Maths Progression Document

		Nursery	EYFS	KS1 Statutory Curriculum Guidance *Non-Statutory Curriculum Guidance* **TAF in BOLD**		KS2			
		Three and Four-Year-Olds	Reception (ELG in bold)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mathematical Vocabulary		Use a wider range of vocabulary Understand why questions such as "why do you think…? Understand a question or instruction that has two parts, such as: "Get your coat and wait at the door".	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Use new vocabulary in different contexts	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. To read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at year 1.	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. To read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.	See appendix A	See appendix A	See Appendix A	See appendix A
Counting	Number and Place Value	Recite numbers past 5. Say one number for each item in order: 1,2,3,4,5. Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').	Count objects, actions and sounds. Count beyond ten. Verbally count beyond 20, recognising the pattern of the counting system.	To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. To identify one more and one less than a given number. To count in multiples of twos, fives and tens from different multiples to develop their recognition of patterns in the number system, including varied and frequent practice through increasingly complex questions. To recognise and create repeating patterns with objects and with shapes.	To 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 Find 1000 more or less than a given number 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 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	Use negative numbers in context, and calculate intervals across zero

Identifying, representing and estimating numbers		Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Show "finger numbers' up to 5. Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	Subitise. Link the number symbol (numeral) with its cardinal number value. Subitise (recognise quantities without counting) up to 5.			Identify, represent and estimate numbers using different representations	Identify, represent and estimate numbers using different representations Round any number to the nearest 10, 100 or 1000	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	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
Reading and Writing Numbers		Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Experiment with their own symbols and marks as well as numerals.	Link the number symbol (numeral) with its cardinal number value.	To read and write numbers from 1 to 20 in numerals and words. To count, read and write numbers to 100 in numerals.	To read and write numbers to at least 100 in numerals and in words.	Read and write numbers up to 1000 in numerals and in words	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.	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Compare and order numbers		Compare quantities using language: 'more than', 'fewer than'. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.		To compare and order numbers from 0 up to 100; use <, > and = signs.	Compare and order numbers up to 1000	Order and compare numbers beyond 1000	Order and compare numbers to at least 1 000 000 and determine the value of each digit	
Understanding place value			Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to10. Have a deep understanding of numbers to 10, including the composition of each number.		To recognise the place value of each digit in a two-digit number (tens, ones) to become fluent and apply their knowledge of numbers to reason with, discuss and solve problems. To begin to understand zero as a place holder.	Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)		

Solve Problems			Solve real world mathematical problems with numbers up to 5. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	To practise ordinal numbers and solve simple concrete problems.	To use place value and number facts to solve related problems to develop fluency.	Solve number problems and practical problems involving these ideas.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Solve number problems and practical problems that involve all of the above	Solve number and practical problems that involve all of the above.
Mental Calculations	Addition and Subtraction	Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). Show 'finger numbers' up to 5	Subitise. Explore the composition of numbers to 10. Automatically recall number bonds 0-5 and some to 10. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Have a deep understanding of numbers to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.	To add and subtract one-digit and two-digit numbers to 20, including zero. To realise the effect of adding or subtracting zero.	To extend the language of addition and subtraction to include sum and difference. To show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. To add and subtract numbers using an efficient strategy, explaining their method verbally using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers, add three one-digit 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	Pupils continue to practise both mental methods and column addition and subtraction with increasingly large numbers to aid fluency	Add and subtract numbers mentally with increasingly large numbers	

Number Bonds		Develop fast recognition of up to 3 objects, without having to count them individually ('subitising'). Show 'finger numbers' up to 5.	Subitise. Explore the composition of numbers to 10. Automatically recall number bonds 0-5 and some to 10. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Have a deep understanding of numbers to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.	To memorise, represent and use number bonds and related subtraction facts within 20.	To recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships. To recall and use addition and subtraction facts to 20 to become fluent in deriving associative facts (e.g. 10 – 7 = 3, 100 – 70 = 30) and derive and use related facts up to 100.				
Written Calculations				To read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs.	To begin to record addition and subtraction in columns to support place value and prepare for formal written methods with larger numbers.	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)	Use their knowledge of the order of operations to carry out calculations involving the four operations
Inverse Operations, Estimating and Checking Answers		Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').	Explore the composition of numbers to 10.		To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

