# Progression of skills in Maths

| | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Number - Number and Place Value | • have a deep understanding of numbers to 10, including the composition of each number.<br><br>• subitise (recognise quantities without counting) up to 5.<br><br>• verbally count beyond 20, recognising the pattern of the counting system.<br><br>• compare quantities up to 10 in | • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number<br><br>• count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s<br><br>• given a number, identify 1 more and 1 less<br><br>• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least | • count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward<br><br>• recognise the place value of each digit in a two-digit number (10s, 1s)<br><br>• identify, represent and estimate numbers using different representations, including the number line<br><br>• compare and order numbers from 0 up to 100; use <, > and = signs<br><br>• read and write numbers to at least 100 in numerals and in words | • count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number<br><br>• recognise the place value of each digit in a 3-digit number (100s, 10s, 1s)<br><br>• compare and order numbers up to 1,000<br><br>• identify, represent and estimate numbers using different representations<br><br>• read and write numbers up to 1,000 in numerals and in words<br><br>• solve number problems and practical problems involving these ideas | • count in multiples of 6, 7, 9, 25 and 1,000<br><br>• find 1,000 more or less than a given number<br><br>• count backwards through 0 to include negative numbers<br><br>• recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)<br><br>• order and compare numbers beyond 1,000<br><br>• identify, represent and estimate numbers using different representations | • read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit<br><br>• count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000<br><br>• interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0<br><br>• round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 | • read, write, order and compare numbers up to 10,000,000 and determine the value of each digit<br><br>• round any whole number to a required degree of accuracy<br><br>• use negative numbers in context, and calculate intervals across 0<br><br>• solve number and practical problems that involve all of the above |

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| | different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. | •read and write numbers from 1 to 20 in numerals and words | • use place value and number facts to solve problems | | • round any number to the nearest 10, 100 or 1,000<br>• solve number and practical problems that involve all of the above and with increasingly large positive numbers<br>• read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value | • solve number problems and practical problems that involve all of the above<br>• read Roman numerals to 1,000 (M) and recognise years written in Roman numerals | |
| Number – Addition and Subtraction | • automaticall y recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, | • read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs<br>• represent and use number bonds and related subtraction facts within 20<br>• add and subtract one-digit and two-digit | • 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 | • add and subtract numbers mentally, including: a three-digit number and 1s; a three-digit number and 10s; a three-digit number and 100s<br>• add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction<br>• estimate the answer to a calculation and use | • add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate<br>• estimate and use inverse operations to check answers to a calculation<br>• solve addition and subtraction two- | • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)<br>• add and subtract numbers mentally with increasingly large numbers<br>• use rounding to check answers to calculations and | Number – addition, subtraction, multiplication and division<br>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication |

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| | including double facts. | numbers to 20, including 0<br><br>• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9 | • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100<br><br>• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and 1s; a two-digit number and 10s; 2 two-digit numbers; adding 3 one-digit numbers<br><br>• show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot<br><br>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems | inverse operations to check answers<br><br>• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | step problems in contexts, deciding which operations and methods to use and why | determine, in the context of a problem, levels of accuracy<br><br>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context<br><br>• 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<br><br>• perform mental calculations, including with mixed operations and large numbers |

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| Number – Multiplication and Division | • explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. | • 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 | • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers<br><br>• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs<br><br>• show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot<br><br>• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts | • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables<br><br>• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers of times one-digit numbers, using mental and progressing to formal written methods<br><br>• 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 | • recall multiplication and division facts for multiplication tables up to 12 × 12<br><br>• use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers<br><br>• recognise and use factor pairs and commutativity in mental calculations<br><br>• multiply two-digit and three-digit numbers by a one-digit number using formal written layout<br><br>• solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder | • identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers<br><br>• know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers<br><br>• establish whether a number up to 100 is prime and recall prime numbers up to 19<br><br>• 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<br><br>• multiply and divide numbers mentally, drawing upon known facts<br><br>• divide numbers up to 4 digits by a one-digit number using the formal written | • identify common factors, common multiples and prime numbers<br><br>• use their knowledge of the order of operations to carry out calculations involving the 4 operations<br><br>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why<br><br>• solve problems involving addition, subtraction, multiplication and division<br><br>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate |

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| | | | | | correspondence problems such as n objects are connected to m objects | method of short division and interpret remainders appropriately for the context<br>• multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000<br>• recognise and use square numbers and cube numbers, and the notation for squared ($^2$) and cubed ($^3$)<br>• solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes<br>• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the | degree of accuracy |

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| | | | | | | meaning of the equals sign<br>• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | |
| Number – Fractions (including decimals and percentages) | | • recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity<br>• recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity | • recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity<br>• write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ | • 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<br>• recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators<br>• recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators<br>• recognise and show, using diagrams, equivalent fractions with small denominators | • recognise and show, using diagrams, families of common equivalent fractions<br>• count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10<br>• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions | • compare and order fractions whose denominators are all multiples of the same number<br>• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths<br>• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for | • use common factors to simplify fractions; use common multiples to express fractions in the same denomination<br>• compare and order fractions, including fractions >1<br>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions |

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| | | | | • add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ ]<br><br>• compare and order unit fractions, and fractions with the same denominators<br><br>• solve problems that involve all of the above | where the answer is a whole number<br><br>• add and subtract fractions with the same denominator<br><br>• recognise and write decimal equivalents of any number of tenths or hundreds<br><br>• recognise and write decimal equivalents to $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$<br><br>• 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<br><br>• round decimals with 1 decimal place to the nearest whole number<br><br>• compare numbers with the same number of decimal | example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ ]<br><br>• add and subtract fractions with the same denominator, and denominators that are multiples of the same number<br><br>• multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams<br><br>• read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$ ]<br><br>• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents<br><br>• round decimals with 2 decimal places to the nearest whole number and to 1 decimal place<br><br>• read, write, order and compare | • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ ]<br><br>• divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$ ]<br><br>• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$ ]<br><br>• identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and |

