Curriculum Intent and Policy

"Building a life-long love of learning in a safe and happy school."

Maths

Principles

At Loughton Manor First School we passionately believe that all our children should consider themselves to be mathematicians. We teach a high-quality, broad and balanced mathematics curriculum including all aspects of the National Curriculum for Mathematics. We make this relevant, challenging and enjoyable for the children, enabling them to understand the value of mathematics in everyday situations. Whilst equipping children with the foundations of mathematics that are essential to everyday life, we also aim to foster a life-long enthusiasm and excitement for the subject. Children develop their mathematical language, with an emphasis on justifying their thinking and explaining their reasoning. We deepen children's understanding of concepts by planning for application of mathematical knowledge to solve a variety of types of problem presented in different ways.

Kommentiert [SM1]:

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

- Have a positive attitude towards maths.
- Be fluent in the fundamentals of maths, recalling and applying knowledge rapidly and accurately.
- Reason mathematically by justifying, making links to known facts, or providing proof using mathematical language.
- Be increasingly confident with mental calculations, developing and sharing their own flexible methods.
- Show resilience in maths if they find something challenging.
- Organise and record their work with increasing confidence and accuracy.

Reviewed by Subject Manager – Autumn 2024
Agreed by staff– Autumn 2024
Adopted by Governing Body –November 2024
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Place value				
	Count	**Represent**	**Use and compare**	**Problems/rounding**
FS1	Join in with number songs 1-5. Say numbers 1-5 in order. Count up to 5 objects, movements or sounds.	Make numbers to 5, starting with showing 1, 2, 3 on fingers.		
FS2	Say numbers 1-20 in order, forwards and backwards, recognising the pattern of the number system, including odd and even numbers.	Identify and represent numbers 0-10 using objects and pictorial representations. Read and write numbers 1-10 in numerals.	Compare 2 groups (of up to 10 in total) and say which is more and less and which are the same.	
Year 1	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count numbers to 100 in numerals. Count in multiples of twos, fives and tens.	Identify and represent numbers using objects and pictorial representations. Read and write numbers to 100 in numerals. Read and write numbers from 1 to 20 in numerals and words.	Given a number, identify one more and one less.	
Year 2	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.	Read and write numbers to at least 100 in numerals and in words. Identify, represent and estimate numbers using different representations, including the	Place value of each digit in a two-digit number (tens, ones) Compare and order numbers from 0 up to 100; use <, > and = signs.	Use place value and number facts to solve problems.

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		number line.		

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Addition and subtraction		
FS1	Subitise to 3. Count how many. Make and begin to have an understanding of numbers to 5. Add 1 more (through songs and rhymes). Take 1 away (through songs and rhymes).	
FS2	Conceptually subitise to 5. 1 more and 1 less up to teen numbers. Understand the composition of numbers within 10. Recall numbers bonds to 5 (addition and subtraction facts). Recall double facts up to 10. Combine 2 groups. Partition (using objects). Add up to 5 more. Take away up to 5.	
	Calculations	**Problems**
Year 1	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.
Year 2	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.	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.

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Multiplication and division			
FS1	Continue with counting and subitising skills as a foundation for later work on equal groups. (see addition and subtraction sections)		
FS2	Double to 10. Make equal groups. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally (through sharing and grouping).		
	Recall/use	**Calculations**	**Problems**
Year 1	Count in 2s, 5s and 10s.	Add equal groups. Make arrays. Make doubles. Make equal groups – grouping. Make equal groups – sharing.	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.
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	Calculate mathematical statements for multiplication and division within the multiplication tables (2, 5 and 10) and write them using the multiplication (×),division (÷) and equals (=) signs.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

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Fractions			
	Recognise and write	**Compare**	**Calculations**
FS1			
FS2	Recognise a half as one of two equal parts of an object.		
Year 1	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.		Find a half of a shape and number. Find a quarter of a shape.
Year 2	Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity.	Recognise the equivalence of 2/4 and 1/2.	Write simple fractions for example, ½ of 6 = 3.

