



*Loving God in all we do*

## St Anne's Catholic Primary School

### Mathematics Curriculum Document

#### Aims

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

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

Year 1

Year 2

Year 3

Year 4

Year 5

Year 6

#### Number - number and place value

#### Counting

Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number

Count in multiples of twos, fives and tens

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

Count up and down in tenths

Count in multiples of 6, 7, 9, 25 and 1000

Count backwards through zero to include negative numbers

Count up and down in hundredths

Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000

Count forwards and backwards in decimal steps

Count forwards or backwards in steps of integers, decimals or powers of 10 for any number

<b>Place Value</b>	<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>Begin to recognise the place value of numbers beyond 20 (tens and ones)</p> <p>Identify and represent numbers using objects and pictorial representations including the number line</p>	<p>Read and write numbers to at least 100 in numerals and in words</p> <p>Recognise the place value of each digit in a two-digit number (tens, ones)</p> <p>Partition numbers in different ways (for example, <math>23 = 20 + 3</math> and <math>23 = 10 + 13</math>)</p> <p>Identify, represent and estimate numbers using different representations, including the number line</p>	<p>Read and write numbers up to 1000 in numerals and in words</p> <p>Read and write numbers with one decimal place</p> <p>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p>Identify the value of each digit to one decimal place</p> <p>Partition numbers in different ways (for example, <math>146 = 100 + 40 + 6</math> &amp; <math>146 = 130 + 16</math>)</p> <p>Identify, represent and estimate numbers using different representations, including the number line</p>	<p>Read and write numbers to at least 10 000</p> <p>Read and write numbers with up to two decimal places</p> <p>Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p> <p>Identify the value of each digit to two decimal places</p> <p>Partition numbers in different ways (for example, <math>2.3 = 2 + 0.3</math> and <math>2.3 = 1 + 1.3</math>)</p> <p>Identify, represent and estimate numbers using different representations, including the number line</p>	<p>Read and write numbers to at least 1 000 000</p> <p>Read and write numbers with up to three decimal places</p> <p>Determine the value of each digit in numbers to at least 1 000 000</p> <p>Identify the value of each digit to three decimal places</p> <p>Identify, represent and estimate numbers using the number line</p>	<p>Read and write numbers up to 10 000 000</p> <p>Determine the value of each digit in numbers up to 10 000 000</p> <p>Identify the value of each digit to three decimal places</p> <p>Identify, represent and estimate numbers using the number line</p>
	<b>Comparing and ordering</b>	<p>Use the language of: equal to, more than, less than (fewer), most, least</p>	<p>Compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</p>	<p>Compare and order numbers up to 1000</p> <p>Compare and order numbers with one decimal place</p>	<p>Order and compare numbers beyond 1000</p> <p>Order and compare numbers with the same number of decimal places up to two decimal places</p>	<p>Order and compare numbers to at least 1 000 000</p> <p>Order and compare numbers with up to three decimal places</p>

	Given a number, identify one more and one less	Find 1 or 10 more or less than a given number	Find 1, 10 or 100 more or less than a given number	Find 0.1, 1, 10, 100 or 1000 more or less than a given number	Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number	Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more or less than a given number
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Number - number and place value</b>						
<b>Rounding, approximation and estimation</b>		Round numbers to at least 100 to the nearest 10	Round numbers to at least 1000 to the nearest 10 or 100	Round any number to the nearest 10, 100 or 1000  Round decimals with one decimal place to the nearest whole number	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000  Round decimals with two decimal places to the nearest whole number and to one decimal place	Round any whole number to a required degree of accuracy  Round decimals with three decimal places to the nearest whole number or one or two decimal places
<b>Multiplying by powers of 10</b>		Understand the connection between the 10 multiplication table and place value	Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer	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	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
<b>Negative numbers</b>				Count backwards through zero to include negative numbers (see counting)	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero	Use negative numbers in context, and calculate intervals across zero

