Curriculum Intent

Maths

Principles
At Loughton Manor we feel that Maths is a vital part of the curriculum and is essential in providing our pupils with key skills needed for their futures.

By the time children leave Loughton Manor First School at the age of seven, they will:

- have a love of number and a positive attitude towards maths
- consider themselves to be a mathematician
- be resilient and keep on going if they find something challenging
- have a secure understanding of place value
- recognise numbers from 0 to 100 and beyond
- be able to count forwards and back from any given number in 1s 2s 5s 10s
- have an understanding of time
- have an understanding of 2D and 3D shapes in the environment
- be able to work out number bonds to 10 and apply that in wider contexts
- be accurate and fluent in the calculations: plus, minus, multiply, divide
- be able to choose the most efficient method, from a range of learned strategies, when finding an answer independently
- be confident in their mental arithmetic abilities
- be able to understand the value of number
- be able to understand and use mathematical symbols and language
- be able to solve everyday problems apply maths to everyday life
- be able to recognise and describe patterns
- develop an enjoyment from investigating mathematical concepts
- be able to estimate with appropriate accuracy
- be aware of and describe shapes in everyday life
- be able to make links and apply mathematical concepts to everyday life
- have the ability to reason mathematically

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Progression in Mathematical Skills and Understanding

NUMBER	Foundation Stage	Year 1	Year 2
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
Number and place value (KS1) **Number & Numerical Patterns (EYFS)**	Number one, two, three to twenty and beyond None Count on/up/to/from/down Before, after, more, less, many, few, fewer, fewest, smaller, smallest Equal to, the same as, odd, even Digit numeral compare Order size value Between, halfway between Subitise Double Number bonds	Greater, lesser Pair Units, ones, tens Ten more/less Figure (s) In order/ A different order Above, below Partition, recombine	Numbers to 100 Hundreds Hundred more/less
	Age 3-4 ● Fast recognition of up to 3 objects, without having to count them individually ('subitising'). ● Recite numbers past 5. ● Say one number for each item in order: 1,2,3,4,5. ● Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle'). ● Show 'finger numbers' up to 5. ● Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. ● Compare quantities using language: 'more than', 'fewer than'. **FS2** ● Count objects, actions and sounds. ● Subitise.	Pupils should be taught to: ● 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	Pupils should be taught to: ● 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 and = signs ● read and write numbers to at least 100 in numerals and in words ● use place value and number facts to solve problems.

	● Link the number symbol (numeral) with its cardinal number value ● Count beyond ten. ● Compare numbers ● Explore the composition of numbers to 10. ● Automatically recall number bonds for numbers 0–10. **ELG** **Number** ● Have a deep understanding of number to 10 including the composition of each number. ● Subitise (recognise quantities without counting) up to 5. ● 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. **Numerical Patterns** ● 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.		
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
Addition and Subtraction	Number line Add, more, plus, make, sum, total, altogether Double Half, halve Equals, is the same (including equals sign) How many more to make…? How many more is,,,then,,,? How much more is…? Subtract, take away, minus.	Number bonds Inverse Near doubles Difference between How many fewer is…than…? How much less is…?	
	Age 3-4	Pupils should be taught to:	Pupils should be taught to:

