

## Ashfield Primary School Maths Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value:	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward  countries to the steps of the step of the steps of the step of t	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 1 000 000 count forwards and backwards with positive and negative whole numbers through zero	
Place Value: Represent	identify and represent numbers using objects and pictorial representations     read and write numbers to 100 in numerals     read and write numbers from 1 to 20 in numerals and words.	<ul> <li>read and write numbers to at least 100 in numerals and in words</li> <li>identify, represent and estimate numbers using different representation s, including the number line</li> </ul>	identify,     represent and     estimate     numbers using     different     representation     s      read and write     numbers up to     1000 in     numerals and in     words	identify, represent and estimate numbers using different representations 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.	read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	read, write,)     order and     compare     )numbers up to     10 000 000 and     determine the     value of each     digit

Place Value: Use PV and	given a number, idenfity one more and one less	<ul> <li>recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> </ul>	<ul> <li>recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>compare and order numbers to 1000</li> </ul>	<ul> <li>find 1000 more or less than a given number</li> <li>recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li> <li>order and compare numbers beyond 1000</li> </ul>	(read, write,) order and compare numbers to at least 1 000 000 and determine the value of each digit	(read, write,) order and compare numbers up to 10 000 000 and determine the value of each digit
Place value: Problems & Rounding		use place value and number facts to solve problems.	solve number problems and practical problems involving these ideas.	round any number to the nearest 10, 100 or 1000 solve number and practical problems that involve all of the above and with increasingly large positive numbers	Interpret negative numbers is context round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number problems and practical problems that involve all of the above	<ul> <li>round any         whole number         to a required         degree of         accuracy</li> <li>use negative         numbers in         context, and         calculate         intervals         across zero</li> <li>solve number         and practical         problems that         involve all of         the above.</li> </ul>