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| | | | | | places up to 2 decimal places<br>• solve simple measure and money problems involving fractions and decimals to 2 decimal places | numbers with up to 3 decimal places<br>• solve problems involving number up to 3 decimal places<br>• recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction<br>• solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 | 1,000 giving answers up to 3 decimal places<br>• multiply one-digit numbers with up to 2 decimal places by whole numbers<br>• use written division methods in cases where the answer has up to 2 decimal places<br>• solve problems which require answers to be rounded to specified degrees of accuracy<br>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts |

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| Ratio and Proportion | | | | | | | • solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts<br>• solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison<br>• solve problems involving similar shapes where the scale factor is known or can be found<br>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples |

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| Algebra | | | | | | | • use simple formulae<br>• generate and describe linear number sequences<br>• express missing number problems algebraically<br>• find pairs of numbers that satisfy an equation with 2 unknowns<br>• enumerate possibilities of combinations of 2 variables |
| Measurement | | • compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]; mass/weight [for example, heavy/light, heavier than, lighter | • 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, | • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)<br>• measure the perimeter of simple 2-D shapes<br>• add and subtract amounts of money to give | • convert between different units of measure [for example, kilometre to metre; hour to minute]<br>• measure and calculate the perimeter of a | • convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram | • solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places |

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| | | than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]; time [for example, quicker, slower, earlier, later]<br><br>• measure and begin to record the following: lengths and heights; mass/weight; capacity and volume; time (hours, minutes, seconds); recognise and know the value of different denominations of coins and notes; sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]<br><br>• recognise and use language relating to dates, including days of the week, weeks, months and years<br><br>• tell the time to the hour and half past the hour and draw the | scales, thermometers and measuring vessels<br><br>• compare and order lengths, mass, volume/capacity and record the results using >, < and =<br><br>• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value<br><br>• find different combinations of coins that equal the same amounts of money<br><br>• solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change<br><br>• compare and sequence intervals of time<br><br>• tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a | change, using both £ and p in practical contexts<br><br>• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks<br><br>• estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight<br><br>• know the number of seconds in a minute and the number of days in each month, year and leap year<br><br>• compare durations of events [for example, to calculate the time taken by particular events or tasks] | rectilinear figure (including squares) in centimetres and metres<br><br>• find the area of rectilinear shapes by counting squares<br><br>• estimate, compare and calculate different measures, including money in pounds and pence<br><br>• read, write and convert time between analogue and digital 12- and 24-hour clocks<br><br>• solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days | and kilogram; litre and millilitre]<br><br>• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints<br><br>• measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres<br><br>• calculate and compare the area of rectangles (including squares), including using standard units, square centimetres ($cm^2$) and square metres ($m^2$), and estimate the area of irregular shapes<br><br>• estimate volume [for example, using 1 $cm^3$ blocks to build cuboids (including cubes)] and capacity [for example, using water] | where appropriate<br><br>• 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 3 decimal places<br><br>• convert between miles and kilometres<br><br>• recognise that shapes with the same areas can have different perimeters and vice versa<br><br>• recognise when it is possible to use formulae for area and volume of shapes<br><br>• calculate the area of |

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| | | hands on a clock face to show these times | clock face to show these times<br>• know the number of minutes in an hour and the number of hours in a day | | | • solve problems involving converting between units of time<br>• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | parallelograms and triangles<br>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ($cm^3$) and cubic metres ($m^3$), and extending to other units [for example, $mm^3$ and $km^3$] |
| Geometry – Properties of shape | | • recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] | • identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line<br>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces<br>• 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 make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them<br>• recognise angles as a property of shape or a description of a turn<br>• identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are | • compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes<br>• identify acute and obtuse angles and compare and order angles up to 2 right angles by size<br>• identify lines of symmetry in 2-D shapes presented in | • identify 3-D shapes, including cubes and other cuboids, from 2-D representations<br>• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br>• draw given angles, and measure them in degrees (°)<br>• identify: angles at a point and 1 whole turn (total 360°); | • draw 2-D shapes using given dimensions and angles<br>• recognise, describe and build simple 3-D shapes, including making nets<br>• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, |

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| | | | • compare and sort common 2-D and 3-D shapes and everyday objects | greater than or less than a right angle<br>• identify horizontal and vertical lines and pairs of perpendicular and parallel lines | different orientations<br>• complete a simple symmetric figure with respect to a specific line of symmetry | angles at a point on a straight line and half a turn (total 180°); other multiples of 90°; use the properties of rectangles to deduce related facts and find missing lengths and angles; distinguish between regular and irregular polygons based on reasoning about equal sides and angles | quadrilaterals, and regular polygons<br>• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius<br>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
| Geometry – Position and Direction | | • describe position, direction and movement, including whole, half, quarter and three-quarter turns | • identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line<br>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces | | • describe positions on a 2-D grid as coordinates in the first quadrant<br>• 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 | • describe positions on the full coordinate grid (all 4 quadrants)<br>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes |

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| | | | • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]<br>• compare and sort common 2-D and 3-D shapes and everyday objects | | • plot specified points and draw sides to complete a given polygon | | |
| Statistics | | | • interpret and construct simple pictograms, tally charts, block diagrams and tables<br>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity<br>• ask-and-answer questions about totalling and comparing categorical data | • interpret and present data using bar charts, pictograms and tables<br>• 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 | • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs<br>• 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<br>• complete, read and interpret information in tables, including timetables | • interpret and construct pie charts and line graphs and use these to solve problems<br>• calculate and interpret the mean as an average |