Algebraic thinking	
	Note – although formal algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the 'missing number' objectives from Y1/2/3
Year 1	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9.
Year 2	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

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Measurement			
	Using measures	**Money**	**Time**
FS1	Make comparisons between objects relating to size, length, weight and capacity and show awareness of measures through play.	Recognise 1p and 2p coins through play. Role play shops with real money.	Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…' Understand times of the day and simple daily routines – morning, afternoon, night time, breakfast, lunchtime, dinner.
FS2	Compare length (longer or taller/shorter), weight (heavier/lighter) and capacity (empty, full, half-full).	Recognise 1p, 2p, 5p, 10p coins and understand 1 to many correspondence. Role play shops with real money.	Days of the week, months of the year, seasons. Know when their birthday is. Order daily routine. Recognise o'clock on an analogue clock.
Year 1	Compare, describe and solve practical problems for: • lengths and heights • mass/weight • capacity and volume • time 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.
Year 2	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (℃); 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 =.	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.

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Geometry			
	2d shapes	**3d shapes**	**Position and direction**
FS1	Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. Notice simple patterns in the environment. Begin to match 2d shapes in a game - *circle & square*. Select shapes appropriately: flat surfaces for building, a triangular prisms for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.	Select shapes appropriately: flat surfaces for building, a triangular prisms for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.	Compare quantities using language: 'more than', 'fewer than', 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'.
FS2	Continue, copy and create repeating patterns. 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, rotate and manipulate shapes in order to develop spatial reasoning skills. Recognise and name *circle, triangle, square, rectangle*. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.	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, 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. Recognise and name *cube, cuboid, sphere, cylinder*.	Describe a familiar route. Begin to use *small, medium and large, in front of, behind, on top of, under, next to* to describe position and measures.
Year 1	Recognise and name common 2- D shapes [for example, rectangles (including squares), circles and triangles].	Recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres].	Describe position, direction and movement, including whole, half, quarter and three-quarter turns.
Year 2	Describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.	Recognise and name common 3- D shapes [for example, cuboids (including	Order and arrange combinations of mathematical objects in patterns and sequences.

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	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 shapes and everyday objects.	cubes), pyramids and spheres]. Compare and sort common 3-D shapes and everyday objects.	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 (Year 2 only)		
	Present and interpret data	**Solve statistical problems**
Year 2	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.

Planning & Organisation

All children from FS2 to Year 2 take part in a "Mastering Number" session 4/5 days a week, provided by the NCETM. During these sessions, fluency in calculation and a confidence and flexibility with number are developed, providing an opportunity to revisit and review misconceptions and deepen understanding of previously taught content.

Foundation Stage

We use the reformed EYFS framework as a basis for our long-term planning in the Foundation Stage. The Mastering Number programme covers much of the Number and Numerical Patterns content. Additional maths lessons are planned and taught using the White Rose scheme to reinforce and extend children's number skills and cover other areas of learning that we believe are important and prepare children for Year1. Our young mathematicians will be provided with many exciting opportunities through planned purposeful play and a mix of adult-led and child-initiated activities.

Key Stage One

We use the White Rose scheme as our starting point, which is aligned with the National Curriculum for Mathematics for Key Stage One. This is a **mastery scheme,** encouraging a deeper understanding of the concepts taught by following a **CPA** (Concrete, Pictorial, Abstract) approach to ensure all children can access learning without the need of memorising mathematical procedures. The yearly and weekly overviews are used as our long term and medium term planning. Short-term weekly/daily plans are created by adapting the lesson plans, slides and resources provided in accordance with the children's needs. Planning is reviewed after each lesson and adapted accordingly.

Our daily mathematics teaching at Key Stage One is delivered in classes through 40 minute to one hour sessions. Our Mathematics curriculum provides many opportunities for children to develop confidence and fluency with whole numbers, counting and place value. The use of practical equipment, such as concrete objects and measuring tools, will support the children to gain a deeper conceptual understanding before being challenged through tasks and questions to explain their reasoning and solve a range of problems.