Addition & Subtraction: Recall,, Represent, Use	Read, write and interpret mathematical statements inlvolving addition (+), subtraction (-) and equals (=) signs. Represent and use number bonds and related subtraction facts within 20.	<ul> <li>Recall and use addition and subtractions facts to 20 fluently and derive and use related facts up to 100.</li> <li>Show that addition of two numbers can done in any order (commutative) and subtraction of one number from another cannot.]recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> <li>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</li> </ul>	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	
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Addition and & subtractions: Calculations one-digit and two-digit numbers to 20, including zero	ones a two-digit number and tens a two-digit number and tens  o two two-digit numbers  numbers  number and tens a three-digit number and hundreds add and subtract	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)  add and subtract numbers mentally with increasingly large numbers	<ul> <li>perform mental calculations, including with mixed operations and large numbers.</li> <li>use their knowledge of the order of operations to carry out calculations involving the four operations</li> </ul>
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v	<ul> <li>solve one-step</li> </ul>	<ul> <li>solve problems with</li> </ul>	<ul> <li>solve problems,</li> </ul>	solve addition	<ul> <li>solve addition</li> </ul>	• solve
Addition and Subtraction: Solve Problems	problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? - 9.	solve problems with addition and subtraction:     using concrete objects and pictorial representations, including those involving numbers, quantities and measures     applying their increasing knowledge of mental and written methods	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 multi-step problems in contexts, deciding which operations and methods to use and why.	addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Multiplication & Division: Recall, represent,Use		recall and use     multiplication and     division facts for the 2,     5 and 10 multiplication     tables, including     recognising odd and     even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to 12 × 12  use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers recognise and use factor pairs and commutativity in mental calculations	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.     know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers     establish whether a number up to 100 is prime and recall prime numbers up to 19      recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) and cubed (³)	identify common factors, common multiples and prime numbers      use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
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Multiplication & Division: Calculations		calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (*), division (÷) 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 and progressing to formal written methods	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	<ul> <li>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</li> <li>multiply and divide numbers mentally drawing upon known facts</li> <li>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</li> <li>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</li> </ul>	multiply multidigit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication     divide numbers up to 4 digits by a two-digit whole number using the formal written method of long and short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context     perform mental calculations, including with mixed operations and large numbers.
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Multiplication & Division: Solve problems	• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representation s and arrays with the support of the teacher.	solve problems     involving     multiplication and     division, 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, including 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, integer scaling problems and harder correspondence problems such as nobjects are connected to mobjects	solve     problems     involving     multiplication     and division,     including     scaling by     simple     fractions and     problems     involving     simple rates.	solve     problems     involving     addition,     subtraction,     multiplicatio     n and     division
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Multiplication & Division: Combined Operations					problems involving addition, subtraction, multiplication and division and a combination of these, including understandin g the meaning of the equals sign	use their knowledge of the order of operations to carry out calculations involving the four operations
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Fractions: recognise and write	<ul> <li>recognise, find and name a half as one of two equal parts of an object, shape or quantity</li> <li>recognise, find and name a quarter as one of four equal</li> <li>parts of an object, shape or quantity.</li> </ul>	• recognise, find, name and write fractions 1/3, \frac{1}{4}, , 2/4, \frac{3}{4} of a length, shape, set of objects or quantity	count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators recognise and use fractions as numbers: unit fractions with small denominators small denominators with small denominators small denominators	count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.	<ul> <li>identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>recognise mixed numbers and improper fractions and</li> <li>convert from one form to the other and write mathematical statements &gt; 1 as a mixed number (e.g. <sup>2</sup>/<sub>5</sub> + <sup>4</sup>/<sub>5</sub> = <sup>6</sup>/<sub>5</sub> = 1<sup>1</sup>/<sub>5</sub>)</li> </ul>	
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Fractions: Compare	• write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2 .	<ul> <li>recognise and show, using diagrams, equivalent fractions with small denominators</li> <li>compare and order unit fractions, and fractions with the same denominators</li> </ul>	• recognise and show, using diagrams, families of common equivalent fractions	compare and order fractions whose denominators are all multiples of the same number	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions >1
Fractions: Calculations		• add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7}$ + $\frac{1}{7}$ = $\frac{6}{7}$ )	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and multiples of the same number     I multiply proper fractions and mixed numbers by     whole numbers, supported by materials and diagrams	• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • I multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. \( \frac{1}{4} \times \frac{1}{2} = \frac{1}{8} \) • divide proper fractions by whole numbers (e.g. \( \frac{1}{3} \) • divide proper fractions by whole numbers (e.g. \( \frac{1}{3} \) • \( \frac{1}{6} \) in whole numbers (e.g. \( \frac{1}{3} \) • \( \frac{1}{6} \) in \( \frac{1}{

Fractions: Solve Problems	solve problems that involvall of the above.	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	

Decimals: recognise and write				<ul> <li>recognise and write decimal equivalents of any number of tenths or hundredths</li> <li>recognise and write decimal equivalents to <sup>1</sup>/<sub>4</sub>;</li> <li><sup>1</sup>/<sub>2</sub>; <sup>3</sup>/<sub>4</sub></li> </ul>	<ul> <li>read and write decimal numbers as fractions (e.g. 0.71 = 71/100)</li> <li>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> </ul>	identify the value of each digit to three decimal places
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Decimals: compare		<ul> <li>round         decimals         with one         decimal         place to the         nearest         whole         number</li> <li>compare         numbers         with the         same         number of         decimal         places up to         two decimal         places</li> </ul>	<ul> <li>round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>read, write, order and compare numbers with up to three decimal places</li> </ul>	

Decimals: calculations and problems				• 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 units, tenths and hundredths	<ul> <li>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 hundred, and as a decimal fraction</li> <li>solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 1/5, 4/5 and those with a denominator of a multiple of 10 or 25.</li> </ul>	<ul> <li>multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places</li> <li>multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>use written division methods in cases where the answer has up to two decimal places</li> <li>solve problems which require answers to be rounded to specified degrees of accuracy</li> </ul>
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Fractions, decimals and Percentages				solve simple measure and money problems involving fractions and decimals to two decimal places.	<ul> <li>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 hundred, and as a decimal fraction</li> <li>solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.</li> </ul>	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. <sup>3</sup> / <sub>8</sub> )
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Algebra	until Y6, algebra	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.  h algebraic notation is naic thinking starts much the 'missing number' obtains and missing and missing number problems.	earlier as	express missing number problems algebraically use simple formulae expressed in words generate and describe linear number sequences find pairs of numbers that satisfy number sentences involving two unknowns enumerate all possibilities of combinations of two variables

