SUBJECT - Maths

Maths			
Number			
Number and place value			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
Pupils should develop a strong grounding in number. Children should be able to count confidently and develop a deep understanding of the numbers to 10 and the relationships between them.	The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value.		
KNOWLEDGE			
• 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 • Verbally count beyond 20, recognising the pattern of the counting system • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	• Equal means the same in amount, size or number. • More than means greater in amount or size. • Less than means smaller in amount or size. • Most means the biggest number or amount of something. • Least means the smallest number or amount of something.	• Place value refers to the amount a digit is worth due to its position in a number. · Estimate means to have a sensible guess. • Estimating is calculating the approximate amount, size or value of something. · Less than (<) shows that the value to the left of it is higher than the value to the right of it. • Equals (=) shows that the number on each side of it has or should have the same value.	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 ♣ identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in word

			· solve number problems and practical problems involving these ideas.
SKILLS			
· 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 · Verbally count beyond 20, recognising the pattern of the counting system · Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity · Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	**Counting** 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 2s, 5s and 10s. Given a number, identify 1 more and 1 less **Comparing Numbers** use the language of: equal to, more than, less than (fewer), most, least **Identifying, representing and estimating** 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 **Reading and Writing Numbers** Read and write numbers from 1 to 20 in numerals and words	**Counting** Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward **Comparing Numbers** Compare and order numbers from 0 up to 100; use <, > and = signs. **Identifying, representing and estimating** Identify, represent and estimate numbers using different representations, including the number line. **Reading and Writing Numbers** Read and write numbers to at least 100 in numerals and in words. **Understanding place value** Recognise the place value of each digit in a two-digit number (10s, 1s) **Problem Solving** Use place value and number facts to solve problems	
VOCABULARY			
Compare, represent, odd, even, number bond, double, greater than, fewer than	Multiples, one more, one less, equal to, greater than, less than, fewer, most, least	Estimate, numeral, place value, multiples, one more, one less, equal to, greater than, less than, fewer, most, least, tens, ones	Multiples, one more, one less, equal to, greater than, less than, fewer, most, least, hundreds, tens, ones

Number			
Addition and subtraction			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
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 Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	• Addition (+) is putting two or more numbers or objects together to give a larger number (the total). • Subtraction (-) is removing or taking away numbers or objects. What ios left is the difference between the two numbers. • The equals sign (=) shows that things on both sides of it have the same value. • A number bond is a pair of numbers that add up to a given number. • 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are one-digit numbers • One-digit numbers are made up of one digit or number. • Two-digit numbers have two digits, such as 12 or 20.	• Numbers can be added in any order and the answer will be the same. • Numbers cannot be subtracted in any order to give the same answer	• add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds - add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction - estimate the answer to a calculation and use inverse operations to check answers - solve problems, including missing number problems,
SKILLS			
Shows awareness that 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 Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+" or "-"	**Number Bonds** Represent and use number bonds and related subtraction facts within 20 **Mental Calculation** 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 (appears also in Written Methods) **Written Methods**	**Number Bonds** Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Mental Calculation** Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens	

	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs **Problem solving** Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = $*$ - 9	* 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. **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. **Problem solving** 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	
VOCABULARY			
Subitise, represent, equal, add, subtract	Addition, subtraction, equal, number bond, pair, digit	Addition, subtraction, equal, number bond, pair, digit, inverse, commutative	Add, addition, altogether, takeaway, subtract, how many left

Number			
Multiplication and division			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
Begins to conceptually subitise larger numbers by subitising smaller groups	· Doubling is adding the same number to itself.	· Multiplication (x) is repeated addition. • Division is splitting or sharing into equal parts.	Pupils should be taught to: -recall and use multiplication and division

within the number, e.g. sees six raisins on a plate as three and three Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	· Halving is dividing or sharing a number into two equal parts or groups.	· An even number is any number ending in 0, 2, 4, 6 or 8. • An odd number is any number ending in 1, 3, 5, 7 or 9. • Numbers can be multiplied in any order and the answer will be the same. • Numbers cannot be divided in any order to give the same answer. • Division is the opposite of multiplication. • Multiplication is the opposite of division.	facts for the 3, 4 and 8 multiplication tables -write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods -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.
SKILLS			
Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+" or "-"	**Multiplication and division facts** Count in multiples of twos, fives and tens **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	**Multiplication and division facts** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward. Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. **Mental Calculation** Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot **Written calculations** calculate mathematical statements for multiplication and division within the	

		multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs **Problem Solving** Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	

VOCABULARY			
Subitise, evens, odds, double, equal	Multiplication, division, double, half, share, groups, arrays	Multiplication, division, double, half, share, groups, arrays, even, odd, commutative	Multiply, multiple, groups of, arrays, divide, division, share, column addition

