Sandridge School Maths Progression Map

Number – Place Value

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting							
• Begins to say numbers in order, some of which are in the right order (ordinality) • May enjoy counting verbally as far as they can go • Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. • Uses some number names and number language within play, and may show fascination with large numbers • Beginning to count on their fingers • Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle) • Beginning to recognise that each counting number is one more than the one before	• Counts up to 10 objects from a larger group • Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0 • Increasingly confident at putting numerals in order 0 to 10 (ordinality) • Verbally count beyond 20, recognising the pattern of the counting system;	• 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 • Given a number, identify one more and one less	• 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 backwards through zero to include negative numbers • Count in multiples of 6, 7, 9, 25 and 1000 • Find 1000 more or less than a given number	• Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	• Use negative numbers in context, and calculate intervals across zero
Comparing numbers							
• Beginning to compare and recognise changes in numbers of things, using words like more, lots or 'same' • Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. *You've got two, i've got two. Same!*	• Uses number names and symbols when comparing numbers, showing interest in large 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;	• 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**	• 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 *Compare numbers with the same number of decimal places up to two decimal places (also in Fractions)*	• 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
Identifying, representing and estimating numbers							
• Subitises one, two and three objects (without counting)	• Engages in subitising numbers to four and maybe five • Have a deep understanding of number to 10, including the composition of each number	• **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	• Identify, represent and estimate numbers using different representations, including the number line	• Identify, represent and estimate numbers using different representations	• Identify, represent and estimate numbers using different representations		

	• Subitise (recognise quantities without counting) up to 5; • Estimates of numbers of things, showing understanding of relative size • Begins to conceptually subitise larger numbers by subitising smaller groups within the number e.g. Sees six raisins on a plate as three and three						
Reading and writing numbers							
• Links numerals with amounts up to 5 and maybe beyond • Begin to recognise numerals 0 to 10 • Beginning to notice numerals (number symbols) • Explores using a range of their own marks and signs to which they ascribe mathematical meanings	• Matches the numeral with a group of items to show how many there are (up to 10)	• 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	• Read and write numbers up to 1000 in numerals and in words *Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks* *(also in Measurement)*	• 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.	• R**ead, 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
Understanding place value							
			• Recognise the place value of each digit in a two-digit number (tens, ones) • Use place value and number facts to solve problems.	• 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)	• 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**
Rounding							
					• Round any number to the nearest 10, 100 or 1000 *Round decimals with one decimal place to the nearest whole number (also in Fractions)*	• Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 *Round decimals with two decimal places to the nearest whole number and to one decimal place (also in Fractions)*	• Round any whole number to a required degree of accuracy *Solve problems which require answers to be rounded to specified degrees of accuracy (also in Fractions)*
Problem solving							
• Beginning to use understanding of number to solve practical problems in play and meaningful activities	• Beginning to use understanding of number to solve practical problems in play and meaningful activities		• Use place value and number facts to solve problems.	• 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

Number: Addition and Subtraction

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number bonds							
• Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same	• 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.	• Represent and use number bonds and related subtraction facts within 20	• Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
Mental calculation							
• In everyday situations, takes or gives two or three objects from a group • Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers	• Shows numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects • In practical activities, adds one and subtracts one with numbers to 10	• Add and subtract one-digit and two-digit numbers to 20, including zero • Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs	• Solve problems with addition and subtraction: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures - applying their increasing knowledge of **mental** and written methods • Add and subtract numbers 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 one-digit numbers • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	• 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 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
Written methods							
	• Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and + or –		• Solve problems with addition and subtraction: **- using concrete objects and pictorial representations,** including those involving numbers, quantities and measures - applying their increasing knowledge of mental and **written methods** **• Add and subtract numbers using concrete objects, pictorial representations**, and mentally, including: - a two-digit number and ones	• 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)	

			- a two-digit number and tens - two two-digit numbers - adding three one-digit numbers				
Inverse operations, estimating and checking answers							
			• 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.
Problem solving							
	• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	• Solve one-step problems 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 simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (also in Measurement)*	• 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

