Here at Holmer Green, we are passionate about maths! We aim to develop our children as mathematicians who enjoy engaging with the processes of problem solving over and above the completion of the actual calculations involved. We embed the core skills of addition, subtraction, multiplication and division, realising the importance and application of number in an everyday real life context. We promote the importance of learning the multiplication tables and their related division facts through fun, effective, relevant lessons, celebrating individual achievements along the way. We develop an understanding of shape, data and measures through practical creative lessons which are often cross-curricular and encourage pupil led investigations. Our teaching of mathematics aims to equip children with the necessary numeracy skills to allow them to use different methods and strategies in everyday life as they continue on their learning journeys.

Aims and objectives

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.
Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

The aims of mathematics are:

- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- to promote confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts, persevering in seeking solutions and breaking down problems into a series of smaller steps
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;

- to understand the importance of mathematics in everyday life.

HGJS adopts a whole school mastery approach to teaching mathematics.

Key Features of the mastery approach

Curriculum design

A detailed, structured curriculum is mapped out across all phases, ensuring continuity and supporting transition. The mathematics curriculum is designed in relatively small, carefully sequenced steps, which must each be mastered before pupils move to the next stage. Fundamental skills and knowledge are secured first. This often entails focusing on curriculum content in considerable depth at early stages.

Teaching resources

Concrete and pictorial representations of mathematics are chosen carefully to help build procedural and conceptual knowledge together. Exercises are structured with great care to build deep conceptual knowledge alongside developing procedural fluency. The focus is on the development of deep structural knowledge and the ability to make connections. Making connections in mathematics deepens knowledge of concepts and procedures, ensures what is learnt is sustained over time, and cuts down the time required to assimilate and master later concepts and techniques.

Additional Resources

There is a range of additional resources to support the teaching of mathematics across the school. All classrooms have a number line, hundred square, Dienes blocks or place value counters and a wide range of appropriate small apparatus in the form of maths packs. Other relevant resources are also available and the library contains a range of books to support children's individual research. A range of software is available to support work with the computers and on ipads.

Lesson design

Lessons are crafted with care and set out, in detail, well-tested methods to teach a given mathematical topic. They include a variety of representations needed to introduce and explore a concept effectively and also set out related teacher explanations and questions to pupils. All tasks are chosen and sequenced carefully, offering appropriate variation in order to reveal the underlying mathematical structure to pupils.

Teaching methods

Teachers are clear that their role is to teach in a precise way which makes it possible for all pupils to engage successfully with tasks at the expected level of challenge. Pupils work on the same tasks and engage in common discussions. Concepts are often explored together to make mathematical relationships explicit and strengthen pupils' understanding of mathematical connectivity. Precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.

Pupil support and differentiation

Differentiation occurs in the support and intervention provided to different pupils, not in the topics taught. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content.

Mathematics curriculum planning

Mathematics is a core subject in the National Curriculum, and we use the New National Curriculum 2014 for Maths to implement the statutory requirements of the programme of study for mathematics.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The New National Curriculum 2014 for Maths gives a detailed outline of what we teach in the long term across the whole school, while our yearly teaching programme identifies the key objectives in the programmes of study for mathematics that we teach each year. We follow the White Rose Hub programme of study which allows for greater time to be spent on each topic. It outlines the termly objectives by year and ensures fundamental skills and knowledge are mastered before moving to the next stage.

Contribution of mathematics to teaching in other curriculum areas

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. Children use and apply mathematics in a variety of ways when solving problems using ICT. Children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. The use of ipads also provides a platform for children to practise their times tables. Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present all children with real-life situations in their work on the spending of money and financial capability. The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results. The study of famous mathematicians around the world contributes to the cultural development of our children.