Maths Progression

| Nursery mathematicians | Reception mathematicians |
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| I can use some number names and number language spontaneously.<br>I can use some number names accurately in play.<br>I can recite numbers in order to 10.<br>I know that numbers identify how many objects are in a set.<br>I am beginning to represent numbers using fingers, marks on paper or pictures.<br>I can sometimes match numeral and quantity correctly.<br>I show curiosity about numbers by offering comments or asking questions.<br>I can compare two groups of objects, saying when they have the same number.<br>I show an interest in number problems.<br>I can separate a group of three or four objects in different ways.<br>I am beginning to recognise that the total is still the same.<br>I can realise not only objects, but anything can be counted, including steps, claps or jumps.<br>I can show awareness of similarities of shapes in the environment.<br>I can use positional language.<br>I can begin to talk about the shapes of everyday objects, e.g. 'round' and 'tall'. | **Number**<br>I can link number symbols to its value<br>I have explored how the number 10 is made.<br>I can recall number bonds to 10, including double facts<br>I can recognise quantities, up to 5, without counting them.<br>I can quickly recall number bonds to 5, without reminders.<br>**Numerical Patterns**<br>I can count objects, actions and sounds<br>I can count beyond 10.<br>I can compare numbers and understand 'one more than, one less than'<br>I can select, rotate and manipulate shapes to show my reasoning skills.<br>I can compose and decompose shapes to recognise that shapes can have other shapes within it.<br>I can continue, copy and create repeating patterns.<br>I can verbally count beyond 20<br>I can compare quantities up to 10 in different contexts.<br>I can recognise when one quantity is greater than, less than or the same as the other quantity.<br>I can explore and represent patterns of numbers up to 10, including evens, odds, double facts and how quantities are distributed equally. |

| Year 1 mathematicians | Year 2 mathematicians |
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| **Number and Place Value**<br>I can count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. I can count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. Given a number, I can identify one more and one less. I can 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. I can read and write numbers from 1 to 20 in numerals and words.<br>**Addition and Subtraction**<br>I can read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. I can represent and use number bonds and related subtraction facts within 20. I can add and subtract one-digit and two-digit | **Number and Place Value**<br>I can count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. I can recognise the place value of each digit in a two-digit number (tens, ones). I can identify, represent and estimate numbers using different representations, including the number line. I can compare and order numbers from 0 up to 100; use <, > and = signs. I can read and write numbers to at least 100 in numerals and in words. I can use place value and number facts to solve problems.<br>**Addition and subtraction**<br>I can solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying my increasing knowledge of mental and written methods. I can recall and use addition and subtraction facts to 20 fluently, and derive and use |

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| numbers to 20, including zero. I can solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems, such as 7 = [ ] – 9.<br>**Multiplication and division**<br>I can 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.<br>**Fractions**<br>I can recognise, find and name a half as one of two equal parts of an object, shape or quantity. I can recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.<br>**Measurement**<br>I can compare, describe and solve practical problems for lengths and heights, mass/weight, capacity and volume. I can measure and begin to record lengths and heights, mass/weight, capacity, volume and time. I can recognise and know the value of different denominations of coins and notes. I can sequence events in chronological order using language. I can recognise and use language relating to dates, including days of the week, weeks, months and years. I can tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.<br>**Shape**<br>I can recognise and name common 2D and 3D shapes, including 2D shapes [for example, rectangles (including squares), circles and triangles], 3D shapes [for example, cuboids (including cubes), pyramids and spheres]. I can describe position, direction and movement, including whole, half, quarter and three-quarter turns. | related facts up to 100. I can add and subtract numbers using concrete objects, pictorial representations, and mentally, including two-digit number and ones; a two-digit number and tens; two two-digit numbers and adding three one-digit numbers. I can show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. I can recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.<br>**Multiplication and division**<br>I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. I can show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. I can solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.<br>**Fractions**<br>Recognise, find, name and write fractions 1/3, ¼, 2/4, 3/4 of a length, shape, set of objects or quantity. I can write simple fractions and equivalent fractions.<br>**Measurement**<br>I can 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. I can compare and order lengths, mass, volume/ capacity and record the results using >, < and =. I can recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. I can find different combinations of coins that equal the same amounts of money. I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. I can compare and sequence intervals of time. I can 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. I know the number of minutes in an hour and the number of hours in a day.<br>**Geometry – shape** |

