



Maths – Learning Map

<u>Year Group</u>	<u>NUMBER - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	<u>Counting</u>	<u>Place Value</u>	<u>Representing number</u>	<u>Number facts (+/-)</u>	
R					
Year 1	<ul style="list-style-type: none"> 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 		<ul style="list-style-type: none"> identify and represent numbers using objects and pictorial representations including the number line, & use language of: equal to, more than, less than (fewer), most, least read and write numbers from 1 to 20 in numerals and words read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs 	<ul style="list-style-type: none"> given a number, identify one more and one less represent and use number bonds and related subtraction facts within 20 	<p>All teachers to use a range of maths manipulatives (concrete experiences) and pictorial representations – dots, lines, circles for arrays, number lines. Then moving onto bar models before finally using more formal methods of recording.</p> <p>visual representations: number lines. A counting stick with post it notes Place value cards / arrow cards Place value grids – label above columns</p> <p>Make sure children are exposed to destination</p>
Year 2	<ul style="list-style-type: none"> count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward 	<ul style="list-style-type: none"> recognise the place value of each digit in a two-digit number compare and order numbers from 0 up to 100; use <, > and = signs 	<ul style="list-style-type: none"> identify, represent and estimate numbers using different representations, including the number line read and write numbers to at least 100 in numerals and in words 	<ul style="list-style-type: none"> use place value and number facts to solve problems recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 	
Year 3	<ul style="list-style-type: none"> count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. 	<ul style="list-style-type: none"> recognise the place value of each digit in a three-digit number compare and order numbers up to 1000 	<ul style="list-style-type: none"> identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words 		
Year 4	<ul style="list-style-type: none"> count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number 	<ul style="list-style-type: none"> recognise the place value of each digit in a four-digit number order and compare 	<ul style="list-style-type: none"> identify, represent and estimate numbers using different representations read Roman numerals to 100 (I 		

	<ul style="list-style-type: none"> • count backwards through zero to include negative numbers 	<p>numbers beyond 1000</p> <ul style="list-style-type: none"> • round any number to the nearest 10, 100 or 1000 	<p>to C) and know that over time, the numeral system changed to include the concept of zero and place value</p> <p>Solve number-4 rules / practical problems</p>		<p>questions (HfL essentials) and resources from the server: Maths hub / leveledopias / Mastery resources at the appropriate level and below for SEN children</p>
Year 5	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • read, write, order and compare numbers up to 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 	<ul style="list-style-type: none"> • read Roman numerals to 1000 (M) and recognise years written in Roman numerals • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) 		<p>Use CLIC maths for daily fluency and weekly times table testing.</p> <p>Practice in the IT suite for times tables on times tables Rockstars.</p>
Year 6	<ul style="list-style-type: none"> • use negative numbers in context, and calculate intervals across zero 	<ul style="list-style-type: none"> • 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 			

<u>Year Group</u>	<u>CALCULATIONS - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	<u>Mental +/-</u>	<u>Written +/-</u>	<u>Problems +/-</u>	<u>Number facts (x/÷)</u>	
R					<p>Use visual representations: number lines. A counting stick with post it notes Use manipulatives – counters / multilink and draw dots to represent ones and lines for tens.</p> <p>Children use bar modelling to represent fractions and to solve more complicated problems as they progress.</p> <p>Make sure children are exposed to destination questions (HfL essentials) and resources from the server: Maths hub / levelopedias / Mastery resources at the appropriate level and below for SEN children</p>
Year 1	<ul style="list-style-type: none"> add and subtract one-digit and two-digit numbers to 20, including zero 		<ul style="list-style-type: none"> solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$. 		
Year 2	<ul style="list-style-type: none"> add and subtract numbers using concrete objects, pictorial representations, and mentally, including: TU+U, TU+T, TU+TU and U+U+U show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot 		<ul style="list-style-type: none"> solve problems with addition and subtraction, using concrete, pictorial and abstract representations recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers 	
Year 3	<ul style="list-style-type: none"> add and subtract numbers mentally, including: HTU+U, HTU+T and HTU+H 	<ul style="list-style-type: none"> add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 	<ul style="list-style-type: none"> estimate the answer to a calculation and use inverse operations to check answers solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction 	<ul style="list-style-type: none"> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 	
Year 4		<ul style="list-style-type: none"> add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and 	<ul style="list-style-type: none"> estimate and use inverse operations to check answers to a calculation solve addition and subtraction two-step problems in contexts, 	<ul style="list-style-type: none"> recall multiplication and division facts for multiplication tables up to 12×12 	