Number: Multiplication and Division

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and division facts							
	• Explore and represent patterns within numbers up to 10, including evens and odds, **double facts** and how quantities can be **distributed equally**.	*Count in multiples of twos, fives and tens (also in Number and Place Value)*	*Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward (also in Number and Place Value)* • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	*Count from 0 in multiples of 4, 8, 50 and 100 (also in Number and Place Value)* • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	*Count in multiples of 6, 7, 9, 25 and 1000 (also in Number and Place Value)* • Recall multiplication and division facts for multiplication tables up to 12 × 12	*Count forwards or Backwards in steps of Powers of 10 for any given Number up to 1 000 000 (also in Number and Place Value)*	
Mental calculation							
			• Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	• **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	• 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 • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	• Perform mental calculations, including with mixed operations and large numbers
Written 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 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 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 written division methods in cases where the answer has up to two decimal places (also in*

							Fractions (including decimals))
Properties of numbers: multiples, factors, primes, square and cube 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 (nonprime) 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
Order of operations							
							• Use their knowledge of the order of operations to carry out calculations involving the four operations
Inverse operations, estimating and checking answers							
				Estimate the answer to a Calculation and use Inverse operations to Check answers (copied From Addition and Subtraction)	*Estimate and use inverse Operations to check Answers to a calculation (copied from Addition And Subtraction)*		*Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. (copied from Addition And Subtraction)*
Problem solving							
		• 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 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.	

Fractions: including decimals and percentages

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting in fractional steps							
	• Explore and represent patterns within numbers up to 10, including evens and odds, **double facts** and how quantities can be **distributed equally**.			• **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 fractions							
		• 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 ¾ of a length, shape, set of objects or quantity	• 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 • Recognise and show, using diagrams, equivalent 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.**	• **Recognise and use thousandths** and relate them to tenths, hundredths and decimal equivalents	
Comparing fractions							
				• Compare and order unit fractions, and fractions with the same denominators		• Compare and order fractions whose denominators are all multiples of the same number	• compare and order fractions, including fractions > 1
Comparing decimals							
					• Compare numbers with the same number of decimal places up to two decimal places	• Read, write, order and compare numbers with up to three decimal places	• **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
Rounding decimals							
					• Round decimals with one decimal place to the nearest whole number	• Round decimals with two decimal places to the nearest whole number and to one decimal place	• Solve problems which require answers to be rounded to specified degrees of accuracy • Use written division methods in cases where the answer has up to two decimal places
Equivalence							
			• Write simple fractions for example, ½ of 6 = 3 and **recognise the equivalence of 2/4 and ½**		• Recognise and show, using diagrams, families of common equivalent fractions • Recognise and write decimal equivalents of any	• Recognise and use thousandths and **relate them to tenths, hundredths and decimal equivalents** • Identify, name and write equivalent fractions of a	• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

					number of tenths or hundredths • Recognise and write decimal equivalents to 1/4 , 1/2 , 3/4	given fraction, represented visually, including tenths and hundredths • Read and write decimal numbers as fractions [for example, 0.71 = 100 71] • 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	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]
Calculations involving fractions							
			• Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½	• 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 • 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]	• 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, ¼ × ½ = 1/8] • Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]
Calculations involving decimals							
					• 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		• Multiply one-digit numbers with up to two decimal places by whole numbers
Problem solving							
				• 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 • Solve simple measure and money problems involving fractions and decimals to two decimal places	• 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 problems involving number up to three decimal places	

Measurement

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comparing and estimating							
• Explores capacity by selecting, filling and emptying containers e.g. Fitting toys in a pram • Shows an interest in size and weight • Explores differences in size, length, weight and capacity • In meaningful contexts, finds the longer or shorter, heaver or lighter and more/less full of two items	• Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy	• Compare, describe and solve practical problems for: - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] - mass/weight [for example, heavy/light, heavier than, lighter than] - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] - time [for example, quicker, slower, earlier, later] • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	• Compare and order lengths, mass, volume/capacity and record the results using >, < and = • Compare and sequence intervals of time	• Compare durations of events [for example to calculate the time taken by particular events or tasks] • 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	• Estimate, **compare** and calculate different measures, including money in pounds and pence	• Calculate and **compare** the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes	• Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]
Measuring and calculating							
	• Becomes familiar with measuring tools in everyday experiences and play	• 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	• Measure, compare, add and subtract: - lengths (m/cm/mm) - mass (kg/g) - volume/capacity (l/ml) • Measure the perimeter of simple 2-D shapes	• Estimate, compare and **calculate** different measures, including money in pounds and pence • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Find the area of rectilinear shapes by counting squares	• Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • Recognise when it is possible to use formulae for area and volume of shapes • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles
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	• Add and subtract amounts of money to give change, using both £ and p in practical contexts			

			money of the same unit, including giving change				
Telling the time							
• Beginning to understand that things might happen now or at another time, in routines • Beginning to understand some talk about immediate past and future • Beginning to anticipate times of the day such as mealtimes or home time • Recalls a sequence of events in everyday life and stories	• Is increasingly able to order and sequence events using everyday language related to time • Beginning to experience measuring time with timers and calendars	• 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.	• 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	• Read, write and convert time between analogue and digital 12- and 24-hour clocks	• Solve problems involving converting between units of time	
Converting							
			• Know the number of minutes in an hour and the number of hours in a day.	• Know the number of seconds in a minute and the number of days in each month, year and leap year	• 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 • Convert between different units of measure [for example, kilometre to metre; hour to minute]	• 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 • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • Solve problems involving **converting** between units of time	• 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

Geometry: Properties of shape

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identifying shapes and their properties							
• Pushes objects through different shapes holes, and attempts to fit shapes into spaces on inset boards or puzzles • Beginning to select shape for a specific space • Chooses puzzle pieces and tries to fit them in • Chooses items based on their shape which are appropriate for the child's purpose • Responds to both informal language and common shape names	• Uses informal language and analogies (e.g. Heart-shapes and hand-shapes leaves), as well as mathematical terms to describe shapes	• Recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles] - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]	• Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]		• Identify lines of symmetry in 2-D shapes presented in different orientations	• 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	• Recognise, describe and build simple 3-D shapes, including making nets • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Drawing and construction							
• Enjoys using blocks to create their own simple structures and arrangements • Makes simple constructions • Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes • Attempts to create arches and enclosures when building, using trial and improvement to select blocks	• Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes • Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build			• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	• Complete a simple symmetric figure with respect to a specific line of symmetry	• Draw given angles, and measure them in degrees (°)	• Draw 2-D shapes using given dimensions and angles
Comparing and classifying							
• Recognises that two objects have the same shape Shows awareness of shape similarities and differences between objects			• Compare and sort common 2-D and 3-D shapes and everyday objects		• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	• Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
Angles							
				• 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	• Identify acute and obtuse angles and compare and order angles up to two right angles by size	• Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and ½ a turn (total 180°) - other multiples of 90° • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	• Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

				than or less than a right angle • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines		• Use the properties of rectangles to deduce related facts and find missing lengths and **angles**	

Geometry: Position and Direction

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position, direction and movement							
• Moves their bodies and toys around objects and explores fitting into spaces • Begins to remember their way around familiar environments • Responds to some spatial and positional language • Explores how things look from different viewpoints including things that are near or far away • Responds to and uses language of position and direction • Predicts, moves and rotates objects to fit the space or create the shape they would like	• Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints • Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning) • May enjoy making simple maps of familiar and imaginative environments, with landmarks	• Describe position, direction and movement, including whole, half, quarter and three-quarter turns	• 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)		• 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 axes
Pattern							
• Becoming familiar with patterns in daily routines • Joins in with and predicts what comes next in a story or rhyme • Beginning to arrange items in their own patterns e.g. Lining up toys • Joins in and anticipates repeated sound and action patterns Is interested in what happens next using the pattern of everyday routines • Creates their own spatial patterns showing some organisation or regularity • Explores and adds to simple linear patterns of two or three repeating items, e.g. Stick, leaf (AB) or stick, leaf, stone (ABC) • Joins in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes next	• Spots patterns in the environment, beginning to identify the pattern “rule” • Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat		• Order and arrange combinations of mathematical objects in patterns and sequences				

Statistics

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Interpreting and constructing data							
			• 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 • Ask and answer questions about totalling and comparing categorical data	• 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
Solving problems							
				• 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

Ratio and proportion – only appears in year 6 but should be connected to previous learning particularly fractions and multiplication and division

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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 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

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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