Number			
Fractions			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
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	• A half is one of two equal parts of a whole object, shape or quantity. • A quarter is one of four equal parts of a whole object, shape or quantity.	· A half is one of two equal parts of a whole object, shape or quantity. · A quarter is one of four equal parts of a whole object, shape or quantity. · A third is one of three equal parts of a whole object, shape or quantity. · Equivalence means of equal (the same) value. • Two quarters are equivalent to one half.	Pupils should be taught to: -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 -recognise and show, using diagrams, equivalent fractions with small denominators -add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] -compare and order unit fractions, and fractions with the same denominators -solve problems that involve all of the above
		SKILLS	
	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	**Counting in Fractions** Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line **Recognising Fractions** recognise, find, name and write fractions 1 / 3 , 1 / 4 , 2 / 4 and 3 / 4 of a length, shape, set of objects or quantity **Equivalence** write simple fractions e.g. 1 / 2 of 6 = 3 and recognise the equivalence of 2 / 4 and 1 / 2 .	
		VOCABULARY	
Subitise, group	Fraction, whole, equal, half, quarter, quantity	Fraction, whole, equal, half, quarter, third, quantity	Fraction, half, quarter, third, fifth etc , equivalent fractions, denominator, numerator

Number			
Algebra			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begin to identify the unit of repeat			
SKILLS			
Spots patterns in the environment, beginning to identify the pattern "rule"	**Equations** solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ∗ - 9 represent and use number bonds and related subtraction facts within 20 **Sequences** sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening	**Equations** Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 **Sequences** compare and sequence intervals of time order and arrange combinations of mathematical objects in patterns	
VOCABULARY			
Pattern, object, repeat	**Pattern, object, repeat, sequence, before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening**	**Inverse, addition, subtraction, pattern**	

Measurement			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
	KNOWLEDGE		

	· Length is a measure of how long something is from end to end.
	· Height is a measure of how high something is from head to foot or top to base.
	· Mass or weight is the measure of the amount of something and how heavy it is.
	· Capacity is how much a container can hold.
	· Volume is the space that water takes up in a container. · Time can be described using these words: quicker, slower, earlier and later.
	· Length is a measure of how long something is from end to end.
	· Height is a measure of how high something is from head to foot or top to base.
	· Mass or weight is the measure of the amount of something and how heavy it is.
	· Capacity is how much a container can hold.
	· Volume is the space that water takes up in a container.
	· Time can be measured using hours, minutes and seconds.
	• Events can be sequenced using these words: before, after, now, next, first, today, yesterday, tomorrow, morning, afternoon, evening, earlier and later. • The past refers to events that have already happened. • The present refers to events that are happening now. • The future refers to events that haven't happened yet. • There are seven days in a week: Monday, Tuesday, Wednesday,
		Estimate means to have a sensible guess. Estimating is calculating the approximate amount, size or value of something.
		· A scale is a set of numbers on measuring equipment that is used to show the value or size of something.
		· Length, width and height can be measured in metres or centimetres.
		· There are 100cm in 1m.
		· Mass can be measured in kilograms or grams.
		· There are 1000g in 1kg.
		· Temperatures can be measured in degrees Celsius.
		· 0^oC is the freezing point of water and 100^oC is the boiling point of water.
		· Capacity can be measured in litres or millilitres.
		· There are 1000ml in 1L.
		· Length is a measure of how long something is from end to end.
		  • Height is a measure of how high something is from head to foot or top to base.
		  • Mass or weight is the measure of the amount of something and how heavy it is.
			Pupils should be taught to:
			-measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
			-measure the perimeter of simple 2-D shapes
			-add and subtract amounts of money to give change, using both £ and p in practical contexts
			-tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
			-estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
			-know the number of seconds in a minute and the number of days in each month, year and leap year
			-compare durations of events [for example to calculate the

	Thursday, Friday, Saturday and Sunday. • There are twelve months in a year: January, February, March, April, May, June, July, August, September, October, November and December. • There are four seasons in a year: Spring, Summer, Autumn and Winter. • The hour hand is the shorter hand on a clock and the minute hand is the longer hand. • On an analogue clock, the minute hand points to 12 when it is an o'clock time and points to 6 when it is half past the hour.		time taken by particular events or tasks].
	SKILLS		
Enjoys tackling problems involving prediction and discussion of comparisons of length, weight or capacity, paying attention to fairness and accuracy Becomes familiar with measuring tools in everyday experiences and play Is increasingly able to order and sequence events using everyday language related to time Beginning to experience measuring time with timers and calendars Estimates of numbers of things, showing understanding of relative size	**Comparing and estimating** 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] sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] **Measuring and Calculating** measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds) recognise and know the value of different denominations of coins and notes **Telling the time** tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	**Comparing and estimating** compare and order lengths, mass, volume/capacity and record the results using >, < and = compare and sequence intervals of time **Measuring and calculating** 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 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	

		Telling the time	
	recognise and use language relating to dates, including days of the week, weeks, months and years	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.	