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The children are equipped with the skills to recognise shapes and their properties and use measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

Children also take part in a daily fluency session using Fluent Five. Fluent in Five provides a daily set of arithmetic practice, designed to help children develop and maintain fluency in both written and mental calculations. This enables regular practice of mental and written arithmetic skills to keep calculation skills fresh.

Teaching Methods

Mathematics lessons allow for collaborative learning and thus encourage children to talk in pairs, small groups or through class discussion to share learning. Lesson activities are scaffolded to suit the different abilities and learning styles. For those children who grasp concepts rapidly, their understanding will be deepened through a range of methods, whilst those not sufficiently fluent will be provided with opportunities to consolidate their understanding through additional practice and intervention within class. Children will work in a variety of ways during lessons - collaboratively, cooperatively and independently. We do not expect our mathematics' classrooms to be silent; they should be a buzzing hive of activity.

Home-School Partnerships

During the Autumn term each year we hold a Maths workshop to share with parents how maths is taught in our school. Parents experience some of the strategies and resources we use and are encouraged to ask questions with the aim of enabling them to support and reinforce their child's learning at home.

Cross-Curricular Links

We highlight links within other subjects and skills and encourage children to apply their mathematical knowledge. Maths has clear cross-curricular links with Science, Computing, Music, PE, Geography, Art and Design & Technology. For example, data handling supports science content and science content can contextualise and embed maths learning.

Outdoor Learning

At Loughton Manor First School we pride ourselves in our school grounds and benefit from a community rich with learning opportunities. We recognise the positive impact of Outdoor Learning on our children's development and plan Outdoor Learning opportunities whenever possible.

Assessment

A variety of methods are used to find out what the children know and understand. In Key Stage 1 children's understanding of taught concepts is assessed on an ongoing basis and using end of block assessment tasks, which provide opportunities for children to demonstrate their understanding fully. Results of these assessments are recorded in a class spreadsheet. We keep track of children's progress with end of term assessments, recording information on the programme INSIGHT, which informs termly discussions of pupils in Progress Tracking Meetings. Evidence of the children's learning journey through each Mathematics topic will be recorded in Maths books and on working walls.

Formal assessment takes place during the FS2 year of each child's education as their Foundation Stage Profile is compiled, which is informed by ongoing teacher assessment and records kept.

Resources

Each classroom has a range of basic mathematics equipment in labelled trays. There is also a large 100 square and a number line at the children's height. In the mathematics cupboard, situated in the Year 2 shared area, there is a large range of mathematics equipment in labelled trays. These are used by the year groups as required. In addition there are interactive whiteboards in every classroom throughout the school. Children in Key Stage One have a tray with a wide variety of equipment which they are able to choose from during their lessons to support their learning, including counters and base 10. Programmable toys; such as Bee-Bots, plus related activities and apparatus are used, for example, for positional language, compass points, etc.

Equal Opportunities

All children will have equal access to the mathematics curriculum in line with the school's Equal Opportunities Policy. This includes deployment of additional specific support where appropriate, e.g. for SEN, EAL, FSM and more able pupils.

Monitoring and Evaluation

Monitoring and evaluation will be within the remit of the Maths, Science Computing Team, a curriculum team which meets half termly. Their annual development plan will identify aspects for development/improvement that help to support and sustain our high standards. The plan details aspects to be monitored and evaluated, and identifies the members of staff/governors involved.

Roles and Responsibilities

The Maths Subject Leader together with the headteacher, Curriculum Team and the governing body is responsible for the review of the subject policy. It is the Maths Leader's role to support colleagues, review planning and ensure that the necessary resources are in school in order to deliver the National Curriculum Programmes of study. The Maths Subject Leader will keep abreast of current thinking within the teaching of Maths and communicate these ideas to the school staff.

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