<p><b>Sequences and patterns</b></p>	<p>Recognise and create repeating patterns with numbers, objects and shapes</p> <p>Identify odd and even numbers linked to counting in twos from 0 and 1</p>	<p>Describe and extend simple sequences involving counting on or back in different steps</p>	<p>Describe and extend number sequences involving counting on or back in different steps</p>	<p>Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps</p>	<p>Describe and extend number sequences including those with multiplication and division steps and those where the step size is a decimal</p>	<p>Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal</p>
<p><b>Roman numerals</b></p>			<p>Read Roman numerals from I to XII (see time)</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 Roman numerals to 1000 (M) and recognise years written in Roman numerals</p>	
<p><b>Solving number problems</b></p>	<p>Solve problems and practical problems involving all of the above</p>	<p>Use place value and number facts to solve problems</p>	<p>Solve number problems and practical problems involving these ideas</p>	<p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers</p>	<p>Solve number problems and practical problems that involve all of the above</p>	<p>Solve number and practical problems that involve all of the above</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - addition and subtraction</b>						
<b>Understanding addition and subtraction</b>	<p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting)</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>Understand subtraction as take away and difference (how many more, how many less/fewer)</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</p> <p>Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)</p>
<b>Addition and subtraction facts</b>	<p>Represent and use number bonds and related subtraction facts within 20</p>	<p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>Recall and use number bonds for multiples of 5 totalling 60 (to support telling time to nearest 5 minutes)</p>	<p>Recall and use addition and subtraction facts for 100 (multiples of 5 and 10)</p> <p>Derive and use addition and subtraction facts for 100</p> <p>Derive and use addition and subtraction facts for</p>	<p>Recall and use addition and subtraction facts for 100</p> <p>Recall and use addition and subtraction facts for multiples of 100 totalling 1000</p> <p>Derive and use addition and subtraction facts for 1 and 10 (with decimal</p>	<p>Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)</p> <p>Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</p>	<p>Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</p>

			multiples of 100 totalling 1000	numbers to one decimal place)		
<b>Mental methods</b>	Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations)	Select a mental strategy appropriate  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 - adding three one-digit numbers	Select a mental strategy appropriate  Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds	Select a mental strategy appropriate  Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place	Select a mental strategy appropriate  Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places	Select a mental strategy appropriate  Perform mental calculations, including with mixed operations and large numbers and decimals
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Number - addition and subtraction</b>						
<b>Written methods</b>	*Written methods are informal at this stage - see mental methods for expectation of calculations	*Written methods are informal at this stage - see mental methods for expectation of calculations	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction)	Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)

<b>Estimating and checking calculations</b>		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
<b>Order of operations</b>						Use their knowledge of the order of operations to carry out calculations involving the four operations
<b>Solving addition and subtraction problems including those with missing numbers</b>	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$	Solve problems with addition and subtraction including those with missing numbers: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why  Solve addition and subtraction problems involving missing numbers	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why  Solve addition and subtraction problems involving missing numbers	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why  Solve problems involving addition, subtraction, multiplication and division, including those with missing numbers

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - multiplication and division</b>						
<b>Understanding multiplication and division</b>		<p>Understand multiplication as repeated addition</p> <p>Understand division as sharing and grouping and that a division calculation can have a remainder</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>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)</p> <p>Understand that division is the inverse of multiplication and vice versa</p> <p>Understand how multiplication and division statements can be represented using arrays</p> <p>Understand division as sharing and grouping and use each appropriately</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)</p> <p>Recognise and use factor pairs and commutativity in mental calculations</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)</p> <p>Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p>	<p>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known or related fact, calculate mentally, use a jotting, written method)</p>
<b>Multiplication and division facts</b>		<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p>	<p>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>	<p>Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p>	<p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>Establish whether a number up to 100 is prime and recall</p>	<p>Identify common factors, common multiples and prime numbers</p>



					<p>prime numbers up to 19</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (<sup>2</sup>) and cubed (<sup>3</sup>)</p>	
	<p>Recall and use doubles of all numbers to 10 and corresponding halves</p>	<p>Derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10)</p> <p>Derive and use halves of simple two-digit even numbers (numbers in which the tens are even)</p>	<p>Derive and use doubles of all numbers to 100 and corresponding halves</p> <p>Derive and use doubles of all multiples of 50 to 500</p>	<p>Use partitioning to double or halve any number, including decimals to one decimal place</p>	<p>Use partitioning to double or halve any number, including decimals to two decimal places</p>	<p>Use partitioning to double or halve any number</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - multiplication and division</b>						
<b>Mental methods</b>		Calculate mathematical statements for multiplication (using repeated addition) and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods	Use place value, known and derived facts to multiply and divide mentally, including: <ul style="list-style-type: none"> <li>- multiplying by 0 and 1</li> <li>- dividing by 1</li> <li>- multiplying together three numbers</li> </ul>	Multiply and divide numbers mentally drawing upon known facts  Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Perform mental calculations, including with mixed operations and large numbers
<b>Written methods</b>	*Written methods are informal at this stage - see mental methods for expectation of calculations	*Written methods are informal at this stage - see mental methods for expectation of calculations	Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, progressing to formal written methods	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication  Multiply one-digit numbers with up to two decimal places by whole numbers
			Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one-digit numbers, progressing to formal written methods	Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	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	Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context

