Progression of Maths across all year groups

Number and Place Value						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
,	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 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 to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number (to 20) Given a number, identify one more and one less	Recognise the place value of each digit in a two-digit number Identify, represent and estimate numbers using different representations, including the number line Compare and order numbers from 0 up to 100; use and = signs Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	Compare and order numbers up to 1,000 Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Identify, represent and estimate numbers using different representations, including the number line Recognise the place value of each digit in a three-digit number (100s, 10s, 1s	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) Count in multiples of 6, 7, 9, 25 and 1,000 Identify, represent and estimate numbers using different representations Find 1,000 more or less than a given number Order and compare numbers beyond 1,000 Round any number to the nearest 10, 100 or 1,000	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. Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero

Progression of maths across all year groups

Addition and Subtraction						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Part whole within 10 Addition and subtraction within 10 Addition and subtraction within 20 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 Represent and use number bonds and related subtraction facts within 20 Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs Add and subtract one-digit and two-digit numbers to 20, including zero	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones and 10's Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Use place value and number facts to solve problems Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Estimate the answer to a calculation and use inverse operations to check answers	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Add and subtract numbers mentally with increasingly large numbers Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Add and subtract integers Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Use their knowledge of the order of operations to carry out calculations involving the four operations Perform mental calculations, including with mixed operations and large numbers

Progression of maths across all year groups

Multiplication and Division					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens 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	Recognise, make and add equal groups Double and half numbers Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even number Bar modelling – grouping and sharing	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 Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 Multiply 2-digits by 1-digit – no exchange, exchange Use expanded written methods Divide 2 digit by 1 numbers with remainders	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 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 Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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 Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 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	Solve problems involving addition, subtraction, multiplication and division

Progression of maths across all year groups

Measures						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Compare, describe and solve practical problems for: lengths and heights [for example, long/ short, longer/shorter, tall/short, double/half] Measure and begin to record the following: lengths and heights Compare, describe and solve practical problems for: mass/ weight [for example, heavy/light, heavier than, lighter than] Measure and begin to record the following: mass/weight Measure and begin to record capacity and volume 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] 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	Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change Measure in cm and m Compare and order lengths, mass, volume/capacity and record the results using >, < and = Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures Measure in grams and	Measure in cm, m and mm Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure and calculate the perimeter of simple 2D shapes Use scales to measure mass in g/kg Add and subtract mass Measure capacity and volume in litres and millilitres Find, compare , add and subtract capacity and volumes Add and subtract amounts of money to give change, using both £ and p in practical contexts Convert pounds and pence, add and subtract amounts and find change Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and	Convert between different units of measure [for example, kilometre to metre; hour to minute] Find the perimeter on a grid, of a rectangle, rectilinear shape. Find missing lengths and the perimeter of polygons Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Write money using decimals, convert between pounds and pence, compare amounts of money. Estimate and calculate with money Estimate, compare and calculate different measures, including money in pounds and pence Convert between different units of measure [for example, kilometre to metre; hour to minute] Convert between analogue and digital times Convert to 24 hour clock	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres 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 Know imperial units of mass, length and capacity Connvert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) Solve problems involving converting between units of time Use all four operations	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 Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Convert between miles and kilometres Recognise that shapes with the same areas can have different perimeters and vice versa Calculate the area of parallelograms and triangles Recognise when it is possible to use formulae for area and volume of shapes

Progression of maths across all year groups

		kilograms 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 Measure in ml/ l Measure temperature on a thermometer and read temperatures 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	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 and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight now the number of seconds in a minute and the number of days in each month, year and leap year 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 Compare durations of events [for example to calculate the time taken by particular events or tasks]		to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water	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]

Progression of maths across all year groups

Geometry (position/direction and properties of shape)						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Recognise and name common 2D and 3D shapes, including: 3D shapes [for example, cuboids (including cubes), pyramids and spheres] Sort 2D shapes and make patterns Describe position, direction and movement, including whole, half, quarter and three-quarter turns Pupils use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside Pupils practise counting (1, 2, 3…), ordering (for example, first, second, third…), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent	Compare and sort common 2D and 3D shapes and everyday objects. Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line Compare and sort common 2D and 3D shapes and everyday objects Order and arrange combinations of mathematical objects in patterns and sequences Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces 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)	Recognise angles as a property of shape or a description of a turn 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 Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	Identify acute and obtuse angles and compare and order angles up to two right angles by size Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify lines of symmetry in 2D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry Describe positions on a 2D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon Describe movements between positions as translations of a given unit to the left/right and up/down	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°) Identify: – angles at a point and one whole turn (total 360°) – angles at a point on a straight line and 1 2 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 Identify horizontal and vertical lines and pairs of perpendicular and	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Draw 2D shapes using given dimensions and angles Recognise, describe and build simple 3D shapes, including making nets Describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes Describe positions on the full coordinate grid (all four quadrants)

