Dringhouses Primary School | York

Dringhouses Discovery Curriculum - Mathematics Curriculum Progression Plan

'Without mathematics, there's nothing you can do. Everything around you is mathematics. Everything around you is numbers.' Shakuntala Devi

Intent -

•Through a carefully sequenced curriculum, from the very starting point, children to gain a deeper understanding of mathematics.
•To sequence learning is small steps to ensure that learning is embedded and linked to previous and future learning.
•To gain key mathematical skills and knowledge including the quick recall of basic facts (e.g multiplication and division facts and number bonds) .
•To develop the ability to apply mathematical skills with confidence and understanding when reasoning with mathematical concepts.
•To develop the ability to express ideas using the language of mathematics with assurance, using correct mathematical language and vocabulary.
•To develop the ability to think clearly and logically with independence of thought and flexibility of mind- making the links within and between concepts.
•To develop a positive attitude to mathematics, recognising that mathematics can be both useful and enjoyable through a growth mindset approach.
•To develop a fascination and excitement of mathematics through inspiring teaching.
•To be able to use and apply acquired skills in other curricular areas and recognise the effective use of mathematics as a tool within and out of school and, subsequently, adult life.

Implementation - The National Curriculum (2014) sets out expectations for each year group in Key Stage 1 and 2. We have created lists of Maths age-related expectations ('ARE Grids') which have taken the National Curriculum content and listed these in a format which teachers can use as an overview for the year and for their planning and assessments. To support the well-structured and progressive curriculum with clear links between years and within concepts, the school makes use of the White Rose Maths Hub and NCTEM resources and calculation policy. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. Teaching across the school develops children's mathematical ability through the stages of concrete, to pictorial and finally to abstract to ensure a deep-rooted understanding with a revisit to different stages if needed when increasing the complexity of learning. Within this context, children are taught in mixed ability classes ensuring there is no limit to their potential in achieving high outcomes whatever their starting point. High expectations and excellent subject knowledge ensure that all children are challenged. Teachers are committed to ensure that learning is embedded into long term memory and use daily Smart Starts, Daily Review activities and continually make links between learning

Impact -

●Children can confidently and fluently recall basic skills and facts to free up working memory.

●Children are able to confidently apply their learning to reason and problem solve.

●Children to have a love and fascination for mathematics and to enthuse about their learning.

●Children to achieve highly and be well prepared for the next stage of their learning and education.

●The teaching and planning of mathematics to be of a high quality that ensures children makes excellent progress

Place Value							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	Count on and back beyond 10 Understand when counting, that the numbers must be said in a certain order. Understand that anything can be counted including things that cannot be touched e.g. jumps Understand that the order in which we count objects is irrelevant. There will still be the same number Recognise that numbers 1-9 repeat after every full 10 Instantly recognise small quantities by subitising	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, 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	Count forwards or backwards in steps of powers of 10 for any given number up to 10 000 000 Count forwards and backwards with positive and negative whole numbers, including through zero
Represent	Count objects assigning one number name to each object that is being counted and check that each object is only counted once. Understand that the number name assigned to the final object in a group is the total number of objects Match number names to numerals and quantities Build and identify numbers to 20 (and beyond) using a range of resources (e.g. 10 frames, numicon, cubes, rekenreks and bead strings) See that larger numbers are composed of full 10s and part of the next 10	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 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 words.	Identify, represent and estimate numbers using different representations. 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, 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.
Use PV and Compare	Understand that when counting numbers, one quantity can be more than, the same as or fewer than another quantity Represent one more one less patterns as they count	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.

Problems and 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 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 and Subtraction

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use	Understand that all numbers are made up of smaller numbers and notice the different compositions Use objects to explore number bonds to 10	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. 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. Show that addition of two number scan be done in any order (commutative) and subtraction of one number from another cannot. 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.	
Calculations	Combine 2 groups to find how many altogether (e.g. there are 3 frogs on the log and 4 in the pool. How many frogs altogether?) Count on to add more Take away using objects and then subitise or recount to see how many are left	Using practical resources such as a rekenrek, counters on tens frames or a numberline - add and subtract one-digit and two-digit numbers to 20, including zero.	Using practical resources such as a rekenrek, counters on tens frames, a numberline or base ten - 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	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 (expanded column addition/subtraction) 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.

Solve problems	Use the first, then, now structure to create mathematical stories in meaningful contexts	Solve one-step problems that involve addition and subtraction, using concrete objects (counters, rekenreks) and pictorial representations (part whole models), and missing number problems such as 7 = _ - 9	Solve problems with addition and subtraction; - using concrete objects (counters, rekenreks) and pictorial representations (part whole models), including those involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods (blank number line)	Use concrete representation (base 10), pictorial representations (bar model and part whole model) and the written method (expanded column addition/subtraction) to solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction.	Use concrete representation (base 10), pictorial representations (bar model and part whole model) and written method (columnar addition/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 mental 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 multi-step problems in contexts, deciding which operations and methods to use and why.

Multiplication and Division

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recall, Represent, Use	Understand that a pair is two and double means 'twice as many'. Build doubles using objects and mathematical equipment	Count in multiples of twos, fives and tens.	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 x 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.
Calculations	Recognise and make equal groups Understand that some quantities will share equally into 2 groups and some won't (even and odd)		Use methods such as repeated addition and arrays to calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), 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 (grid method and expanded multiplication)	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout of expanded multiplication and short multiplication	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 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

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 a teacher.	Solve one step 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
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							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise and 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 aris 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)	
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

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 simplist form (for example, 1/4 x 1/2 = 1/8) Divide proper fractions by whole numbers
Solve Problems	Incidental opportunities whilst the children are accessing continuous provision are provided through adult interaction and questioning.			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							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise and write					Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to 1/4, 1/2, 3/4	Read and write decimal numbers as fractions (e.g. 0.71 = 71/00) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Identify the value of each digit in numbers given to three decimal places

Compare					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	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 places	
Calculations and problems					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	Solve problems involving number up to three decimal places	Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places 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 degrees of accuracy
Fractions, decimals and percentages					Solve simple measure and money problems involving fractions and decimals to two decimal places	Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100 and as a decimal Solve problems 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 (e.g. 0.375) for a simple fraction (e.g. 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 of percentages (e.g. 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	Copy, continue and create own repeating patterns both vertically and horizontally and circular. Exploring AB, ABB, AABB, AABBB patterns in a range of contexts (e.g. colours, shapes, actions, sounds and sizes)	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
	Note - although algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the 'missing number' objectives from Y1/2/3 and work on patterns in Reception						

Measurements

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Using measures	Compare and order objects according to their size Describe objects in the classroom using language such as little, large and small. Tall long and short. Use the language of heavy, heavier than, heaviest, light, lighter than and lightest to compare mass. Use the language of full, empty, half full, nearly full and nearly empty to explore capacity and to make direct comparisons.	Compare, describe and solve practical problems for: - lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) - mass/weight (e.g. heavy/light, heavier than, lighter than) - capacity and volume (e.g. full/empty, more than, less than, half, half full, quarter) - time (e.g. quicker, slower, earlier, later) 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 (oC); 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 (e.g. kilometre to metre, hour to minute) Estimate, compare and calculate different measures	Convert between different units of metric measure (e.g. kilometre 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 Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling	Solve problems involving the calculation and conversion of units off 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
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 (e.g. money)	

Time	Order and sequence important times in their day and use language such as now, before, later, soon, after, then and next to describe when events happen. Recognise that regular events happen on the same day each week and use 'yesterday' 'today' 'tomorrow' to describe when events happen. Measure different lengths of time using a range of timers.	Sequence events in chronological order using language (e.g. 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 hands on a clock face to show these times	Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/to the hour and draw 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 (e.g. 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
Perimeter, Area and Volume				Chn first look at what perimeter is. Measure the perimeter of simple 2-D shapes on square grids. Measure the sides of different shapes in centimetres to find the perimeter. Is it necessary to measure every side to find the perimeter?	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 (e.g. 1cm3 blocks to build cuboids {including cubes} and capacity {for example, 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 (e.g. mm3 and km3)

Geometry							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
2D Shapes	Learn that circles have one curved side and triangles have 3 straight sides. Recognise these shapes on everyday items Understand that shapes can be combined or separated to make new shapes	Recognise and name common 2-D shapes (e.g. rectangles, squares, circles and triangles)	identify and describe the properties of 2-D shapes (year 1 shapes plus octagon, hexagon, heptagon, kite, oval, trapezium), including the number of sides and line symmetry in a vertical line Identify 2-D shapes on the surface of 3-D shapes (e.g. a circle on a cylinder and a triangle on a pyramid) Compare and sort common 2-D shapes and everyday objects	Recognise and describe 2D shapes including standard and non standard 2D shapes. Describe the properties of shapes, including types of angles, lines, symmetry and lengths of sides. Draw 2-D shapes	Explore diff types of triangles and look at their properties. . Name & identify different quadrilaterals - a square, rectangle, trapezium, rhombus and a parallelogram. Extend their knowledge of the names of polygons & explore the meanings of “regular” and “irregular” 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 angles	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.
3D shapes	Explore 3D shapes through printing (e.g. which 3-D shapes will print a triangle?) Manipulate 3-D shapes through block play and modelling, considering which shapes stack and roll and why that is. Be introduced to the names of the shapes Sort 3-D shapes according to what they notice	Recognise and name common 3-D shapes (e.g. cuboids, cubes, pyramids, cones, cylinders and spheres)	Recognise and name common 3-D shapes (year 1 shapes plus differentiate between a square based and a triangular based pyramid) 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		Recap the names of 3-D shapes, then look at their properties. Recognise and understand faces, edges and vertices. 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 describing the size of a turn inc making quarter, half, three-quarter and whole turns in both clockwise and anticlockwise directions a Children are introduced to the term “right angle” to describe a quarter turn and learn the symbol for a right angle. 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 Measure & draw straight lines accurately in cm & mm. Recognise and draw horizontal and vertical lines & identify parallel and perpendicular lines	Understand angles as turns. Recap full, half and quarter turns & clockwise and anticlockwise. Explore different turns from different starting points, including using compass directions. 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 (up to 180 degrees) Identify: - angles at a point and one whole turn (total 360o) - angles at a point on a straight line and 1/2 a turn (total 180o) - other multiples of 90o)	Classifying anglees and measuring with a protractor.. Calculate missing angles from given information. 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 Understand & calculate “radius”, “diameter” and “circumference”.

Position and Direction	Hear and begin to use positional language to describe how items are positioned in relation to other items	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 fro 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 axes

Statistics							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Present and interpret			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 problems			Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	Solve one-step and two-step questions (E.g. '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 informa\tion 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