



Maths Curriculum – Skills and Knowledge progression document

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Number and Place Value</b>					
<p>Can they count, read and write numbers to 100?</p> <p>Can they count in multiples of twos, fives and tens?</p> <p>Can they identify one more and one less than a number?</p>	<p>Can they count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward?</p> <p>Can they compare and order numbers from 0 up to 100, using &lt;, &gt; and = signs?</p> <p>Can they use place value and number facts to solve problems?</p>	<p>Can they count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number?</p> <p>Can they compare and order numbers up to 1000?</p> <p>Can they read and write numbers up to 1000 in numerals and in words?</p> <p>Can they solve number problems and practical problems involving these ideas?</p>	<p>Can they count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward?</p> <p>Can they count in multiples of 6, 7, 9, 25 and 1000?</p> <p>Can they find 1000 more or less than a given number?</p> <p>Can they count backwards through zero to include negative numbers?</p> <p>Can they order and compare numbers beyond 1000?</p> <p>Can they round any number to the nearest 10, 100 or 1000?</p> <p>Can they read Roman numerals to 100?</p>	<p>Can they read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit?</p> <p>Can they count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000?</p> <p>Can they interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero?</p> <p>Can they round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000?</p> <p>Can they read Roman numerals to 1000 and recognise years written in Roman numerals?</p>	<p>Can they read, write, order and compare numbers up to 10 000 000 and determine the value of each digit?</p> <p>Can they round any whole number to a required degree of accuracy?</p> <p>Can they use negative numbers in context, and calculate intervals across Zero?</p> <p>Can they identify common factors, common multiples and prime numbers?</p>
<b>Addition and Subtraction</b>					
<p><a href="#">Can they add and subtract one-digit and two-digit numbers to 20?</a></p> <p>Can they solve one-step problems that involve addition and subtraction?</p> <p><a href="#">Can they read, write and interpret mathematical statements involving addition subtraction and equals signs?</a></p>	<p>Can they solve problems with addition and subtraction using;</p> <ul style="list-style-type: none"> <li>- concrete objects and pictorial representations?</li> <li>- questions involving numbers, quantities and measures?</li> </ul> <p>Can they add and subtract numbers including;</p> <ul style="list-style-type: none"> <li>- a two-digit number and ones?</li> <li>- two-digit number and tens?</li> <li>- two two-digit numbers?</li> <li>- adding three one-digit numbers?</li> </ul>	<p>Can they 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><a href="#">Can they add and subtract numbers with up to three digits, using formal written methods?</a></p> <p>Can they solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction?</p>	<p><a href="#">Can they add and subtract numbers with up to 4 digits using the formal written methods?</a></p> <p>Can they estimate and use inverse operations to check answers to a calculation?</p> <p>Can they solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why?</p>	<p>Can they add and subtract whole numbers with more than 4 digits, including using formal written methods?</p> <p>Can they add and subtract numbers mentally with increasingly large numbers?</p> <p>Can they solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why?</p>	<p>Can they solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why?</p> <p>Can they solve problems involving addition and subtraction?</p> <p>Can they use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy?</p> <p>Can they perform mental calculations, including with mixed operations and large numbers?</p>
<b>Multiplication and Division</b>					
<p>Can they solve one-step problems involving multiplication and division by calculating the answer using;</p> <ul style="list-style-type: none"> <li>- concrete objects?</li> <li>- pictorial representations?</li> <li>- arrays?</li> </ul>	<p>Can they recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables?</p> <p>Can they solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts?</p>	<p>Can they recall and use multiplication and division facts for the 3, 4 and 8 multiplication table?</p> <p>Can they write and calculate mathematical statements for multiplication and division including for two-digit numbers times one-digit numbers?</p> <p>Can they 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>Can they recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>?</p> <p>Can they 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?</p> <p>Can they recognise and use factor pairs and commutativity in mental calculations?</p> <p>Can they multiply two-digit and three-digit numbers by a one-digit number using formal written layout?</p> <p>Can they solve problems involving multiplying and dividing?</p>	<p>Can they identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers?</p> <p>Can they establish whether a number up to 100 is prime and recall prime numbers up to 19?</p> <p>Can they 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?</p> <p>Can they divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 100 and 1000?</p> <p>Can they solve problems involving multiplication and division including;</p> <ul style="list-style-type: none"> <li>- using their knowledge of factors and multiples, squares and cubes?</li> <li>- understanding the meaning of the equals sign?</li> <li>- scaling by simple fractions and problems involving simple rates?</li> </ul>	<p>Can they solve problems involving multiplication and division?</p> <p>Can they use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy?</p> <p>Can they perform mental calculations, including with mixed operations and large numbers?</p> <p>Can they multiply multi-digit numbers up to 4 digits by a two-digit whole number?</p> <p>Can they divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context?</p> <p>Can they multiply one-digit numbers with up to two decimal places by whole numbers?</p> <p>Can they use written division methods in cases where the answer has up to two decimal places?</p>

