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 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 believe we make this relevant, challenging and enjoyable for all 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 the use of mathematical language through speaking and listening, including reasoning and explanations. We challenge children's understanding of concepts through solving problems by applying their mathematical knowledge.

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

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Progression in Mathematical Skills and Understanding

	Number: Place Value	Number: Fractions
FS1	Sort and match objects. Count objects, movements, claps. Recite numbers to 5 and then to 10 in order. Being to recognise numbers to 5, then 10 Join in with number songs and rhymes, showing some awareness of counting to 5, then 10. Count objects with 1-1 correspondence (up to 5). Subitise with objects up to 3. Show awareness that each Numicon shape represents a number to 10.	
FS2	**Mastering Number** Further develop subitising and counting skills. Explore the composition of numbers within (Autumn) and then beyond (Spring) 5. Begin to compare sets of objects and use the language of comparison. Begin to identify when two sets are equal or unequal and connect two equal groups to doubles. Begin to connect quantities to numerals. Consolidate counting skills, counting to larger numbers and developing a wider range of counting strategies. Secure knowledge of number facts through varied practice. Order numbers to 5, then 10. 1 more and 1 fewer for numbers to 5, then 10.	Find half of real life objects. Develop understanding of the concept of half for objects and amounts by sharing fairly.
Year 1	**Mastering Number** Continue to explore the composition of numbers within 10, and the position of these numbers in the linear number system. Continue to explore the composition of numbers within 10 and explore addition and subtraction structures and the related language (without the use of symbols). Explore the composition of numbers within 20 and their position in the linear number system. They will connect addition and subtraction expressions and equations to 'number stories'). **Primary Stars** **Numbers to 10** Sort and count objects, including from a larger group. Represent objects. Recognise numbers as words. Count on from any number within 10.	Recognise a half of a shape or object. Find a half of a shape or object. Recognise half of a quantity. Find half of a quantity. Recognise a quarter of a shape or object. Find a quarter of a shape or object. Recognise a quarter of a quantity. Find a quarter of a quantity.

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	Count backwards within 10. Count one more and one less. Compare groups by matching. Fewer, same, more, less than, greater than, equal to. Compare numbers Order objects and numbers. Use a number line. **Numbers to 20** Count within 20, understanding each number to 20. Count one more and one less. Use a number line to 20, then estimate on the number line. Compare and order numbers to 20. **Numbers to 50** Count from 20-50. One more and one less. Recognise multiples of ten to 50. Groups of tens and ones. Partition into tens and ones. Use a number line to 50, then estimate on the number line. **Numbers to 100** Count from 50-100. Recognise multiples of ten to 100. Partition into tens and ones. Use a number line to 100, then estimate on the number line. Compare numbers with same number of tens. Compare any two numbers.	
Year 2	**Mastering Number** Consolidate understanding and recall of number bonds within 10; re-cap the composition of the numbers 11 to 20 and reason about their position within the linear number system. Use knowledge of the composition of numbers within 10 to calculate within 20; explore the links between the numbers in the linear number system within 10 to numbers within 100, focusing on multiples of 10 and the midpoint of 50. Further opportunities to use their knowledge of the composition of numbers within 10 to calculate within 20 and to reason about equations and inequalities. **Primary Stars** Numbers to 20. Count objects to 100 by making 10s. Recognise tens and ones.	Introduction to parts and wholes. Equal and unequal parts. Recognise a half, quarter, third. Find a half, quarter, third. Find the whole. Unit fractions. Non-unit fractions. Recognise the equivalence of ½ and 2/4. Recognise ¾. Find ¾. Count in fractions up to a whole.

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	Use a place value chart. Partition numbers to 100. Write numbers to 100 in words. Flexibly partition numbers to 100. Write numbers to 100 in expanded form. 10s and 1s on the number line to 100. Estimate numbers on a number line. Compare and order objects and numbers. Count in 2s, 5s, 10s and 3s.	

	Addition & Subtraction	Multiplication & Division
FS1		
FS2	Know number bonds automatically for numbers up to 5. Solve simple addition and subtraction number sentences using resources up to 10.	Recognise some doubles up to 10. Begin to explore 2 and 5 times tables by looking at patterns on the 100 square.
Year 1	Introduce parts and wholes and the part-whole model. Write number sentences. Fact families – addition facts. Number bonds within and then to 10 and systematic methods. Addition – add together, add more. Addition problems. Find a part. Subtraction – find a part. Fact families – 8 facts. Subtraction – take away/cross out (how many left?). Subtraction on a number line. Add or subtract 1 or 2. Add by counting on within 20. Add ones using number bonds. Find and make number bonds to 20. Doubles and near doubles. Subtract ones using number bonds. Subtraction – counting back. Subtraction – finding the difference. Related facts. Missing number problems.	Count in 2s, 10s, 5s. Recognise equal groups. Add equal groups. Make arrays. Make doubles. Make equal groups – grouping. Make equal groups – sharing.
Year 2	Bonds to 10. Fact families – addition and subtraction bonds to 20. Related facts.	Recognise equal groups. Make equal groups. Add equal groups.