## Measurement: Using Measure

- compare, describe and solve practical problems for:
- lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half)
- mass or weight (e.g. heavy/light, heavier than, lighter than)
- capacity/volume (full/empty, more than, less than, quarter)
- time (quicker, slower, earlier, later)
- measure and begin to record the following:
- lengths and heights
- mass/weight
- > capacity and volume
- time (hours, minutes, seconds)

- 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.
- compare and order lengths, mass, volume/capacity and record the results using >, < and =</li>

- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- estimate, compare and calculate different measures

Convert

between different

units of measure

(e.g. kilometre to

metre; hour to

minute)

- convert
  between different units
  of metric measure (e.g.
  kilometre and metre;
  centimetre and metre;
  centimetre and
  millimetre; gram and
  kilogram; litre and
  millilitre)
- understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
- use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert
   between miles and
   kilometres

Measurement: Money	recognise and know the value of different denominations of coins and notes	<ul> <li>recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>find different combinations of coins that equal the same amounts of money</li> <li>solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> </ul>	add and subtract amounts of money to give change, using both £ and p in practical contexts	estimate,     compare and     calculate     different     measures,     including money     in pounds and     pence	use all four operations to solve problems involving measure	
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## Measurement: Time

- sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening
- recognise and use language relating to dates, including days of the week, weeks, months and years
- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

- compare and sequence intervals of time
- tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
- Know the number of minutes in an hour and the number of hours in a day.
- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight
- know the number of seconds in a minute and the number of days in each month, year and leap year
- compare durations of events, for example to calculate the time taken by particular events or tasks.

- read, write and convert time between analogue and digital 12 and 24-hour clocks
- solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.
- solve problems involving converting between units of time
- use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places

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., Area, Volume, Mass	measure the perimeter of simple 2-D shapes	<ul> <li>measure and calculate the perimeter of a rectilinear figure</li> <li>(including squares) in centimetres and metres</li> <li>find the area of rectilinear shapes by counting squares</li> </ul>	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres     calculate and compare the area of squares and rectangles     including using standard units, square	<ul> <li>recognise</li> <li>that shapes with</li> <li>the same areas can</li> <li>have different</li> <li>perimeters and</li> <li>vice versa</li> <li>recognise</li> <li>when it is possible</li> <li>to use formulae</li> <li>for area and</li> <li>volume of shapes</li> <li>calculate</li> <li>the area of</li> <li>parallelograms and</li> <li>triangles</li> <li>calculate</li> </ul>
Measurement: Perimeter,			centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes • estimate volume (e.g. using 1 cm³ blocks to build cubes and cuboids) and capacity (e.g. using water)	estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and extending to other units

Geometry; 2-D Shape	<ul> <li>recognise and name common 2-D and 3-D shapes, including:</li> <li>2-D shapes (e.g. rectangles (including squares), circles and triangles)</li> </ul>	<ul> <li>identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line</li> <li>identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid</li> <li>compare and sort common 2-D shapes and everyday objects.</li> </ul>	• Draw 2-d shapes	<ul> <li>compare and classify geometric shapes, including quadrilatera Is and triangles, based on their properties and sizes</li> <li>identify lines of symmetry in 2-D shapes presented in different orientations</li> </ul>	<ul> <li>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles</li> </ul>	<ul> <li>draw 2-D shapes using given dimensions and angles</li> <li>compare and classify geometric shapes based on their properties and sizes</li> <li>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> </ul>
<i>G</i> eo		and everyday		different	lengths and	the diameter is twice the

• recognise and name common 3-b shapes, shapes (for example, cuboids, cubes, pyramids and spheres) • compare and sort common 2-D shapes and everyday objects.  • make 3-D shapes using modelling materials • recognise 3-D shapes in different orientations and describe them	recognise, describe and build simple 3-D shapes, including making nets
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Statistics: Present and Interpret	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
Statistics: Solve Problems	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	• solve one-step and two-step questions such as '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 a     line graph	calculate and interpret the mean as an average.

	comparing categorical data.		