<table>
<tr><td colspan="4" align="center">VOCABULARY</td></tr>
<tr>
<td>Prediction, length, weight, capacity, time, measure</td>
<td>Measure, length, height, weight, time, money, mass, capacity, volume, sequence, order, short, tall, long, short compare, estimate</td>
<td>Measure, length, height, weight, time, money, mass, capacity, volume, sequence, order, short, tall, long, short compare, estimate, temperature, scale, amount, size, value</td>
<td>- days of the week,
- months of the year
o'clock, a.m./p.m., morning, afternoon, noon and midnight, leap year</td>
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Geometry			
Properties of shape			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
Spots patterns in the environment, beginning to identify the pattern "rule" Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes	• These are common 2-D shapes: squares, rectangles, circles, triangles, pentagons, hexagons and octagons. • Common 3-D shapes include cuboids, cubes, spheres, cones, cylinders and pyramids.	• A two-dimensional (2-D) shape only has two measurements. • These are common 2-D shapes: squares, rectangles, circles, triangles, pentagons, hexagons and octagons. • A shape has symmetry in a vertical line if a line can be drawn down the middle of	Pupils should be taught to: -draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in

		it and the left side is a mirror image of the right. • Squares and rectangles have four sides and a vertical line of symmetry. • Circles have one side and a vertical line of symmetry. Triangles have three sides and may have a vertical line of symmetry. • A vertex of a 3-D shape is a corner where lines meet. • The plural of vertex is vertices. • An edge of a 3-D shape joins two vertices. • The flat surface of a 3-D shape is called a face. • A three-dimensional (3-D) shape has three measurements and can be held. • Common 3-D shapes include cuboids, cubes, spheres, cones, cylinders and pyramids. • The flat surface of a 3-D shape is called a face. · The faces of a cuboid can be rectangles and squares. • The faces on a cube are squares. • Two of the faces on a cylinder are circles. • One of the faces on a pyramid may be a circle, square or a rectangle.	different orientations and describe them -recognise angles as a property of shape or a description of a turn -identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle -identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
SKILLS			
Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat Enjoys composing and decomposing shapes learning which shapes combine to make other shapes	**<u>Identifying shapes and their properties</u>** recognise and name common 2-D and 3-D shapes, including: * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	**<u>Identifying shapes and their properties</u>** 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	

Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build Estimates of numbers of things, showing understanding of relative size		identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] **Comparing and classifying** compare and sort common 2-D and 3-D shapes and everyday objects	
VOCABULARY			
Shape, pattern, repeat	2D, 3D, shape names,	2D, 3D, shape names, vertices, vertex, faces, sides, symmetry	Angles, right angle, obtuse, acute, vertical, perpendicular

Geometry			
Position and movement			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
KNOWLEDGE			
Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints	Position, direction and movement can be described using these words: top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, turn, forwards, backwards, inside, outside, left and right.	· Position, directly and movement, including rotation, can be described using these words: top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, turn, forwards, backwards, inside, outside, left and right. • A half is one of two equal parts of a whole object, shape, quantity or movement. • A quarter is one of four equal parts of a whole object, shape, quantity or movement. • Clockwise is the movement in the direction of the rotation of the hands of a clock. • The opposite direction is anti-clockwise.	
SKILLS			

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	**Position direction and movement** describe position, direction and movement, including half, quarter and three-quarter turns.	**Position direction and movement** use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) **Pattern** order and arrange combinations of mathematical objects in patterns and sequences	
VOCABULARY			
On top, behind, next to, alongside, underneath, in front	top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, turn, forwards, backwards, inside, outside, left, right. Half, quarter, three quarter,	top, middle, bottom, on top of, in front of, above, between, around, near, close, far, up, down, turn, forwards, backwards, inside, outside, left, right. Half, quarter, three quarter, clockwise, anti-clockwise	

Statistics			
KNOWLEDGE			
EYFS	**Year 1**	**Year 2**	**Year 3** (KS2)
		• Data is facts and figures. • A table in maths is a way to set out data so it is easy to record and see.	

		• Tally marks are a quick way of keeping track of numbers in groups of five. • A pictogram uses pictures to represent data.	
SKILLS			
Begins to explore and work out mathematical problems, using signs and strategies of their own choice, including (when appropriate) standard numerals, tallies and "+" or "-"		**Interpreting, constructing and presenting 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	
VOCABULARY			
		Data, table, tally, pictogram, comparing	