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| | I can identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. I can identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. I can identify 2D shapes on the surface of 3D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. I can compare and sort common 2D and 3D shapes and everyday objects.<br>**Geometry – position and direction**<br>I can order and arrange combinations of mathematical objects in patterns and sequences. I 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 anti- clockwise).<br>**Statistics**<br>I can interpret and construct simple pictograms, tally charts, block diagrams and simple tables. |

| Year 3 mathematicians | Year 4 mathematicians |
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| **Number and place value**<br>I can count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. I can recognise the place value of each digit in a three-digit number (hundreds, tens, ones). I can compare and order numbers up to 1000. I can identify, represent and estimate numbers using different representations. I can read and write numbers up to 1000 in numerals and in words. Solve number problems and practical problems involving these ideas.<br>**Addition and subtraction**<br>I can add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens and a three-digit number and hundreds. I can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. I can estimate the answer to a calculation and use inverse operations to check answers. I can solve problems, including missing | **Number and place value**<br>I can count in multiples of 6, 7, 9, 25 and 1000. I can find 1000 more or less than a given number. I can count backwards through zero to include negative numbers. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). I can order and compare numbers beyond 1000. Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100 or 1000. I can solve number and practical problems that involve all of the above and with increasingly large positive numbers. I can 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.<br>**Addition and subtraction**<br>I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. I can estimate and use inverse operations to check answers to a calculation. I can solve addition |

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| number problems, using number facts, place value, and more complex addition and subtraction.<br>**Multiplication and division**<br>I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. I can 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. I can 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.<br>**Fractions**<br>I can 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. I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. I can recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. I recognise and show, using diagrams, equivalent fractions with small denominators. I can add and subtract fractions with the same denominator within one whole. I can compare and order unit fractions, and fractions with the same denominators. I can solve problems that involve all of the above.<br>**Measurement**<br>I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ ml). I can measure the perimeter of simple 2D shapes. I can add and subtract amounts of money to give change, using both £ and p in practical contexts. I can tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. I can 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. I know the number of seconds in a minute and the number of days in each month, year and leap year. I can compare durations of events.<br>**Geometry – shape**<br>I can draw 2D shapes and make 3D shapes using modelling materials; recognise 3D | and subtraction two-step problems in contexts, deciding which operations and methods to use and why.<br>**Multiplication and division**<br>I can recall multiplication and division facts for multiplication tables up to 12 × 12. I can use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1 and multiplying together three numbers. I can recognise and use factor pairs and commutativity in mental calculations. I can multiply two-digit and three-digit numbers by a one-digit number using formal written layout. I can solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.<br>**Fractions**<br>I can recognise and show, using diagrams, families of common equivalent fractions. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. I can 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. I can add and subtract fractions with the same denominator. I can recognise and write decimal equivalents of any number of tenths or hundredths. I can recognise and write decimal equivalents to ¼, ½ and 3/4. I can 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. I can round decimals with one decimal place to the nearest whole number. I can compare numbers with the same number of decimal places up to two decimal places. I can solve simple measure and money problems involving fractions and decimals to two decimal places.<br>**Measurement**<br>I can convert between different units of measure [for example, kilometre to metre; hour to minute]. I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. I can find the area of rectilinear shapes by counting squares. I can estimate, compare and calculate different measures, including money in pounds and pence. I can read, write and convert time between analogue and digital 12- and 24-hour clocks. I can solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. |

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| shapes in different orientations and describe them. I recognise angles as a property of shape or a description of a turn. I can identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. I can identify horizontal and vertical lines and pairs of perpendicular and parallel lines.<br>**Statistics**<br>I can interpret and present data using bar charts, pictograms and tables. I can solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables. | **Geometry – shape**<br>I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. I can identify acute and obtuse angles and compare and order angles up to two right angles by size. I can identify lines of symmetry in 2D shapes presented in different orientations. I can complete a simple symmetric figure with respect to a specific line of symmetry.<br>**Geometry – position and direction**<br>I can describe positions on a 2D grid as coordinates in the first quadrant. I can describe movements between positions as translations of a given unit to the left/right and up/down. I can plot specified points and draw sides to complete a given polygon.<br>**Statistics**<br>I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. |