		subtraction where appropriate	deciding which operations and methods to use and why		Use CLIC maths for daily fluency and weekly times table testing. Practice in the IT suite for times tables on times tables Rockstars.
Year 5	<ul style="list-style-type: none"> • add and subtract numbers mentally with increasingly large numbers 	<ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods 	<ul style="list-style-type: none"> • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> • 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 	
Year 6	<ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers 			<ul style="list-style-type: none"> • identify common factors, common multiples and prime numbers 	

<u>Year Group</u>	<u>MENTAL CALCULATIONS - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	<u>Mental (x/÷)</u>	<u>Written (x/÷)</u>	<u>Problems (x/÷)</u>	<u>Recognising fractions</u>	
R					
Year 1			<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<p>Use visual representations for fractions.</p> <p>Use Cuisenaire rods and fraction walls</p> <p>Use circles for arrays for multiplication and division.</p> <p>Cut / fold paper into halves and quarters etc.</p>
Year 2	<ul style="list-style-type: none"> • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot 		<ul style="list-style-type: none"> • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts 	<ul style="list-style-type: none"> • recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity 	<p>A counting stick with post it notes</p> <p>Place value cards / arrow cards</p> <p>Place value grids – label above columns</p> <p>As children progress to written methods put up visual Sc for long / short multiplication and division methods.</p>
Year 3	<ul style="list-style-type: none"> • 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 methods 	<ul style="list-style-type: none"> • Progress to formal written methods calculations as above 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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 	<p>Children use bar modelling to represent fractions and to solve more complicated problems as they progress.</p>
Year 4	<ul style="list-style-type: none"> • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three 	<ul style="list-style-type: none"> • multiply two-digit and three-digit numbers by a one-digit number using formal written layout 	<ul style="list-style-type: none"> • solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer 	<ul style="list-style-type: none"> • count up and down in hundredths; • recognise that hundredths arise when dividing an 	<p>Make sure children are exposed to</p>

	<p>numbers</p> <ul style="list-style-type: none"> • recognise and use factor pairs and commutativity in mental calculations 		<p>scaling problems and harder correspondence problems such as n objects are connected to m objects</p>	<p>object by one hundred and dividing tenths by ten.</p>	<p>destination questions (HfL essentials) and resources from the server: Maths hub / levelopedias / Mastery resources at the appropriate level and below for SEN children</p>
Year 5	<ul style="list-style-type: none"> • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number 	<p>Use CLIC maths for daily fluency and weekly times table testing. Practice in the IT suite for times tables on times tables Rockstars.</p>
Year 6	<ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • use their knowledge of the order of operations to carry out calculations involving the four operations • 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 • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy 		

		method of short division where appropriate, interpreting remainders according to context			
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<u>Year Group</u>	<u>FRACTIONS - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	Comparing fractions	Finding fractions of quantities	Calculating with fractions	Decimals as fractional amounts	
R					<p>Use visual representations for fractions. Use Cuisenaire rods and fraction walls Use circles for arrays for multiplication and division. Cut / fold paper into halves and quarters etc.</p> <p>Children use bar modelling to represent fractions and to solve more complicated problems as they progress.</p> <p>Make sure children are exposed to destination questions (HfL essentials) and resources from the server: Maths hub / levelopedias / Mastery resources at the appropriate level and below for SEN children</p>
Year 1					
Year 2			<ul style="list-style-type: none"> • write simple fractions for example, $1/2$ of $6 = 3$ and recognise the equivalence of $2/4$ and $1/2$. 		
Year 3	<ul style="list-style-type: none"> • compare and order unit fractions, and fractions with the same denominators • recognise and show, using diagrams, equivalent fractions with small denominators 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$] 		
Year 4	<ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • add and subtract fractions with the same denominator 	<ul style="list-style-type: none"> • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $1/4$, $1/2$ and $3/4$ • 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 	
Year 5	<ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number • identify, name and write 		<ul style="list-style-type: none"> • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions 	<ul style="list-style-type: none"> • read and write decimal numbers as fractions 	

