containers.</p>	<p>measures includes simple multiples such as 'half as high'; 'twice as wide'.</p>	<p>500cm).</p> <p>The comparison of measures includes simple scaling by integers (for example, a given quantity or measure is twice as long or five times as high) and this connects to multiplication.</p>			<p>answer is sensible</p>
<b>Measure – perimeter, area and volume</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
			<p>Measure the perimeter of simple 2-D shapes</p>	<p>Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p>Find the area of rectilinear shapes by counting squares</p>	<p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>Calculate and compare the area of rectangles</p>	<p>Recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>Recognise when it is possible to use formulae for area and volume of shapes</p>

			Spring 4	Autumn 3 Spring 2	<p>(including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</p> <p>Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]</p> <p>Autumn 5 Summer 5</p>	<p>Calculate the area of parallelograms and triangles</p> <p>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm cubed) and cubic metres (m cubed), and extending to other units [for example, mm cubed and km cubed.</p> <p>Spring 5</p>
--	--	--	----------	----------------------	---	---

Notes and Guidance (Non-statutory)	The pairs of terms: mass and weight, volume and capacity, are used interchangeably at this stage.	Pupils use standard units of measurement with increasing accuracy, using their knowledge of the number system. They use the appropriate language and record using standard abbreviations. Comparing	Using a wider range of measures, including comparing and using mixed units (for example, 1 kg and 200g) and simple equivalents of mixed units (for example, 5m = 500cm).	They relate area to arrays and multiplication	Pupils calculate the perimeter of rectangles and related composite shapes, including using the relations of perimeter or area to find unknown lengths. Missing measures questions such as these can be expressed algebraically, for example $4 + 2b =$	They know approximate conversions and are able to tell if an answer is sensible.

		measures includes simple multiples such as 'half as high'; 'twice as wide'.			20 for a rectangle of sides 2 cm and b cm and perimeter of 20cm.  Pupils calculate the area from scale drawings using given measurements	
<b>Money</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	Recognise and know the value of different denominations of coins and notes  Summer 5	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  Autumn 3	Add and subtract amounts of money to give change, using both £ and p in practical contexts  Spring 2	Estimate, compare and calculate different measures, including money in pounds and pence  Summer 2	Use all four operations to solve problems involving money.  Spring 1	

Notes and non-statutory guidance	<p>Pupils move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous measurement, to using manageable common standard units.</p>	<p>Pupils become fluent in counting and recognising coins. They read and say amounts of money confidently and use the symbols £ and p accurately, recording pounds and pence separately.</p>	<p>Pupils continue to become fluent in recognising the value of coins, by adding and Subtracting amounts ,including mixed units, and giving change using manageable amounts. They record £ and p separately. The decimal recording of money is introduced formally in year 4.</p>		<p>Pupils use all four operations in problems involving money, including conversions</p>	<p>They know approximate conversions and are able to tell if an answer is sensible</p>

Time	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<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><b>Summer 6</b></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><b>Summer 3</b></p>	<p>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>Compare durations of events [for example to calculate the time taken by particular events or</p>	<p>Read, write and convert time between analogue and digital 12- and 24-hour clocks</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p> <p><b>Summer 3</b></p>	<p>Solve problems involving converting between units of time</p> <p>Use all four operations to solve problems involving measure</p> <p><b>Summer 4</b></p>	<p>Use , read ,write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit of measure.</p> <p><b>Year 5 Summer 4</b></p>

			tasks].			
			<b>Summer 2</b>			
<b>Notes and Guidance (Non-statutory)</b>	Pupils use the language of time, including telling the time throughout the day, first using o'clock and then half past.	They become fluent in telling the time on analogue clocks and recording it	Pupils use both analogue and digital 12-hour clocks and record their times. In this way they become fluent in and prepared for using digital 24-hour clocks in year 4.		Pupils use all four operations in problems involving time and money, including conversions (for example, days to weeks, expressing the answer as weeks and days).	
<b>Geometry – properties of shape, including angles and lines</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>2-D shapes [for example, rectangles (including squares), circles and</li> </ul>	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	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them  Recognise angles as a property of shape or a description of a	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 two	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	Recognise, describe and build simple 3-D shapes, including making nets  Draw 2-D shapes using given dimensions and angles



	<p>triangles]</p> <ul style="list-style-type: none"> <li>• 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul>	<p>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>turn</p> <p>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>	<p>right angles by size</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry.</p>	<p>angles</p> <p>Draw given angles, and measure them in degrees (o)</p> <p>Identify:</p> <ul style="list-style-type: none"> <li>• angles at a point and one whole turn (total 360o)</li> <li>• angles at a point on a straight line and ½ a turn (total 180o)</li> <li>• other multiples of 90o</li> </ul> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p>	<p>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.</p> <p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>
--	--	---	--	--	---	---