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| Year 5 mathematicians | Year 6 mathematicians |
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| **Number and place value**<br>I can read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. I can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. I can solve number problems and practical problems that involve all of the above. I can read Roman numerals to 1000 (M) and recognise years written in Roman numerals.<br>**Addition and subtraction**<br>I can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). I can add and subtract numbers mentally with increasingly large numbers. I use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. I can solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why.<br>**Multiplication and division**<br>I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. I know and use the vocabulary of prime numbers, prime factors and composite (non- prime) numbers. I can establish whether a number up to 100 is prime and recall prime numbers up to 19. I can 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>Multiply and divide numbers mentally drawing upon known facts. I can 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. I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. I recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). I can solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the | **Number and place value**<br>I can read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. I can round any whole number to a required degree of accuracy. I use negative numbers in context, and calculate intervals across zero. I can solve number and practical problems that involve all of the above.<br>**Addition, subtraction, multiplication and division**<br>I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. I can 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. I can 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. I can perform mental calculations, including with mixed operations and large numbers. I can identify common factors, common multiples and prime numbers. I can use my knowledge of the order of operations to carry out calculations involving the four operations. I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. I can solve problems involving addition, subtraction, multiplication and division. I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.<br>**Fractions**<br>I can use common factors to simplify fractions; use common multiples to express fractions in the same denomination. I can compare and order fractions, including fractions > 1. I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. I can multiply simple pairs of proper fractions, writing the answer in its simplest form. I can divide simple proper fractions by whole numbers. I associate a fraction with division and calculate decimal fraction equivalents. I can identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. I can multiply one-digit numbers with up to two decimal places by whole numbers. I can use written division methods in cases where the answer has up to two decimal places. I can |

equals sign. I can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

**Fractions**

I can compare and order fractions whose denominators are all multiples of the same number. I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. I recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. I can add and subtract fractions with the same denominator and denominators that are multiples of the same number. I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. I can read and write decimal numbers as fractions [for example, 0.71 = 71/100]. I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. I can round decimals with two decimal places to the nearest whole number and to one decimal place. I can read, write, order and compare numbers with up to three decimal places. Solve problems involving number up to three decimal places. I can 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. I can solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5 and 4/5 and those fractions with a denominator of a multiple of 10 or 25.

**Measurement**

I can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). I understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. I can calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. I can estimate volume [for example, using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. I can solve problems involving converting between units of time. I can use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

**Geometry – shape**

solve problems which require answers to be rounded to specified degrees of accuracy. I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

**Ratio and proportion**

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

**Algebra**

I can use simple formulae. I can generate and describe linear number sequences. I can express missing number problems algebraically. I can find pairs of numbers that satisfy an equation with two unknowns. I can enumerate possibilities of combinations of two variables.

**Measurement**

I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. I 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. I can convert between miles and kilometres. I recognise that shapes with the same areas can have different perimeters and vice versa. I recognise when it is possible to use formulae for area and volume of shapes. I can calculate the area of parallelograms and triangles. I can calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].

**Geometry – properties of shape**

I can draw 2D shapes using given dimensions and angles. I recognise, describe and build simple 3D shapes, including making nets. I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. I can illustrate and name parts of circles, including radius, diameter and circumference and know that the

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| I can identify 3D shapes, including cubes and other cuboids, from 2D representations. I know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. I can draw given angles, and measure them in degrees (o). I can identify angles at a point and one whole turn (total 360o); angles at a point on a straight line and a turn (total 180o) and other multiples of 90o. I can use the properties of rectangles to deduce related facts and find missing lengths and angles. I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles.<br>**Geometry – position and direction**<br>I can 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.<br>**Statistics**<br>I can solve comparison, sum and difference problems using information presented in a line graph. I can complete, read and interpret information in tables, including timetables. | diameter is twice the radius. I recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.<br>**Geometry – position and direction**<br>I can describe positions on the full coordinate grid (all four quadrants). I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes.<br>**Statistics**<br>I can interpret and construct pie charts and line graphs and use these to solve problems. I can calculate and interpret the mean as an average. |