Solve problems		Solve real world mathematical problems with numbers up to 5. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	To discuss and solve one-step problems (in familiar practical contexts) that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. Problems include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enable to use these operations flexibly.	To 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 two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division
Mental calculations	Multiplication and Division		Explore the composition of numbers to 10. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.		To begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations. To begin to relate multiplication and division facts to fractions and measures (e.g., 40 ÷ 2 = 20, 20 is a half of 40). To show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot, to develop multiplicative reasoning.	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 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	Multiply and divide numbers mentally drawing upon known facts	Perform mental calculations, including with mixed operations and large numbers

Multiplication and division facts			Explore the composition of numbers to 10. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	To make connections between arrays, number patterns, and counting in twos, fives and tens. Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.	To use a variety of language to describe multiplication and division. To count from 0 in multiples of 4, 8, 50 and 100. To recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers and use them to solve simple problems, demonstrating an understanding of commutativity as necessary. To connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face.		Recall multiplication and division facts for multiplication tables up to 12 × 12	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	Identify common factors, common multiples and prime numbers

Written Calculations					To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. To begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.	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 two-digit numbers 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 use their knowledge of the order of operations to carry out calculations involving the four operations
Properties of numbers			**Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.**					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

Solve problems			Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly.	To 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.	To 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 addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	Solve problems involving addition, subtraction, multiplication and division
Counting	Fractions, Decimals and Percentages				To count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line.	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	Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.		

Recognising, Finding and naming fractions				To recognise, find and name a half as one of two equal parts of an object, shape or quantity by solving problems. To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity by solving problems. To connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.	To recognise, find, name, **identify** and write fractions and fractions of a length, **number**, shape, set of objects or quantity **and know that all parts must be equal parts of the whole.** To connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet fractions as the first example of a non-unit fraction.	Recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6] Compare and order unit fractions, and fractions with the same denominators Solve problems that involve all of the above.	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 Solve simple measure and money problems involving fractions and decimals to two decimal places. 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 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	Compare and order fractions whose denominators are all multiples of the same number 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, 5 2 + 5 4 = 5 6 = 1 5 1] 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 and write decimal numbers as fractions [for example, 0.71 = 100 71] 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 solve problems involving number up to three decimal places. Recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages	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 simple pairs of proper fractions, writing the answer in its simplest form [for example, 4 1 × 2 1 = 8 1] Divide proper fractions by whole numbers [for example, 3 1 ÷ 2 = 6 1] Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 8 3] 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 Mathematics 137 Statutory requirements 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 Solve problems which require answers to be rounded to specified

								as a fraction with denominator 100, and as a decimal Solve problems which require knowing percentage and decimal equivalents of 2 1 , 4 1 , 5 1 , 5 2 , 5 4 and those fractions with a denominator of a multiple of 10 or 25	degrees of accuracy
Equivalence					To write simple fractions for example, ½ of 6 = 3 and recognise the equivalence 2/4 and ½.	Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to 4 1, 2 1, 4 3	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Read, write, order and compare numbers with up to three decimal places	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Describe, Measure, Compare and Solve (All Strands)	Measurement	Make comparisons between objects relating to size, length, weight and capacity.	Compare length, weight and capacity.	To compare, describe and solve practical problems for: lengths and heights, mass/weight, capacity and volume, time. To measure and begin to record the following: lengths and heights, mass/weight, capacity and volume, time. To move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units using measuring tools, such as a ruler, weighing scales and containers	To choose and use appropriate standard units with increasing accuracy using their knowledge of the number system 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. To use the appropriate language and record using standard abbreviations. To compare and order lengths, mass, volume/capacity and record the results using >, < and =. To compare measures including simple multiples such as 'half as high'; 'twice as wide'.	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) measure the perimeter of simple 2-D shapes add and subtract amounts of money to give change, using both £ and p in practical contexts	Convert between different units of measure [for example, kilometre to metre; hour to minute] Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares Estimate, compare and calculate different measures, including money in pounds and pence	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints 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 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] 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 three decimal places 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 three decimal places Convert between miles and kilometres 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 [for example, mm3 and km3].

Time		Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then...'		To sequence events in chronological order using language. To recognise and use language relating to dates, including days of the week, weeks, months and years. To tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	To **read**, tell and write the time to five minutes, **including quarter past/to the hour/half hour** and draw the hands on a clock face to show these times. To become fluent in telling the time on analogue clocks and recording it. To know the number of minutes in an hour and the number of hours in a day. To compare and sequence intervals of time.	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	
Recognise 2D and 3D Shapes and Their Properties	Properties of Shapes	Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills	To recognise, handle and name common 2D and 3D shapes in different orientations/sizes and relate everyday objects fluently. To recognise that rectangles, triangles, cuboids and pyramids are not always similar to each other.	Pupils read and write names for shapes that are appropriate for their word reading and spelling. To handle, identify and **describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.** To handle, identify and **describe the properties of 3D shapes, including the number of edges, vertices and faces.** To identify 2D shapes on the surface of 3D shapes.	Pupils extend their use of the properties of shapes. They should be able to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle.		Identify 3-D shapes, including cubes and other cuboids, from 2-D representations 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	Recognise, describe and build simple 3-D shapes, including making nets