Progression of maths across all year groups

					parallel lines (Y3) Identify 3D shapes, including cubes and other cuboids, from 2D representations Describe positions on a 2D grid as coordinates in the first quadrant (Y4) 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	

Progression of maths across all year groups

Fractions, Decimals and Percentages					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise and find half of a shape and a quantity Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise and find quarter of a shape and a quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity Recognise, find and name a half as one of two equal parts of an object, shape or quantity (Y1) Recognise, find, name and write fractions 1 /3, 1/ 4, 2/ 4 and 3/ 4 of a length, shape, set of objects or quantity Write simple fractions for example, 1	Understand the denominator of unit fractions Compare and order unit fractions Count in fractions on a number line Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole [for example, 5 7 + 1 7 = 6 7] Recognise, find and write fractions of a	Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Compare and order unit fractions, and fractions with the same denominators Recognise and show, using diagrams, families of common equivalent fractions Add and subtract fractions with the same denominator 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 Recognise and write decimal equivalents of any number of tenths or hundredths Find the effect of	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2 /5 + 4 /5 = 6/ 5 = 1 1 /5] Compare and order fractions whose denominators are all multiples of the same number Add and subtract fractions with the same denominator and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Read, write, order and compare numbers with up to three decimal places Read and write decimal numbers as fractions [for example, 0.71 = 71/100 Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1 /4 × 1 /2 = 1 /8] Divide proper fractions by whole numbers [for example, 1 3 ÷ 2 = 1 6] Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions Use written division methods in cases where the answer has up to two decimal places Use ratio language, introduce the ratio symbol, Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples Solve problems involving similar shapes where the scale factor is known or can be found 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 Solve problems which require answers to be rounded to specified degrees of

	/2 of 6 = 3 and recognise the equivalence of 2/ 4 and 1/ 2 Count in fractions up to a whole	discrete set of objects: unit fractions and non-unit fractions with small denominators	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 Compare numbers with the same number of decimal places up to two decimal places Round decimals with one decimal place to the nearest whole number Recognise and write decimal equivalents to 1/ 4 , 1 /2 , 3 /4	Round decimals with two decimal places to the nearest whole number and to one decimal place 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 Solve problems involving number up to three decimal places Read, write, order and compare numbers with up to three decimal places	accuracy Multiply one-digit numbers with up to two decimal places by whole numbers Use written division methods in cases where the answer has up to two decimal places Associate a fraction with division and calculate decimal fraction equivalents [for example, 0·375] for a simple fraction [for example, 3/ 8] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts Compare and order fractions, including fractions > 1 Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison

Progression of maths across all year groups

Algebra
Year 6
Find a rule, one step, two steps and form expressions Generate and describe linear number sequences Express missing number problems algebraically Use simple formulae Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables

Data and Statistics					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	Interpret and present data using bar charts, pictograms and two way tables Collect and represent data in a bar chart	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time and line graphs 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 Read and interpret line graphs Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average

Progression of maths across all year groups

Problem Solving					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = [ ] – 9 Compare, describe and solve practical problems for: lengths and heights [for example, long/ short, longer/shorter, tall/short, double/half] Compare, describe and solve practical problems for: mass/ weight [for example, heavy/light, heavier than, lighter than] Compare, describe and solve practical problems for: capacity and volume [for example, full/ empty, more than, less than, half, half full, quarter] Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the	Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures Use place value and number facts to solve problems	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction 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 Problem solving – add and subtract fractions Problem solving – fractions of measures Solve problems with time	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why 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 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 Solve problems with money Problem solving – convert units of time	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve comparison problems Solve fraction problems Solve multi step fraction problems Solve problems with multiplication and division Solve problems which require knowing percentage and decimal equivalents of 1/ 2, 1 /4, 1/ 5, 2/ 5, 4/ 5 and those fractions with a denominator of a multiple of 10 or 25 Solve comparison, sum and difference problems using information presented in a line graph Solve problems involving number up to	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Use their knowledge of the order of operations to carry out calculations involving the four operations Solve problems involving addition, subtraction, multiplication and division Solve mutli step problems - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples Solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve one and two step equations and solve problems with two unknowns Add and Subtract decimals - solve problems which require answers to be rounded to specified degrees of

Progression of maths across all year groups

support of the teacher	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures		Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	three decimal places Solve problems involving converting between units of time	accuracy Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison Problem solve using area and perimeter - recognise that shapes with the same areas can have different perimeters and vice versa Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems linked to mean and calculate and interpret the mean as an average Solve problems with coordinates Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Solve problems involving addition, subtraction, multiplication and division, using place value and negative numbers Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples