

Helmshore Primary School



Mathematics Curriculum: Intent, Implementation & Impact





Intent

“To be the best mathematicians we are able to be.”

At Helmshore Primary School we believe that Mathematics is essential to everyday life. It is also critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. Therefore a high-quality mathematics curriculum will provide a foundation for understanding the world, the ability to reason mathematically, apply mathematics to solve intriguing problems and a sense of enjoyment and curiosity about the subject.

At Helmshore Primary School we aim to ensure that all children:

- enjoy mathematics and study it with confidence and a sense of achievement
- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Implementation

At Helmshore Primary School we offer a broad and balanced curriculum which builds on the knowledge, understanding and skills of all our children. Our Mathematics curriculum is based on the National Curriculum and is delivered in a well-structured approach which builds on the children's fluency, mathematical reasoning and problem solving from Reception to Year Six incorporating the three key elements of Maths Mastery: concrete, pictorial and abstract.

Concrete: children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

Pictorial: children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

Abstract: children can move to an abstract approach using numbers and key concepts

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Early Years Foundation Stage:

Children explore and use a variety of concrete materials through a combination of child initiated and adult directed activities to:

- Have a deep understanding of number to 10, including the composition of each number
- Subitise up to 5
- Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

- 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
- to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures

In addition children in the EYFS participate in the Mastering Number programme supported by the NCETM.

Key stage 1:

The principal focus of mathematics teaching in key stage 1 is to ensure that children will:

- Develop confidence and mental fluency with whole numbers, counting and place value; involving working with numerals, words and the four operations, including with practical resources.
- Develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.
- Use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, children should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Children should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

In addition, children in Key Stage 1 participate in the Mastering Number programme supported by the NCETM.

Lower Key stage 2:

The principal focus of mathematics teaching in lower key stage 2 is to ensure that children:

- Become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that children develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- Develop their ability to solve a range of problems, including with simple fractions and decimal place value.
- Can draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them.
- Can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, children should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Children should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper key stage 2 is to ensure that children:

- Extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.
- Develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems.
- When working on geometry and measures consolidate and extend knowledge developed in number
- Classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, Children should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Children should read, spell and pronounce mathematical vocabulary correctly.

Impact

Our Mathematics curriculum is effective as the children are excited to learn in mathematics and achieve well.

Formative assessment ensures that children are supported and challenged appropriately in future lessons.

Through talking with children we know that the children enjoy their Mathematics lessons.

We track the progress children have made for Mathematics each term. We report the children's achievements in line with age related expectations to parents at the end of each year.

Our most recent data shows that the expected standard (100+) attainment at Key Stage 2 was significantly above the national standard and in the highest 20% of all schools. It also shows that Key Stage 2 attainment of the high standard (110+) was significantly above the national standard and in the highest 20% of all schools.

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