Compare and Classify Shapes		Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.	Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.		To identify, compare and sort common 2D and 3D shapes and everyday objects on the basis of their properties and use vocabulary precisely.		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 Identify acute and obtuse angles and compare and order angles up to two right angles by size	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (o) Identify: - angles at a point and one whole turn (total 360o - angles at a point on a straight line and 2 1 a turn (total 180o) - other multiples of 90o	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 Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Drawing 2D Shapes and Constructing 3D Shapes		Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. Combine shapes to make new ones - an arch, a bigger triangle etc.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.		Pupils draw lines and shapes using a straight edge.	Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Complete a simple symmetric figure with respect to a specific line of symmetry.		Draw 2-D shapes using given dimensions and angles
Position, Direction and Movement	Position and Direction	Understand position through words alone – for example, "The bag is under the table," – with no pointing. Describe a familiar route. Discuss routes and locations, using words like 'in front of' and 'behind'.	Draw information from a simple map.	To describe position, direction and movement, including whole, half, quarter and three-quarter turns in both directions and connect clockwise with the movement on a clock face. To 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.	To use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	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	Describe movements between positions as translations of a given unit to the left/right and up/down		Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Position		Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.	Continue, copy and create repeating patterns.		To order and arrange combinations of mathematical objects and shapes, including those in different orientations, in patterns and sequences.		Describe positions on a 2-D grid as coordinates in the first quadrant 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)
Record, Present and Interpret Data					To record, interpret, collate, organise and compare information. To interpret and construct simple pictograms, tally charts, block diagrams and simple tables (e.g. many-to-one correspondence in pictograms with simple ratios 2, 5, 10 scales). To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. To ask and answer questions about totalling and comparing categorical data.	Interpret and present data using bar charts, pictograms and tables. 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. 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 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

Ration & 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 of percentages [for example, of measures, and such as 15% of 360] and the 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								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.

Appendix A – Maths Vocabulary Progression

Number & Place Value

Year 3	Year 4	Year 5	Year 6
digit; hundreds, tens, ones; place value; greater than (>), less than (<); estimate/estimation; round (to nearest 10, 100); number line	thousands; ten thousand; negative numbers; Roman numerals; integer; count in multiples	hundred thousand, million; powers of 10; factors, multiples; prime, composite; square number, cube number; rounding to 1 decimal place	order of operations (BIDMAS); common factors, common multiples; prime factorisation; approximate; interval

Addition & Subtraction

Year 3	Year 4	Year 5	Year 6
add, subtract; sum, total; difference; column methods; exchange	inverse operations; efficient method; estimate and check	multi-step; rounding for checking	solve, reason, justify; formal written method

Multiplication & Division

Year 3	Year 4	Year 5	Year 6
multiply, divide; array; groups of; sharing, grouping; product	factor, multiple; quotient; remainder; inverse; scaling	square, cube; squared (^{2}), cubed (^{3}); prime, composite, prime factors	ratio; proportion; percentage

Fractions, Decimals & Percentages

Year 3	Year 4	Year 5	Year 6
unit fraction; non-unit fraction; numerator; denominator; equivalent fractions	improper fraction; mixed number; simplify; decimal; tenth, hundredth	thousandth; percentage; decimal place; conversion between FDP	ratio; proportion; fraction/decimal equivalents

Measurement

Year 3	Year 4	Year 5	Year 6
metre, cm, mm; kilogram, gram; litre, ml; perimeter; analogue clock	area; cm^2; convert units (km–m); 24-hour clock	volume, capacity; metric units; imperial units; perimeter vs area	convert all units; formula; volume (cm^3, m^3)

Geometry

Year 3	Year 4	Year 5	Year 6
right angle, acute, obtuse; parallel, perpendicular; horizontal, vertical; polygon	symmetry; quadrilaterals; coordinates (1 quadrant); translation	regular/irregular polygons; reflection; rotation; grid, axis	4-quadrant coordinates; nets; vertices/edges/faces; scale factor

Statistics

Year 3	Year 4	Year 5	Year 6
tally; bar chart; table	line graph; discrete/continuous data	frequency table; trend; comparison	pie chart; mean average; variable