MERRYDALE INFANT SCHOOL MATHEMATICS PROGRESSON

	EYFS	year 1	year 2	Where they are going next
number and place value	Range 1 Reacts to changes of amount when those amounts are significant (more than double) Range 2 May be aware of number names through their enjoyment of action rhymes and songs that relate to numbers. Looks for things which have moved out of sight. Range 3 Responds to words like lots or more Says some counting words. May engage in counting-like behaviour, making sounds and pointing or saying some numbers in sequence. Uses number words, like one or two and sometimes responds accurately when asked to give one or two things. Range 4 Beginning to compare and recognise changes in numbers of things, using words like more, lots or 'same'. Begins to say numbers in order, some of which are in the right order (ordinality). Beginning to notice numerals (number symbols). Beginning to count on their fingers. Range 5 Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. You've got two, I've got two. Same! May enjoy counting verbally as far as they can go. Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. Uses some number names and number language within play, and may show fascination with large numbers.	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • 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 • read and write numbers from 1 to 20 in numerals and words.	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use q, G and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems.	• 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 words • solve number problems and practical problems involving these ideas.

	Begin to recognise numerals 0 to 10 Subitises one, two and three objects (without counting). Counts up to five items, recognising that the last number said represents the total counted so far. Links numerals with amounts up to 5 and maybe 5 beyond. Explores using a range of their own marks and signs to which they ascribe mathematical meanings. Through play and exploration, beginning to learn that numbers are made up (composed) of smaller numbers. Range 6 Uses number names and symbols when comparing numbers, showing interest in large numbers. Estimates of numbers of things, showing understanding of relative size. Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0. Increasingly confident at putting numerals in order 0 to 10 (ordinality) Engages in subitising numbers to four and maybe five. Counts out up to 10 objects from a larger group. Matches the numeral with a group of items to show how many there are (up to 10) Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects. 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.			

Addition and subtraction	Range 4 In everyday situations, takes or gives two or three objects from a group. Range 5 Beginning to use understanding of number to solve practical problems in play and meaningful activities. Beginning to recognise that each counting number is one more than the one before. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. Range 6 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 "-".	• read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9.	• solve problems with addition and subtraction: ○ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ○ applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ○ a two-digit number and ones ○ a two-digit number and tens ○ two two-digit numbers • adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	• 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, using number facts, place value, and more complex addition and subtraction.

Multiplication and division		• 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.	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • 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 • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • 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.
Fractions		• recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	• recognise, find, name and write fractions ⅓, ¼, $^{2}/_{4}$ and ¾ of a length, shape, set of objects or quantity • write simple fractions e.g. ½ of 6 = 3 and recognise the equivalence of two quarters and one half.	• 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 with the same denominator • solve problems that involve all of the above.

Measurement	Range 1
	Responds to size, reacting to very big or very small items that they see or try to pick up.
	
	Range 2
	Shows an interest in objects of contrasting sizes in meaningful contexts• Gets to know and enjoys daily routine• Shows an interest in emptying containers
	
	Range 3
	Enjoys filling and emptying containers. Investigates fitting themselves inside and moving through spaces.
	
	Range 4
	Explores differences in size, length, weight and capacity.
	Beginning to understand some talk about immediate past and future.
	Beginning to anticipate times of the day such as mealtimes or home time.
	
	Range 5
	In meaningful contexts, finds the longer or shorter, heavier or lighter and more/less full of two items.
	Recalls a sequence of events in everyday life and stories.
	
	Range 6
	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
		• compare, describe and solve practical problems for:
		  ○ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
		  ○ mass/weight [for example, heavy/light, heavier than, lighter than]
		  ○ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
		  ○ time [for example, quicker, slower, earlier, later]
		• 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
		• sequence events in chronological order using language [for example, 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 the hands on a clock face to show these times.
			• 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
			• compare and order lengths, mass, volume/capacity and record the results using G, q and =
			• 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
			• 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.
				• 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 time taken by particular events or tasks].

Geometry- Properties of shape	Range 1 Explores differently sized and shaped objects. Beginning to put objects of similar shapes inside others and take them out again. Shows interest in patterned songs and rhymes, perhaps with repeated actions. Experiences patterned objects and images. Begins to predict what happens next in predictable situations. Range 2 Stacks objects using flat surfaces. Responds to changes of shape. Attempts, sometimes successfully, to match shapes with spaces on inset puzzles. Range 3 Enjoys filling and emptying containers. Investigates fitting themselves inside and moving through spaces. Pushes objects through different shaped holes, and attempts to fit shapes into spaces on inset boards or puzzles. Beginning to select a shape for a specific space. Enjoys using blocks to create their own simple structures and arrangements. Becoming familiar with patterns in daily routines. Joins in with and predicts what comes next in a story or rhyme. Beginning to arrange items in their own patterns, e.g. lining up toys. Range 4 Chooses puzzle pieces and tries to fit them in. Recognises that two objects have the same shape. Makes simple constructions. Joins in and anticipates repeated sound and action patterns. Is interested in what happens next using the pattern of everyday routines. Range 5 Chooses items based on their shape which are appropriate for the child's purpose. Responds to both informal language and common shape names. Shows awareness of shape similarities and differences between objects. Enjoys partitioning and combining shapes to make new shapes with 2D and 3D shapes. Attempts to create arches and enclosures when building, using trial and improvement to select blocks.	• recognise and name common 2-D and 3-D shapes, including: ○ 2-D shapes [for example, rectangles (including squares), circles and triangles] ○ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	• identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects.	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in 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.

	Creates their own spatial patterns showing some organisation or regularity. Explores and adds to simple linear patterns of two or three repeating items, e.g. stick, leaf (AB) or stick, leaf, stone (ABC). Joins in with simple patterns in sounds, objects, games and stories dance and movement, predicting what comes next. Range 6 Uses informal language and analogies, (e.g. heart-shaped and hand-shaped leaves), as well as mathematical terms to describe shapes. Enjoys composing and decomposing shapes, learning which shapes combine to make other shapes. Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualising what they will build. Spots patterns in the environment, beginning to identify the pattern "rule". Chooses familiar objects to create and recreate repeating patterns beyond AB patterns and begins to identify the unit of repeat.			

Geometry- position and direction	Range 1 Explores space when they are free to move, roll and stretch. Developing an awareness of their own bodies, that their body has different parts and where these are in relation to each other. Range 2 Explores space around them and engages with position and direction, such as pointing to where they would like to go. Range 3 Shows an interest in size and weight • Explores capacity by selecting, filling and emptying containers, e.g. fitting toys in a pram. Beginning to understand that things might happen now or at another time, in routines. Range 4 Moves their bodies and toys around objects and explores fitting into spaces. Begins to remember their way around familiar environments. Responds to some spatial and positional language. Explores how things look from different viewpoints including things that are near or far away. Range 5 Responds to and uses language of position and direction. Predicts, moves and rotates objects to fit the space or create the shape they would like. Phase 6 Uses spatial language, including following and giving directions, using relative terms and describing what they see from different viewpoints. Investigates turning and flipping objects in order to make shapes fit and create models; predicting and visualising how they will look (spatial reasoning). May enjoy making simple maps of familiar and imaginative environments, with landmarks.	• describe position, direction and movement, including whole, half, quarter and three-quarter turns.	• 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 three-quarter turns (clockwise and anti-clockwise).	

statistics and probability			• interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data.	• interpret and present data using bar charts, pictograms and tables • 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.