Fractions					
<p>Can they recognise, find and name;</p> <ul style="list-style-type: none"> <li>- <a href="#">a half as one of two equal parts of an object, shape or quantity?</a></li> <li>- <a href="#">a quarter as one of four equal parts of an object, shape or quantity?</a></li> </ul>	<p><a href="#">Can they write simple fractions and recognise the equivalent fractions?</a></p> <p><a href="#">Can they recognise, find, name and write fractions <math>\frac{1}{3}</math> <math>\frac{1}{4}</math> <math>\frac{2}{4}</math> <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity?</a></p>	<p>Can they count up and down in tenths?</p> <p><a href="#">Can they recognise, find and write fractions of a discrete set of objects?</a></p> <p>Can they recognise and use fractions as numbers?</p> <p>Can they add and subtract fractions with the same denominator?</p> <p>Can they compare and order unit fractions, and fractions with the same denominators?</p>	<p>Can they recognise and show, using diagrams, families of common equivalent fractions?</p> <p>Can they count up and down in hundredths?</p> <p><a href="#">Can they solve problems involving increasingly harder fractions to calculate quantities?</a></p> <p>Can they recognise and write decimal equivalents of any number of tenths or hundredths?</p> <p>Can they recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>?</p> <p>Can they 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>Can they round decimals with one decimal place to the nearest whole number?</p> <p>Can they compare numbers with the same number of decimal places up to two decimal places?</p>	<p><a href="#">Can they compare and order fractions whose denominators are all multiples of the same number?</a></p> <p>Can they identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths?</p> <p>Can they recognise mixed numbers and improper fractions and convert from one form to the other?</p> <p>Can they add and subtract fractions with the same denominator and denominators that are multiples of the same number?</p> <p>Can they multiply proper fractions and mixed numbers by whole numbers?</p> <p>Can they read and write decimal numbers as fractions?</p> <p>Can they recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents?</p> <p>Can they round decimals with two decimal places to the nearest whole number and to one decimal place?</p> <p>Can they recognise the per cent symbol and write percentages as a fraction with denominator 100, and as a decimal?</p>	<p>Can they use common factors to simplify fractions; use common multiples to express fractions in the same denomination?</p> <p>Can they compare and order fractions, including fractions &gt; 1?</p> <p><a href="#">Can they add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions?</a></p> <p><a href="#">Can they multiply simple pairs of proper fractions, writing the answer in its simplest form?</a></p> <p>Can they divide proper fractions by whole numbers?</p> <p>Can they recall and use equivalences between simple fractions, decimals and percentages, including in different contexts?</p>
Geometry – Properties of shape					
<p>Can they identify and describe the properties of;</p> <ul style="list-style-type: none"> <li>- 2-D shapes, including the number of sides and line symmetry in a vertical line?</li> <li>- 3-D shapes, including the number of edges, vertices and faces?</li> </ul> <p>Can they compare and sort common 2-D and 3-D shapes and everyday objects?</p>	<p>Can they identify and describe the properties of;</p> <ul style="list-style-type: none"> <li>- 2-D shapes, including the number of sides and line symmetry in a vertical line?</li> <li>- 3-D shapes, including the number of edges, vertices and faces?</li> </ul> <p>Can they compare and sort common 2-D and 3-D shapes and everyday objects?</p>	<p>Can they draw 2-D shapes and make 3-D shapes using modelling materials?</p> <p>Can they identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn?</p> <p>Can they identify whether angles are greater than or less than a right angle?</p> <p>Can they identify horizontal and vertical lines and pairs of perpendicular and parallel lines?</p>	<p>Can they describe positions on a 2-D grid as coordinates in the first?</p> <p>Can they describe movements between positions as translations of a given unit to the left/right and up/down?</p> <p>Can they plot specified points and draw sides to complete a given polygon?</p>	<p>Can they identify 3-D shapes, including cubes and other cuboids, from 2-D representations?</p> <p>Can they know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles?</p> <p>Can they draw given angles, and measure them in degrees?</p> <p>Can they use the properties of rectangles to deduce related facts and find missing lengths and angles?</p>	<p>Can they draw 2-D shapes using given dimensions and angles?</p> <p>Can they recognise, describe and build simple 3-D shapes, including making nets?</p> <p>Can they compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons?</p> <p>Can they illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius?</p> <p>Can they recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles?</p>
Geometry – position and direction					