<p><b>Notes and Guidance</b> (Non-statutory)</p>	<p>Pupils handle common 2-D and 3-D shapes, naming these and related everyday objects</p> <p>fluently. They recognise these shapes in different orientations and sizes, and know that</p> <p>rectangles, triangles, cuboids and pyramids are not always similar to each other.</p>	<p>Pupils handle and name a wide variety of common 2-D and 3-D shapes including:</p> <p>quadrilaterals and polygons, and cuboids, prisms and cones, and identify the properties</p> <p>of each shape (for example, number of sides, number of faces). Pupils identify, compare</p> <p>and sort shapes on the basis of their properties and use vocabulary precisely, such as</p> <p>sides, edges, vertices and faces.</p> <p>Pupils read and write names for shapes that are appropriate for their word</p>	<p>Pupils' knowledge of the properties of shapes is extended at this stage to symmetrical</p> <p>and non-symmetrical polygons and polyhedra. Pupils extend their use of the properties</p> <p>of shapes. They should be able to describe the properties of 2-D and 3-D shapes using</p> <p>accurate language, including lengths of lines and acute and obtuse for angles greater or</p> <p>lesser than a right angle.</p> <p>Pupils connect decimals and rounding to drawing and measuring straight lines in</p>	<p>. Pupils continue to classify shapes using geometrical properties, extending to classifying</p> <p>different triangles (for example, isosceles, equilateral, scalene) and quadrilaterals</p> <p>(for example, parallelogram, rhombus, trapezium).</p> <p>Pupils compare and order angles in preparation for using a protractor and compare</p> <p>lengths and angles to decide if a polygon is regular or irregular.</p> <p>Pupils draw symmetric patterns using a variety of media to become</p>	<p>Pupils become accurate in drawing lines with a ruler to the nearest millimetre, and</p> <p>measuring with a protractor. They use conventional markings for parallel lines and right</p> <p>angles.</p> <p>Pupils use the term diagonal and make conjectures about the angles formed between</p> <p>sides, and between diagonals and parallel sides, and other properties of quadrilaterals,</p> <p>for example using dynamic geometry ICT tools.</p> <p>Pupils use angle sum facts and</p>	<p>Pupils draw shapes and nets accurately, using measuring tools and conventional</p> <p>markings and labels for lines and angles.</p> <p>Pupils describe the properties of shapes and explain how unknown angles and lengths</p> <p>can be derived from known measurements.</p> <p>These relationships might be expressed algebraically for example, <math>d = 2 \times r</math>;</p> <p><math>a = 180 - (b + c)</math>.</p>
--	--	---	--	--	---	---

		<p>reading and spelling.</p> <p>Pupils draw lines and shapes using a straight edge</p>	centimetres, in a variety of contexts.	<p>familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams,</p> <p>including where the line of symmetry does not dissect the original shape.</p>	<p>other properties to make deductions about missing angles and relate these to missing number problems.</p>	
<b>Geometry – position and direction</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
	Describe position, direction and movement, including whole, half, quarter and three-quarter turns.	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		<p>Describe positions on a 2-D 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>Plot specified points</p>	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	<p>Describe positions on the full coordinate grid (all four quadrants)</p> <p>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p>

		<p>three-quarter turns (clockwise and anti-clockwise).</p> <p>Order and arrange combinations of mathematical objects in patterns and sequences</p>		<p>and draw sides to complete a given polygon.</p>	<p>Connect work on co-ordinates and scales to interpretation of time graphs.</p> <p>Decide which representations of data are most appropriate and why.</p>	
<p><b>Notes and Guidance</b> <b>(Non-statutory)</b></p>	<p>Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.</p> <p>Pupils make whole, half, quarter and three-quarter turns in both</p>	<p>Pupils should work with patterns of shapes, including those in different orientations.</p> <p>Pupils use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and</p>		<p>Pupils draw a pair of axes in one quadrant, with equal scales and integer labels. They read, write and use pairs of coordinates, for example (2, 5), including using coordinate plotting ICT tools.</p>	<p>Pupils recognise and use reflection and translation in a variety of diagrams, including continuing to use a 2-D grid and coordinates in the first quadrant. Reflection should be in lines that are parallel to the axes.</p>	<p>Pupils draw and label a pair of axes in all four quadrants with equal scaling. This extends their knowledge of one quadrant to all four quadrants, including the use of negative numbers.</p> <p>Pupils draw and label rectangles (including squares), parallelograms and rhombuses, specified by</p>

	<p>directions and connect</p> <p>turning clockwise with movement on a clock face.</p>	<p>programming robots using instructions given in right angles).</p>				<p>coordinates in the four quadrants, predicting missing coordinates using the</p> <p>properties of shapes. These might be expressed algebraically for example, translating</p> <p>vertex <math>(a, b)</math> to <math>(a - 2, b + 3)</math>; <math>(a, b)</math> and <math>(a + d, b + d)</math> being opposite vertices of a square of side <math>d</math>.</p>
<b>Statistics</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
		<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</p>	<p>Interpret and present data using bar charts, pictograms and tables</p> <p>Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?']</p>	<p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve comparison, sum and difference problems using</p>	<p>Complete, read and interpret information in tables, including timetables.</p> <p>Solve comparison, sum and difference problems using information presented in a line</p>	<p>Interpret and construct pie charts and line graphs and use these to solve problems.</p> <p>Calculate and interpret the mean as an average.</p>

		<p>in each category and sorting the categories by quantity</p> <p>Ask and answer questions about totalling and comparing categorical data.</p> <p><b>Spring 2</b></p>	<p>using information presented in scaled bar charts and pictograms and tables.</p> <p><b>Spring 3</b></p>	<p>information presented in bar charts, pictograms, tables and other graphs.</p> <p><b>Summer 4</b></p>	<p>graph.</p> <p><b>Autumn 3</b></p>	<p><b>Summer 3</b></p>
Notes and Guidance (Non-statutory)		<p>Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5, 10).</p>	<p>Pupils understand and use simple scales (for example, 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy.</p> <p>They continue to interpret data presented in many contexts.</p>	<p>Pupils understand and use a greater range of scales in their representations.</p> <p>Pupils begin to relate the graphical representation of data to recording change over time.</p>	<p>Pupils connect their work on coordinates and scales to their interpretation of time graphs.</p> <p>They begin to decide which representations of data are most appropriate and why.</p>	<p>Pupils connect their work on angles, fractions and percentages to the interpretation of pie charts.</p> <p>Pupils both encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects.</p> <p>They should connect conversion from kilometres to miles in measurement to its</p>

						<p>graphical representation.</p> <p>Pupils know when it is appropriate to find the mean of a data set.</p>
--	--	--	--	--	--	--