	● Experiment with their own symbols and marks as well as numerals. ● Solve real world mathematical problems with numbers up to 5. **FS2** ● Understand the 'one more than/one less than' relationship between consecutive numbers.	● 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.
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
Multiplication and Division	Odd, even Double, halve Share, share equally Group in pairs Equal groups of Divide	Once, twice, three times. Five times. Count in tens (forwards from/ backwards from) How many times? Lots of, groups of Multiple of, times, multiply, multiply by Repeated addition Array, row, column Group in twos, threes, etc. Divided by, left, left over	
		Pupils should be taught to: ● 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.	Pupils should be taught to: ● 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.
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
Fractions	Whole Equal One half	Equal parts, four equal parts Two halves A quarter, two quarters	Three quarters One third, a third Equivalent, equivalence
		Pupils should be taught to: ● 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.	Pupils should be taught to: ● recognise, find, name and write fractions 1/3, ¼ , 2/4 and ¾ of a length, shape, set of objects or quantity ● write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½ .
MEASUREMENT	**Foundation Stage**	**Year 1**	**Year 2**
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
	Full, half, empty Holds Container Weigh, weighs, balance Heavy, heavier, heaviest, light, lighter, lightest Scales Time Days of the week: Monday, Tuesday etc. Seasons: Spring, Summer, Autumn, Winter, days, week, month, year, weekend birthday, holiday morning, afternoon, evening, night Bedtime, over, under, underneath, above, below, top, bottom, side On, in, outside, inside In front, behind Front, back	Midnight Now, soon, early, late Quick, quicker, quickly, fast, slow, slower Old, older, oldest, new, newer, newest Takes longer, takes less time Hour, o'clock, half past Watch, hands How long ago? How long will it be to…? How long will it take to…? How often? Always, never, often, sometimes, usually Once, Twice… First, second, third, etc. Position Around Opposite Apart Between, edge, centre Corner Direction	Quarter past, to m/km g/kg ml/l Temperature (degrees)

	Before, after Beside, next to Middle Up, down, forwards, backwards. Sideways Close, far Through Towards, away from Side, roll, turn Sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round Solid Corner Face, side Make, build, draw Whole Equal One half Listen, join in Say, think, imagine, remember Start from Look at, point to Put What comes next? Find, use, make, build Tell me, describe, pick out, talk about, explain, show me Read, write Tick, draw a line, ring Cost Count, work out Number line, number track, number square, number cards dinnertime, playtime Today, yesterday, tomorrow Before, after, next, last Quickest, fastest, slowest Clock Once First, second, third Estimate Too many, too few Length, height Longer, longest, shorter, shortest, taller, tallest, higher, highest Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change How much? How many? Total	Journey Left, right Across Near Along To, from Movement Whole turn, half turn Stretch, bend Group Hollow Point, pointed Edge Equal parts, four equal parts Two halves A quarter, two quarters Place, fit Arrange, rearrange Change, change over Split, separate Carry on, continue, repeat Choose, collect Record, trace, copy, complete, finish, end Fill in, shade, colour, cross, draw, draw a line between, join (up), arrow Answer, check, same number(s), different number(s), missing number(s) Number facts Abacus, rods Best way, another way Close to, about the same as, just over, just under Enough, not enough Width, depth Long, short, tall, high Low, wide, narrow, deep, shallow, thick, thin Far, near, close Metre, ruler, metre stick Costs more, costs less, dear(er), cheaper, costs the same as	
Length Capacity Weight	**3-4** • Make comparisons between objects relating to size, length, weight and capacity **FS2**	Pupils should be taught to: • compare, describe and solve practical problems for: - lengths and heights [for example, long/short,	Pupils should be taught to: • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C);

	● Compare length, weight and capacity.	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	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 =
Money	Although this is not on the curriculum, we feel that it is important for children to gain awareness of money.	Pupils should be taught to: ● recognise and know the value of different denominations of coins and notes	Pupils should be taught to: ● 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
Time	**3-4** ● Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' **FS2** Although this is not on the curriculum, we feel that it is important for children to gain awareness of time, specifically ordering events in their daily routine.	Pupils should be taught to: ● 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. Measure and begin to record the following: ● time (hours, minutes, seconds	Pupils should be taught to: ● 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.
GEOMETRY	**Foundation Stage**	**Year 1**	**Year 2**
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
	Sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round	Group Hollow Point, pointed Edge	Size, Bigger, larger, smaller Symmetrical, line of symmetry Fold Match