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	Bonds to 100 (tens). Add and subtract 1s. Add by making 10. Add three 1-digit numbers. Add to the next 10. Add across a 10. Subtract across a 10. Subtract from a 10. Subtract a 1-digit number from a 2-digit number – across a 10. 10 more and 10 less. Add and subtract 10s. Add two 2-digit numbers – not across a 10. Add two 2- digit numbers –across a 10. Mixed addition and subtraction. Missing number problems.	Introduce the multiplication symbol. Multiplication sentences. Use arrays. Make equal groups – grouping. Make equal groups – sharing. The 2 times-table. Divide by 2. Doubling and halving. Odd and even numbers. The 10 times-table. Divide by 10. The 5 times-table. Divide by 5.

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	Patterns	Geometry: Shape	Geometry: Position & Direction
FS1	Begin to notice simple patterns during play e.g. colour patterns on peg boards, printing when painting. Talk about patterns in the environment. Create and extend ABAB patterns.	Show an interest in playing with shapes. Show an interest in sorting and matching different objects. Begin to show awareness that objects are different shapes. Begin to match 2d shapes in a game - circle & square. Play with and talk about 2D shapes (square, circle, triangle, rectangle). Name simple 2D shapes (square, circle, triangle, rectangle).	Understand the use of positional language (in, on, under). Put toys in position in response to language e.g. put the bear in front of the table.
FS2	Show awareness of pattern in number and shape. Use familiar objects and simple shapes to create and extend patterns. (ABAB, AABB) Use familiar objects and 2D and 3D shapes to create patterns.	Recognise 2D shapes (circle, square, triangle, rectangle, pentagon, hexagon, semi circle, oval, octagon). Talk about properties of 2D shapes (number of sides, number of corners, flat). Explore 3D shapes whilst at play (cube, cuboid, cylinder, sphere). Names 3D shapes (sphere, cube, cuboid, cylinder, cone and pyramid). Begin to describe the properties of 3d shapes (sphere, cube, cuboid, cylinder, cone and pyramid, fat, roll, stack, face). Manipulate shapes to build models and create representations.	Use in front of, behind, on top of, under, next to describe position. Use Beebots, describing movement forwards, backwards, turn.
Year 1	Make patterns with 2D and 3D shapes.	Recognise and name 2D shapes (circle, square, triangle, rectangle, pentagon, hexagon, semi circle, oval, octagon). Sort 2D shapes. Recognise and name 3D shapes (sphere, cube, cuboid, cylinder, cone and pyramid). Sort 3D shapes.	Describe turns. Describe position – left and right, forwards and backwards, above and below. Ordinal numbers.
Year 2	Make patterns with 2D and 3D shapes. Shape patterns with turns.	Count sides and vertices on 2D shapes. Draw 2D shapes. Recognise and draw lines of symmetry. Use lines of symmetry to complete shapes. Sort 2D shapes Count faces, edges and vertices on 3D shapes. Sort 3D shapes	Describe movement. Describe turns – quarter, half, three quarter, full, clockwise, anti-clockwise.

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	Measurement: Length & Height	Measurement: Mass, Capacity & Temperature	Measurement: Money	Measurement: Time
FS1	Make comparisons of length and size: long, short, big, little, tall, short, huge, small.	Explore weight and capacity: weight- heavy, light capacity- full, empty.	Through role play begin to show awareness of money.	Use language of time (first, then, next, after).
FS2	Use small, medium and large to describe objects.	Explore weight and capacity: weight- heavy, light capacity- full, empty.	Use Numicon to explore and understand the value of coins 1p, 2p, 5p, 10p.	Use language of time (first, then, next, after). Measure time. What can you do in a second? What can you do in a minute?
Year 1	Compare lengths and heights. Measure length using objects. Measure length in centimetres.	Heavier and lighter. Measure mass. Compare mass. Full and empty. Compare volume. Measure capacity. Compare capacity.	Unitising. Recognise coins. Recognise notes. Count in coins.	Before and after. Days of the week. Months of the year. Hours, minutes and seconds. Time to the hour. Time to the half hour.
Year 2	Measure length in centimetres. Measure length in metres. Compare lengths and heights. Order lengths and heights. Four operations with lengths and heights.	Compare mass. Measure in grams. Measure in kilograms. Four operations with mass. Compare volume and capacity. Measure in millilitres. Measure in litres. Four operations with volume and capacity. Measure temperature.	Count money – pence. Count money – pounds (notes and coins). Count money – pounds and pence. Choose notes and coins. Make the same amount in different ways. Compare amounts of money. Calculate with money. Make a pound. Find change. Two-step problems.	O'clock and half past. Quarter past and quarter to. Tell the time past the hour. Tell the time to the hour. Tell the time to 5 minutes. Minutes in an hour. Hours in a day.

	Statistics
Year 2	Make tally charts. Tables, block diagrams. Draw and interpret pictograms (1-1 value, then 2, 5 and 10)

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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 most of the Number and Numerical Patterns content. Additional maths lessons are planned and taught to reinforce and extend children's number skills and cover other areas of learning that we believe are important. We create termly medium term planning using the EYFS framework in conjunction with Development Matters (non-statutory curriculum guidance). Short-term plans are developed during year group weekly planning meetings. 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 scheme 'Primary Stars' 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. 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 in Five scheme. 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

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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 using the programme Target Tracker, which feeds into termly levelling of pupils which is used 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 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. For use during mathematics lessons are programmable toys; such as Bee-Bots, plus related activities and apparatus. These can be used, for example, for positional language, compass points, etc.

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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 these 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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