						Use written division methods in cases where the answer has up to two decimal places
<b>Estimating and checking calculations</b>			Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
<b>Order of operations</b>						Use their knowledge of the order of operations to carry out calculations involving the four operations

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - multiplication and division</b>						
<b>Solving multiplication and division problems including those with missing numbers</b>	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Solve problems involving multiplication and division (including those with remainders), using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Solve problems, including missing number problems, involving multiplication and division (and interpreting remainders), including positive integer scaling problems and correspondence problems in which $n$ objects are connected to $m$ objects	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder correspondence problems such as $n$ objects are connected to $m$ objects	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign  Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	Solve problems involving addition, subtraction, multiplication and division

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - fractions (including decimals and percentages)</b>						
<b>Understanding fractions</b>	<p>Understand that a fraction can describe part of a whole</p> <p>Understand that a unit fraction represents one equal part of a whole</p>	<p>Understand and use the terms numerator and denominator</p> <p>Understand that a fraction can describe part of a set</p> <p>Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be</p>	<p>Show practically or pictorially that a fraction is one whole number divided by another (for example, <math>\frac{3}{4}</math> can be interpreted as <math>3 \div 4</math>)</p> <p>Understand that finding a fraction of an amount relates to division</p>	<p>Understand that a fraction is one whole number divided by another (for example, <math>\frac{3}{4}</math> can be interpreted as <math>3 \div 4</math>)</p>		
<b>Fractions of objects, shapes and quantities</b>	<p>Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure)</p> <p>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity (including measure)</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>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 small denominators</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>Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators</p> <p>Recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten</p>	<p>Recognise mixed numbers and improper fractions and convert from one form to the other</p> <p>Read and write decimal numbers as fractions (e.g. <math>0.71 = \frac{71}{100}</math>)</p>	

<p><b>Counting, comparing and ordering fractions</b></p>		<p>Count on and back in steps of <math>\frac{1}{2}</math> and <math>\frac{1}{4}</math></p>	<p>Count on and back in steps of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math> and <math>\frac{1}{3}</math></p> <p>Compare and order unit fractions and fractions with the same denominators (including on a number line)</p>	<p>Count on and back in steps of unit fractions</p> <p>Compare and order unit fractions and fractions with the same denominators (including on a number line)</p>	<p>Count on and back in mixed number steps such as <math>1\frac{1}{2}</math></p> <p>Compare and order fractions whose denominators are all multiples of the same number (including on a number line)</p>	<p>Compare and order fractions, including fractions <math>&gt;1</math> (including on a number line)</p>
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - fractions (including decimals and percentages)</b>						
<b>Equivalence</b>		Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$	Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions  Recognise and write decimal equivalents of any number of tenths or hundredths  Recognise and write decimal equivalents to $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths  Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination  Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts  Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$ )
<b>Calculating with fractions</b>			Add and subtract fractions with the same denominator within one whole (using diagrams) (for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ )	Add and subtract fractions with the same denominator (using diagrams)	Add and subtract fractions with the same denominator and denominators that are multiples of the same number (using diagrams)  Write mathematical statements $>1$ as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ )	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

