Mathematics Progression EYFS to Year 6

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place value: counting	• reliably count up to 20 objects moving each as they are counted and also take amounts up to 20 from a greater set. • count up to 20 objects (including different sized objects), moving each as they are counted • match the set to the numeral • **count reliably with numbers from 1 to 20 Number ELG** • count up to 20 pictures without marking using a strategy such as starting at one side, ensuring that all pictures are included and that none have been counted more than once • understand that 'teen' numbers are a group of 10 plus another number • make a given multiple of ten using Numicon, Tens Frames, Number Rods or Tens Towers • count in multiples of 10 and identify the number in the set	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • Count numbers to 100 in numerals; count in multiples of twos, fives and tens	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	• count in multiples of 6, 7, 9, 25 and 1000 • count backwards through zero to include negative numbers	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • count forwards and backwards with positive and negative whole numbers, including through zero	

Place Value: represent	• **Subitise (recognise quantities without counting) up to 5.** **Number ELG** • represent my simple mathematical ideas and calculations using pictures symbols and numerals and explain it. • represent simple mathematical ideas and calculations using objects and pictures • confidently identify and name the numeral that is after, before, between numerals to 20. • order a random set of numerals within the range 0 to 20 • write the numerals 0 to 20 for a given purpose • order a random set of pictorial number representations within the range 0 – 20 • begin to read and write ordinal numbers (labelling a picture or results of a race)	• identify and represent numbers using objects and pictorial representations • read and write numbers to 100 in numerals • read and write numbers from 1 to 20 in numerals and words	• read and write numbers to at least 100 in numerals and in words • identify, represent and estimate numbers using different representations, including the number line	• identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words	• identify, represent and estimate numbers using different representations • read Roman numerals to 100 (Ito C) and know that over time, the numeral system changed to include the concept of zero and place value	• read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit • read Roman numerals to 1000 (M) and recognise years written in Roman numerals	• read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit

Place value: use PV and compare	• **Have a deep understanding of number to 10, including the composition of each number** **Number ELG** • identify the difference in number between one set and another • compare two groups of different sized objects (where there are more of the smaller object) • change two unequal groups into two equal groups • **compare two quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity** **NP ELG**	• given a number, identify one more and one less	• recognise the place value of each digit in a two-digit number (tens, ones) • compare and order numbers from 0 up to 100; use <, > and = signs	• recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000	• find 1000 more or less than a given number • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1000	• (read, write) order and compare numbers to at least 1 000 000 and determine the value of each digit	• (read, write), order and compare numbers up to 10 000 000 and determine the value of each digit
Place value: problems & rounding			• use place value and number facts to solve problems	• solve number problems and practical problems involving these ideas	• round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers	• interpret negative numbers in context • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above	• round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above

Addition & subtraction: calculations	• know that one less is the next number in the counting sequence when counting backwards in ones • find the number that is one less within 1 – 20 by using objects, number lines and mental recall • rote count backwards from larger numbers e.g. 50 • count back from smaller numbers using mental calculation • subtract a single digit number from a number greater than 10 using practical equipment • know that one more is the next number in the counting sequence when counting forward in ones • find the number that is one more within 1 – 20 by using objects, number lines and mental recall • **verbally count beyond 20, recognising the pattern of the counting system** **NP ELG** • count on a small number from a	• add and subtract one-digit and twodigit numbers to 20, including zero	• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ➢ a two-digit number and ones ➢ a two-digit number and tens ➢ two two-digit numbers ➢ adding three onedigit numbers	• 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	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers	• perform mental calculations, including with mixed operations and large numbers • use their knowledge of the order of operations to carry out calculations involving the four operations

	small number using mental calculation • add two single digit numbers totalling up to 10 using practical equipment • understand the concept of addition by practically combining sets of objects to find out how many using part-part-whole • retell an addition story using first, then and now • draw pictures and record number sentences to represent the story • **automatically recall number bonds up to 5 and some number bonds to 10, including double facts** **Number ELG**						

Addition & subtraction: problems	• solve simple problems using numbers to 20 (practically explore different ways using my own ideas)	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	• solve problems with addition and subtraction: ➢ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ➢ applying their increasing knowledge of mental and written methods	• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• solve addition and subtraction twostep problems in contexts, deciding which operations and methods to use and why	• solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	• solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why
Multiplication & division: recall, represent, use	• independently find two sets of objects that have the same number • independently make another set that is the same • independently combine two sets of the same number and count to find the total • understand that to double, the same number needs to be added to itself • double the numbers 1 – 10+ • **explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.** **NP ELG**		• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • recognise and use factor pairs and commutativity in mental calculations	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	• identify common factors, common multiples and prime numbers • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Multiplication & division: calculation			• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	• multiply two-digit and three-digit numbers by a one-digit number using formal written layout	• multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for twodigit numbers • multiply and divide numbers mentally drawing upon known facts • 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	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • 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 • perform mental calculations, including with mixed operations and large numbers