	equivalent fractions of a given fraction, represented visually, including tenths and hundredths		and mixed numbers by whole numbers, supported by materials and diagrams		Use CLIC maths for daily fluency and weekly times table testing.
Year 6	<ul style="list-style-type: none"> • use common factors to simplify fractions • use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 		<ul style="list-style-type: none"> • 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 • divide proper fractions by whole numbers 	<ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction • identify the value of each digit in numbers given to three decimal places 	<p>Practice in the IT suite for times tables on times tables Rockstars.</p> <p>As children progress to written methods put up visual Sc for long / short multiplication and division methods.</p>

<u>Year Group</u>	<u>DECIMALS - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	<u>Ordering decimals</u>	<u>Calculating with decimals</u>	<u>Percentages</u>	<u>Fraction problems</u>	
R					Use maths manipulatives – Cuisenaire rods
Year 1					
Year 2					
Year 3				<ul style="list-style-type: none"> • solve problems using all fraction knowledge 	Place value grids Hands on practical activities, leading to pictorial then abstract methods and strategies.
Year 4	<ul style="list-style-type: none"> • 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 			<ul style="list-style-type: none"> • solve simple measure and money problems involving fractions and decimals to two decimal places 	
Year 5	<ul style="list-style-type: none"> • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places 		<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • solve problems involving number up to three decimal places • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 	As children progress to written methods put up visual Sc for long / short multiplication and division methods.
Year 6		<ul style="list-style-type: none"> • multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit number with up to two 	<ul style="list-style-type: none"> • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 	<ul style="list-style-type: none"> • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between 	

		decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places	360] and the use of percentages for comparison	simple fractions, decimals and percentages, including in different contexts.	
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<u>Year Group</u>	<u>ALGEBRA - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	<u>Ratio & Proportion</u>	<u>Algebra</u>	<u>Measures</u>	<u>Mensuration</u>	
R					Children start with practical concrete experiences – weighing and measuring items and looking at thermometers and different containers with lots of different scales and intervals.
Year 1			<ul style="list-style-type: none"> • compare, describe and solve practical problems for: length/height, weight/mass, capacity/volume & time • measure and begin to record length/height, weight/mass, capacity/volume & time 		As children progress to written methods put up visual Sc for long / short multiplication and division methods.
Year 2			<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = 		Children measure the perimeter of shapes practically / outside on the playground. At all stages bring in real life maths opportunities inside and outside the classroom for area and perimeter, moving into more real-life problem solving – i.e. areas of rooms I a house (how much wallpaper linked to costings).
Year 3			<ul style="list-style-type: none"> • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) 	<ul style="list-style-type: none"> • measure the perimeter of simple 2-D shapes 	
Year 4			<ul style="list-style-type: none"> • Convert between different units of measure • estimate, compare and calculate different 	<ul style="list-style-type: none"> • measure and calculate the perimeter of a rectilinear figure (including squares) 	The use of bar models to solve algebraic type questions depending on

			measures, including money in pounds and pence	in centimetres and metres <ul style="list-style-type: none"> • find the area of rectilinear shapes by counting squares 	what needs to be found: a part or total?
Year 5			<ul style="list-style-type: none"> • convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • estimate volume and capacity 	<ul style="list-style-type: none"> • 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 	
Year 6	<ul style="list-style-type: none"> • 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 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. 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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, 	<ul style="list-style-type: none"> • 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 	

and vice versa, using decimal notation to up to three decimal places

- convert between miles and kilometres

- 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.