					<p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p>	<p>Multiply simple pairs of proper fractions, writing the answer in its simplest form (using diagrams) (e.g. <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>)</p> <p>Divide proper fractions by whole numbers (using diagrams) (e.g. <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>)</p>
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number - fractions (including decimals and percentages)</b>						
<b>Percentages</b>					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	Find simple percentages of amounts
<b>Solving problems involving fractions, decimals and percentages</b>			Solve problems that involve all of the above	<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>Solve simple measure and money problems involving fractions and decimals to two decimal places</p>	<p>Solve problems involving fractions</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}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}</math> and those with a denominator of a multiple of 10 or 25</p>	<p>Solve problems involving fractions</p> <p>Solve problems which require answers to be rounded to specified degrees of accuracy</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>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Ratio and proportion</b>						
<b>Ratio and proportion</b>						<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 unequal sharing and grouping using knowledge of fractions and multiples</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p>
<b>Algebra</b>						
<b>Algebra</b>						<p>Express missing number problems algebraically</p> <p>Use simple formulae</p> <p>Generate and describe linear number sequences</p> <p>Find pairs of numbers that satisfy an equation with two unknowns</p> <p>Enumerate possibilities of combinations of two variables</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Measurement (length/height, perimeter, area and mass/weight)</b>						
<b>Length / height</b>	<p>Measure and begin to record lengths and heights, using non-standard and then manageable standard units (m and cm) within children's range of counting competence</p> <p>Compare and describe lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)</p>	<p>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit using rulers</p> <p>Compare and order lengths and record the results using &gt;, &lt; and =</p>	<p>Measure, add and subtract lengths (m/cm/mm)</p> <p>Compare lengths (m/cm/mm)</p>	<p>Estimate and calculate lengths</p> <p>Compare lengths</p>	<p>Use, read and write standard units of length to a suitable degree of accuracy</p> <p>Understand and use approximate equivalences between metric and common imperial units such as inches</p>	<p>Use, read and write standard units of length using decimal notation to three decimal places</p>
<b>Perimeter</b>			<p>Understand that perimeter is a measure of distance around the boundary of a shape</p> <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>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p>	<p>Recognise that shapes with the same areas can have different perimeters and vice versa</p>
<b>Area</b>				<p>Understand that area is a measure of surface within a given boundary</p> <p>Find the area of rectilinear shapes by counting squares</p>	<p>Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>)</p>	<p>Calculate the area of parallelograms and triangles</p> <p>Recognise when it is possible to use the formulae for area and volume of shapes</p>

					and estimate the area of irregular shapes	
<b>Mass</b>	Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence	Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales	Measure, add and subtract mass (kg/g)	Estimate and calculate mass	Use, read and write standard units of mass to a suitable degree of accuracy	Use, read and write standard units of mass using decimal notation to three decimal places
	Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than)	Compare and order mass and record the results using >, < and =	Compare mass (kg/g)	Compare mass	Understand and use approximate equivalences between metric and common imperial units such as pounds	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Measurement (capacity, volume, temperature and conversion)</b>						
<b>Capacity / volume</b>	<p>Measure and begin to record capacity and volume using non-standard and then standard units (litres and ml) within children's range of counting competence</p> <p>Compare and describe capacity and volume (for example, full/empty, more than, less than, half, half full, quarter)</p>	<p>Choose and use appropriate standard units to estimate and measure capacity and volume (litres/ml) to the nearest appropriate unit using measuring vessels</p> <p>Compare and order volume/capacity and record the results using &gt;, &lt; and =</p>	<p>Measure, add and subtract volume/capacity (l/ml)</p> <p>Compare volume/capacity (l/ml)</p>	<p>Estimate and calculate volume/capacity</p> <p>Compare volume/capacity</p>	<p>Estimate (and calculate) volume (for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)) and capacity (for example, using water)</p> <p>Understand the difference between liquid volume, including capacity and solid volume</p> <p>Understand and use approximate equivalences between metric and common imperial units such as pints</p>	<p>Use, read and write standard units of volume using decimal notation to three decimal places</p> <p>Calculate and estimate volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>) and extending to other units (for example, mm<sup>3</sup> and km<sup>3</sup>)</p> <p>Compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>) and extending to other units (for example, mm<sup>3</sup> and km<sup>3</sup>)</p>
<b>Temperature</b>		<p>Choose and use appropriate standard units to estimate and measure temperature to the nearest degree (°C) using thermometers</p>	<p>Continue to estimate and measure temperature to the nearest degree (°C) using thermometers</p>	<p>Order temperatures including those below 0°C</p>	<p>Continue to order temperatures including those below 0°C</p>	<p>Calculate differences in temperature, including those that involve a positive and negative temperature</p>
<b>Conversion</b>				<p>Convert between different units of measure (e.g.</p>	<p>Convert between different units of metric measure (for</p>	<p>Convert between standard units, converting</p>

				kilometre to metre; hour to minute)	example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places
						Convert between miles and kilometres

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Measurement (time)</b>						
<b>Time</b>	Recognise and use language relating to dates, including days of the week, weeks, months and years					
	Compare and describe time (for example, quicker, slower, earlier, later)  Sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)	Compare and sequence intervals of time	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	Convert between different units of time, e.g. hour to minute	Convert between units of time in a problem solving context	
	Measure and begin to record time (hours, minutes, seconds)	Know the number of minutes in an hour and the number of hours in a day	Know the number of seconds in a minute, and the number of days in each month, year and leap year			
	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	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	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks  Estimate and read time with increasing accuracy to the nearest minute	Read, write and convert time between analogue and digital 12 and 24-hour clocks	Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks	Use, read and write standard units of time

			Compare durations of events (for example to calculate the time taken by particular events or tasks)			
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Measurement (money and solving problems)</b>						
<b>Money</b>	Recognise and know the value of different denominations of coins and notes	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  Add and subtract money of the same unit, including giving change	Continue to recognise and use symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds and pence  Recognise that ten 10p coins are equivalent to £1 and that each coin is $\frac{1}{10}$ of £1  Add and subtract amounts of money to give change, using both £ and p in practical contexts	Write amounts of money using decimal notation  Recognise that one hundred 1p coins are equivalent to £1 and that each coin is $\frac{1}{100}$ of £1  Estimate, compare and calculate money in pounds and pence		
<b>Solving problems involving money and measures</b>	Solve practical problems for: - lengths and heights - mass/weight - capacity and volume - time	Solve simple problems in a practical context involving addition and subtraction of money and measures (including time)	Solve problems involving money and measures and simple problems involving passage of time	Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures	Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation including scaling  Solve problems involving converting between units of time	Solve problems involving the calculation and conversion of units of measure (including money and time), using decimal notation up to three decimal places where appropriate

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Geometry - properties of shapes</b>						
<b>Properties of shape</b>	Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line  Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid)	Draw 2-D shapes and describe them          Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes  Identify lines of symmetry in 2-D shapes presented in different orientations  Complete a simple symmetric figure with respect to a specific line of symmetry  Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles       Use the properties of rectangles to deduce related facts and find missing lengths and angles	Compare and classify geometric shapes based on their properties and sizes  Draw 2-D shapes using given dimensions and angles       Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	Recognise and name common 3-D shapes, including cuboids (including cubes),	Identify and describe the properties of 3-D shapes, including the number of edges,	Make 3-D shapes using modelling materials; recognise 3-D shapes in different	Compare and classify geometric shapes based on their properties and sizes	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	Recognise, describe and build simple 3-D shapes, including making nets
<b>Angles and rotation</b>	Describe movement, including whole, half, quarter and three-quarter turns	Use mathematical vocabulary to describe movement, including rotation as a turn	Recognise angles as a property of shape or a description of a turn			
		Understand the link between rotation and turns in terms of right	Identify right angles, recognise that two right angles make a	Identify acute and obtuse angles and compare and order	Know angles are measured in degrees: estimate and compare	Recognise angles where they meet at a point, are on a

		angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)	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	angles up to two right angles by size	acute, obtuse and reflex angles Draw given angles, and measure them in degrees ( $^{\circ}$ ) Identify: - angles at a point and one whole turn (total $360^{\circ}$ ) - angles at a point on a straight line and $\frac{1}{2}$ a turn (total $180^{\circ}$ ) - other multiples of $90^{\circ}$	straight line, or are vertically opposite, and find missing angles  Find unknown angles in any triangles, quadrilaterals, and regular polygons
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Geometry - position and direction</b>						
<b>Patterns</b>	Recognise and create repeating patterns with objects and shapes	Order and arrange combinations of mathematical objects in patterns and sequences				
<b>Position and direction</b>	Describe position and direction	Use mathematical vocabulary to describe position, movement, including movement in a straight line				
<b>Coordinates (including</b>			Describe positions on a square grid labelled with letters and numbers	Describe positions on a 2-D grid as coordinates in the first quadrant	Describe positions on the first quadrant of a coordinate grid	Describe positions on the full coordinate grid (all four quadrants)

reflection and translation)				Plot specified points and draw sides to complete a given polygon	Plot specified points and complete shapes	
				Describe movements between positions as translations of a given unit to the left/right and up/down	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	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Statistics</b>						
<b>Sorting and classifying</b>	Sort objects, numbers and shapes to a given criterion and their own	Compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects	Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects	Use a variety of sorting diagrams to compare and classify numbers and geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)	Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)
<b>Present and interpret data</b>	Present and interpret data in block diagrams using practical equipment	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems
<b>Solve problems using data</b>	Ask and answer simple questions by counting the number of objects in each category  Ask and answer questions by comparing categorical data	Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity  Ask and answer questions about totalling and comparing categorical data	Solve one-step and two-step questions (for example, ‘How many more?’ and ‘How many fewer?’) using information presented in scaled bar charts and pictograms and tables	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Solve comparison, sum and difference problems using information presented in all types of graph including a line graph	Solve comparison, sum and difference problems using information presented in all types of graph
<b>Averages</b>					Calculate and interpret the mode, median and range	Calculate and interpret the mean as an average