<p>Can they order and arrange combinations of mathematical objects in patterns and sequences?</p> <p>Can they use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn?</p>	<p>Can they order and arrange combinations of mathematical objects in patterns and sequences?</p> <p>Can they use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)?</p>		<p>Can they compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes?</p> <p>Can they identify acute and obtuse angles and compare and order angles up to two right angles by size?</p> <p>Can they identify lines of symmetry in 2-D shapes presented in different orientations?</p>	<p>Can they 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>	<p>Can they describe positions on the full coordinate grid (all four quadrants)?</p> <p>Can they draw and translate simple shapes on the coordinate plane, and reflect them in the axes?</p>
Measurement					
<p>Can they choose and use appropriate standard units to estimate and measure;</p> <ul style="list-style-type: none"> <li>- length/height in any direction (m/cm)?</li> <li>- mass (kg/g)?</li> <li>- temperature (°C)?</li> <li>- capacity (litres/ml)?</li> </ul> <p>Can they recognise and use symbols for pounds and pence?</p> <p>Can they find different combinations of coins that equal the same amounts of money?</p> <p>Can they 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>Can they choose and use appropriate standard units to estimate, measure, compare and order;</p> <ul style="list-style-type: none"> <li>- length/height in any direction (m/cm)?</li> <li>- mass (kg/g)?</li> <li>- temperature (°C)?</li> <li>- capacity (litres/ml)?</li> </ul> <p>Can they recognise and use symbols for pounds and pence, and combine to make amounts?</p> <p>Can they compare and sequence intervals of time?</p> <p>Can they 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>Can they measure, compare, add and subtract;</p> <ul style="list-style-type: none"> <li>- lengths (m/cm/mm)?</li> <li>- mass (kg/g)?</li> <li>- volume/capacity (l/ml)?</li> </ul> <p>Can they measure the perimeter of simple 2-D shapes?</p> <p>Can they add and subtract amounts of money to give change, using both £ and p in practical contexts?</p> <p>Can they 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>Can they estimate and read time with increasing accuracy to the nearest minute?</p> <p>Can they record and compare time in terms of seconds, minutes and hours?</p> <p>Can they use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight?</p>	<p>Can they convert between different units of measure?</p> <p>Can they measure and calculate the perimeter of a rectilinear figure in centimetres and metres?</p> <p>Can they find the area of rectilinear shapes by counting squares?</p> <p>Can they estimate, compare and calculate different measures, including money in pounds and pence?</p> <p>Can they read, write and convert time between analogue and digital 12- and 24-hour clocks?</p> <p>Can they solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days?</p>	<p>Can they convert between different units of metric measure?</p> <p>Can they understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints?</p> <p>Can they measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres?</p> <p>Can they calculate and compare the area of rectangles, and including using standard units, square centimetres and square metres and estimate the area of irregular shapes?</p> <p>Can they estimate volume?</p>	<p>Can they solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places?</p> <p>Can they use, read, write and convert between standard units, converting measurements of length, mass, volume and time, using decimal notation to up to three decimal places?</p> <p>Can they convert between miles and kilometres?</p> <p>Can they recognise when it is possible to use formulae for area and volume of shapes?</p> <p>Can they calculate the area of parallelograms and triangles?</p> <p>Can they calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres?</p>

Statistics					
Can they interpret and construct simple pictograms, tally charts, block diagrams and simple tables? Can they ask and answer simple questions by counting the number of objects in each category?	Can they interpret and construct simple pictograms, tally charts, block diagrams and simple tables? Can they ask and answer simple questions by counting the number of objects in each category? Can they ask and answer questions about totalling and comparing categorical data?	Can they interpret and present data using bar charts, pictograms and tables? Can they solve one-step and two-step questions, using information presented in scaled bar charts and pictograms and tables?	Can they interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs? Can they solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs?	Can they solve comparison, sum and difference problems using information presented in a line graph? Can they complete, read and interpret information in tables, including timetables?	Can they interpret and construct pie charts and line graphs and use these to solve problems? Can they calculate and interpret the mean as an average?
Ratio and Proportion					
					Can they solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts? Can they solve problems involving the calculation of percentages and the use of percentages for comparison? Can they solve problems involving similar shapes where the scale factor is known or can be found? Can they solve problems involving unequal sharing and grouping using knowledge of fractions and multiples?
Algebra					
					Can they use simple formulae? Can they generate and describe linear number sequences? Can they express missing number problems algebraically? Can they find pairs of numbers that satisfy an equation with two unknowns? Can they enumerate possibilities of combinations of two variables?