	Solid Corner Face, side Make, build, draw		Mirror line, reflection Pattern, repeating pattern
Properties of shape	**3-4** ● Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. ● Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. ● Combine shapes to make new ones – an arch, a bigger triangle etc. ● Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc. ● Extend and create ABAB patterns – stick, leaf, stick, leaf. ● Notice and correct an error in a repeating pattern. **FS2** ● Select, rotate and manipulate shapes in order to develop spatial reasoning skills. ● Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. ● Continue, copy and create repeating patterns.	Pupils should be taught to: ● 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].	Pupils should be taught to: ● 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.
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
	Over, under, underneath, above, below, top, bottom, side On, in, outside, inside In front, behind Front, back	Position Around Opposite Apart Between, edge, centre Corner Direction	Rotation Clockwise, anticlockwise Straight line Ninety degrees turn, right angle

	Before, after Beside, next to Middle Up, down, forwards, backwards. Sideways Close, far Through Towards, away from Side, roll, turn	Journey Left, right Across Near Along To, from Movement Whole turn, half turn Stretch, bend	
Position and direction	**3-4** ● Understand position through words alone – for example, "The bag is under the table," – with no pointing. ● Describe a familiar route. ● Discuss routes and locations, using words like 'in front of' and 'behind'.	Pupils should be taught to: ● describe position, direction and movement, including whole, half, quarter and three quarter turns.	Pupils should be taught to: ● 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 anticlockwise).
STATISTICS	**Foundation Stage**	**Year 1**	**Year 2**
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**
			Count, tally, sort Vote Graph, block graph, pictogram Represent Group, set, list, table Label, title Most popular, most common, least popular, least common
			Pupils should be taught to: ● 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.
GENERAL/ PROBLEM SOLVING	**Foundation Stage**	**Year 1**	**Year 2**
VOCABULARY	**NEW TO FS**	**NEW TO YEAR 1**	**NEW TO YEAR 2**

	Listen, join in Say, think, imagine, remember Start from Look at, point to Put What comes next? Find, use, make, build Tell me, describe, pick out, talk about, explain, show me Read, write Tick, draw a line, ring Cost Count, work out Number line, number track, number square, number cards Counters, cubes, blocks, die, dice, dominoes, pegs, peg board Same way, different way In order, in a different order Mathematical reasoning	Place, fit Arrange, rearrange Change, change over Split, separate Carry on, continue, repeat Choose, collect Record, trace, copy, complete, finish, end Fill in, shade, colour, cross, draw, draw a line between, join (up), arrow Answer, check, same number(s), different number(s), missing number(s) Number facts Abacus, rods Best way, another way Not all, every, each	Predict Describe the pattern, describe the rule Find , find all, find different Investigate

Implementation

Further details of timetabling and organisation of the Maths Curriculum are to be found in the Maths Subject Policy

Key implementation principles are:

- Daily mental maths sessions throughout the school
- 2 or 3 Maths Inputs weekly for FS2
- Maths activities included within continuous provision
- Daily maths lessons for KS1 (1st Half Autumn Term in Yr1 continuous provision)
- Additional opportunities in KS1 to develop the language of properties of shape
- Additional opportunities in class to practise counting and number bonds activities, for example, to be used as a filler

Differentiation and Inclusion.

Questions will be differentiated in order to fully extend or support pupils with developing their mathematical understanding.

Numicon is used as an intervention throughout the school, for pupils requiring additional support.

The Maths 5 Minute Box is used in KS1 as an intervention for individual pupils.

Extension maths groups are taught weekly throughout the school to further extend more able pupils.

Assessment

Assessment in Maths is ongoing and occurs after each unit of work is taught. This is used to inform the highlighting of statements on the Target Tracker recording system, throughout school, which is then used to predict targets and assess rates of progress and attainment.

The EYFS Profile is used to make a final assessment at the end of the Foundation Stage and End of Key Stage Assessments (SATs) are used at the end of Year Two to assess pupils' levels. Both sets of data are reported as per DfE guidelines.