<u>Year Group</u>	<u>MONEY / TIME / SHAPE - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	Money	Time	Shape vocabulary	Properties of 2-d shape	
R					Use manipulatives: Concrete handling of money. Real life scenarios: Role play for shops buying items. Set budgets and income / expenditure as the children progress up the school. Give real life money projects.
Year 1	<ul style="list-style-type: none"> recognise and know the value of different denominations of coins and notes 	<ul style="list-style-type: none"> sequence events in chronological order using language 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 	<ul style="list-style-type: none"> recognise and name common 2-D shapes (e.g. Square, circle, triangle) recognise and name common 3-D shapes (e.g. Cubes, cuboids, pyramids & spheres) 		Using clocks of all different varieties ad children progress – ie with roman numerals / 24 hour digital clocks.
Year 2	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day 	<i>(vertices, edges, faces, symmetry)</i>	<ul style="list-style-type: none"> identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. compare and sort common 2-D and 3-D shapes and everyday objects. 	Children tell the time with paper clocks or plastic clocks. Show the teacher a time. Learn the days of the week with rhymes and songs. Months of the year and number of the days with their knuckles to help remember amount of days.
Year 3	<ul style="list-style-type: none"> add and subtract amounts of money to give change, using both £ and p in practical contexts 	<ul style="list-style-type: none"> tell and write the time from an analogue clock, including using Roman numerals from I to XII, 	<ul style="list-style-type: none"> identify horizontal and vertical lines and pairs of perpendicular and parallel lines 	<ul style="list-style-type: none"> draw 2-D shapes 	Handle 2d and 3d shapes – to feel the faces and edges and vertices.

		<p>and 12-hour and 24-hour clocks</p> <ul style="list-style-type: none"> • 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 <p>compare durations of events</p>			<p>As children progress to written methods put up visual Sc for long / short multiplication and division methods.</p> <p>In year 6 draw circles with protractors and measure angles with protractors.</p>
Year 4		<ul style="list-style-type: none"> • Convert between different units of measure (e.g. Hours to minutes) • 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 		<ul style="list-style-type: none"> • compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes • 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. 	

<p>Year 5</p>	<ul style="list-style-type: none"> • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling 	<ul style="list-style-type: none"> • solve problems involving converting between units of time 		<ul style="list-style-type: none"> • 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. 	
<p>Year 6</p>			<ul style="list-style-type: none"> • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius 	<ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes Identify acute / obtuse angles and compare and order angles up to two right angles by size. 	

<u>Year Group</u>	<u>SHAPE / POSITION / DATA - Knowledge and Skills to be taught:</u>				<u>Learning Opportunities:</u>
	Properties of 3-d shape	Position & Direction	Interpreting data	Extract info from data	
R					Practical maths activities: Directing a partner through a course on the playground.
Year 1		<ul style="list-style-type: none"> describe position, direction and movement, including whole, half, quarter and three-quarter turns. 			Collecting their own real life data in class using tallies / charts / and represent in different forms: Bar / line and pie charts.
Year 2	<ul style="list-style-type: none"> 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. compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> order and arrange combinations of mathematical objects in patterns and sequences. use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and $\frac{3}{4}$ turns 	<ul style="list-style-type: none"> interpret and construct simple pictograms, tally charts, block diagrams and simple tables 	<ul style="list-style-type: none"> 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 	In year 6 draw pie charts with a protractor and use an angle measurer. Make their own nets of shapes using manipulatives or paper nets.
Year 3	<ul style="list-style-type: none"> make 3-D shapes using modelling materials recognise 3-D shapes in different orientations and describe them 		<ul style="list-style-type: none"> interpret and present data using bar charts, pictograms and tables 	<ul style="list-style-type: none"> 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 	Label their own treasure maps leading to coordinates of shapes and pictures which they have plotted. Translate shapes with actual shapes first As children progress to written methods put up visual Sc for long / short multiplication and division methods.

<p>Year 4</p>		<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs 	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs 	
<p>Year 5</p>	<ul style="list-style-type: none"> • identify 3-D shapes, including cubes and other cuboids, from 2-D representations 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • complete, read and interpret information in tables, including timetables 	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph 	
<p>Year 6</p>	<ul style="list-style-type: none"> • recognise, describe and build simple 3-D shapes, including making nets • find unknown angles in any triangles, quadrilaterals, and regular polygons 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • interpret and construct pie charts and line graphs calculate and interpret the mean as an average 	<ul style="list-style-type: none"> • use pie charts and line graphs to solve problems 	