Multiplication & division: solve problems		• 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	• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	• solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	• solve problems involving addition, subtraction, multiplication and division
Multiplication & division: combined operations						• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	• use their knowledge of the order of operations to carry out calculations involving the four operations

Fractions: recognise & write		• recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity	• count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	• 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	
Fractions: compare			• Recognise the equivalence of 2 /4 and 1/2	• recognise and show, using diagrams, equivalent 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	• compare and order fractions whose denominators are all multiples of the same number	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1

Fractions: calculations			• write simple fractions for example, 1/2 of 6 = 3	• add and subtract fractions with the same denominator within one whole [for example, 5/7 +1/7=6/7]	• add and subtract fractions with the same denominator	• 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	• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • 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]
Fractions: solve problems				• solve problems that involve all of the above	• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number		

Decimals: recognise, write, compare					• recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to 1/4, 1/2, 3/4 • round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two 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 • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal place	• identify the value of each digit in numbers given to three decimal places
Fractions, decimals and percentages					• solve simple measure and money problems involving fractions and decimals to two decimal places	• recognise the percent 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 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	• 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

Ratio and proportion							• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation/use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
Algebra Note – although formal algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the 'missing number' objectives from Y1/2/3		• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	• solve problems, including missing number problems			• use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables

Using measures	• make direct comparisons and compare and order the weight of 3+ items from heaviest to lightest / lightest to heaviest • understand that if the balance scale is level, the objects being compared are equal in weight • use mathematical language associated with weight (heavier, lighter etc.) • use non-standard units (which are uniform, e.g. unifix) to measure the weight of objects • make direct comparisons and compare and order the length of 3+ items from longest / tallest to shortest to narrowest to widest etc. • use mathematical language associated with length (taller, shorter etc.) • use non-standard units (which are uniform, e.g. unifix) to measure the length of objects	• compare, describe and solve practical problems for: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time • measure and begin to record the following: ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time (hours, minutes, seconds)	• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and =	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	• Convert between different units of measure [for example, kilometre to metre; hour to minute] • estimate, compare and calculate different measures	• convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 d.p. • convert between miles and kilometres

Money		• recognise and know the value of different denominations of coins and notes	• 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	• add and subtract amounts of money to give change, using both £ and p in practical contexts	• estimate, compare and calculate different measures, including money in pounds and pence	• use all four operations to solve problems involving measure [for example, money]	

Time	• understand and correctly use language – before, after, yesterday, today, tomorrow • sequence four or more familiar events and describe the sequence • say the names of the days of the week in order	• 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 time	• compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • know the number of minutes in an hour and the number of hours in a day	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks]	• read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• solve problems involving converting between units of time	• use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa **Note – In the WR maths schemes, time conversions are covered in Y5; the Y6 block concentrates on metric units.**

Perimeter, area, volume	• use the terms 'nearly full' and 'nearly empty' to describe volume • order a set of identical containers from least full to most full • compare the volumes of two of the same containers that hold different amounts and use the terms more or less			• measure the perimeter of simple 2-D shapes	• measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares	• 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 • estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]	• recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • 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

2-D shapes	• begin learning to recognise and name 2-D shapes, including irregular shapes, and quadrilaterals such as rhombus, kite and parallelogram • describe 2-D shapes using mathematical language • explain similarities and differences between shapes • create pictures using a range of 2-D shapes and explain choices • identify how shapes can be placed together to create other shapes • recognise, describe, copy, continue, make and correct shape patterns • make more detailed pictures that include one reflective line of symmetry	• recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]	• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify 2-D shapes on the surface of 3-D shapes,[for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D shapes and everyday objects	• draw 2-D shapes	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify lines of symmetry in 2-D shapes presented in different orientations	• distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • use the properties of rectangles to deduce related facts and find missing lengths and angle	• draw 2-D shapes using given dimensions and angles • compare and classify geometric shapes based on their properties and sizes • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

3-D shapes	• begin learning to recognise and name 3-D shapes, including different types of pyramid and prisms • describe 3-D shapes using mathematical language • count faces and vertices • explain similarities and differences between shapes	• recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]	• recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] • compare and sort common 3-D shapes and everyday objects	• make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them		• identify 3-D shapes, including cubes and other cuboids, from 2-D representations	• recognise, describe and build simple 3-D shapes, including making nets
Angles and lines				• 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 • 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 • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry	• 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°	• find unknown angles in any triangles, quadrilaterals, and regular polygons • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Position and direction		• describe position, direction and movement, including whole, half, quarter and three-quarter turns	• order and arrange combinations of mathematical objects in patterns and sequences • 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)		• describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon	• 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 four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axe
Present and interpret data			• interpret and construct simple pictograms, tally charts, block diagrams and simple tables	• interpret and present data using bar charts, pictograms and tables	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	• complete, read and interpret information in tables, including timetables	• interpret and construct pie charts and line graphs and use these to solve problems
Solve statistical problems			• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data	• 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	• solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	• solve comparison, sum and difference problems using information presented in a line graph	• calculate and interpret the mean as an average