



# Maths

## Curriculum Statement





### Intent

In maths, children develop their mathematical concepts and structures through a consistent mastery approach, following the national curriculum for mathematics. We aim for children to develop a deep and conceptual understanding of mathematics through a high quality maths curriculum. They are taught mathematical concepts through a concrete, pictorial, abstract approach and become fluent in the fundamentals of mathematics through varied and frequent practice.

At Loxdale Primary School, our aims are to ensure all our children:

- become fluent in the fundamentals of mathematics;
- have the ability to recall and apply knowledge rapidly and accurately to a range of mathematical problems and situations;
- reason mathematically using appropriate mathematical language;
- solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication;

Children are taught in class groups, however decisions about when to progress are always based on the security of the children's understanding and their readiness to progress to the next stage. Children who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems or are encouraged to explore the concept more deeply using the mastery approach before any acceleration to new content. It is expected that children see the links between mathematical facts and other mathematical content and not in isolation. Those children who are not sufficiently fluent with earlier concepts should consolidate their understanding, including through additional practice, before moving on. Within the mastery maths approach, we use 'adaptive teaching' to scaffold learning to ensure all children understand mathematical structures and concepts within lessons.

At Loxdale, we offer children an understanding of maths in the wider world so they can apply their knowledge in a range of different contexts. We want all children to have a passion and a positive attitude towards maths.

### Implementation

At Loxdale Primary School we predominantly use NCTEM maths approach, whereby lessons are focussed on mastery maths learning. We enhance this with the White Rose Scheme and other resources such as Classroom Secrets, to ensure a blended approach and so that concepts are not solely taught alone and are provided with a spiral approach. Daily mathematics lessons provide opportunities in which the children are required to apply their



knowledge and skills through justifying and explaining their learning using appropriate mathematical language and terms.

In **Early Years Foundation Stage**, the children are exposed to range of maths concepts which focus primarily on: Number and Numerical Patterns. As well as learning the number names, counting, comparing numbers a big focus is on subitising.

Learning takes place through a series of adult focussed activities, child initiated learning and through good quality provision which supports mathematical thinking. Resources to support mathematical thinking, learning and mathematical challenges are part of daily provision in EYFS. It is expected that by the end of Reception children will be at the expected level of development in number and will be able to: 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 know number bonds to 10, including double facts.

It is expected that by the end of Reception children will be at the expected level of development in numerical patterns and will be able to: 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.

In **Key Stage 1**, the principal focus of mathematics teaching in Key Stage 1 is to ensure that children develop confidence and mental fluency with whole numbers, counting and place value. This will involve working with numerals, words and the basic operations, including practical resources. By using concrete resources, the concepts of subitising and developing a deep understanding of number the children can access a wider range of mathematical concepts and explore these including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The children's understanding is extended through relating the 'concrete' stage to the 'pictorial' step. Through using pictures and visual representations, the children develop a deep understanding of number and mathematical concepts. Relating this to numbers and mathematical operations involves the 'abstract' stage in which the concrete (practical resources) along with the pictorial representations relates to the numbers they see in calculations.

The children should also apply their mathematical knowledge to science and other subjects where possible in order to make cross-curricular links, to enable the knowledge to be further embedded in a variety of contexts.



Children will also develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching will involve the use of a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Key Stage 1, children will also be able to read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1 and will be able to transfer their skills to other curriculum subject learning opportunities; be secure in their number bonds to 20.

**In Key Stage 2**, the principal focus of mathematics teaching in Years 3 and 4 is to ensure that our children become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This will ensure they develop efficient written and mental methods and perform calculations accurately with increasingly large numbers. As with younger children, the teaching of mathematical concepts will use the concrete, pictorial and abstract approach.

In addition, our children will be encouraged to develop their ability to solve a range of problems, including simple fractions and decimal place value. Teaching and learning will also ensure children can draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. Children will use all of these skills and concepts through a range of approaches to maths lessons. Children will be expected to apply their mathematical learning to other curriculum areas.

By the end of Year 4, we also aim for children to know their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. They will be expected to make use of their rapid recall of multiplication tables when undertaking the national MTC (Multiplication Tables Check).

Within Years 5 and 6, we aim to ensure the children have extended their understanding of the number system and place value through the concrete, pictorial and abstract approach and are able to make connections between multiplication and division with fractions, decimals, percentages and ratio. Children will also have developed their skills in solving a wider range of problems including increasingly complex properties of numbers and arithmetic, and problems requiring efficient written and mental methods of calculation. Children will be required to reason using increasingly more accurate mathematical language and will demonstrate their learning in a variety of ways, including applying their concepts and skills to other curriculum subjects.

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Children will also be introduced to the language of algebra as a means of solving a variety of problems and be able to classify shapes using the vocabulary to describe them.

By the end of Year 6, we aim for children to be fluent in written methods for all four operations including long multiplication and division.

The national curriculum for mathematics reflects the importance of spoken language in children's development across the whole curriculum - cognitively, socially and linguistically; therefore the prominence of this is embedded throughout all maths lessons across school. At Loxdale we believe that the quality and variety of language that children hear and speak are key factors in developing their mathematical vocabulary and provide them with a structure and foundations in order to enable them to present mathematical justifications, arguments or proof. Staff assist, scaffold and support children in making their thinking clear to themselves as well as others; and ensure that children use discussion regularly to probe and remedy their misconceptions.

### Impact

At Loxdale, we believe our maths curriculum provides opportunity for children to be prepared for future learning, citizens of the future and who can have the ability to thrive in life.