MATHEMATICS

Intent:

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. A high-quality mathematics education 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.

Implementation

At Handforth Grange, we use the White Rose Math's curriculum to provide a determined, ambitious, connected curriculum accessible to all pupils from Nursery to the end of Year 6. The White Rose curriculum allows pupils to be able to reason, solve problems and become fluent in the fundamentals of mathematics. As well as teaching the National Curriculum aims, the program also supports students to become visualisers, describers and experimenters.

The White Rose curriculum, places learning into blocks and separates the blocks into steps. The frameworks then breaks down what children need to learn during each week of each term to master the learning objectives laid out by the National Curriculum. At Handforth Grange, we follow the curriculum step by step and use the interactive resources, question sheets and challenges to provide the children with an in depth mathematical knowledge.

Throughout the White Rose curriculum, there is a huge emphasis on sequences. To learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication. Following the White Rose curriculum an emphasis is put in number first (place value, number sequencing and calculation).

In EYFS and Key Stage 1, more hands-on activities alongside questions are used throughout the curriculum. Each step can include an activity to be led by the teacher, an outside activity, one that uses resources from nature, an activity introduced by a reading from an appropriate fiction or non-fiction book or an investigation.

In all Key Stages, worksheets symbols are used to indicate adaptations and support for children e.g when concrete resources might be useful to help answer a question, prompting the children to talk about and compare their answers. Questions are structured differently and require reasoning to ensure misconceptions are limited. Each step, has key questions that can be posed to children to develop their mathematical vocabulary and reasoning skills, dig deeper into the content. Consolidation time is provided during spring and summer term to address any gaps or misconceptions.

In all Maths sessions, we ensure high pitch and deep-practice. Pupils work through mathematical problems and questions to develop an in depth mathematical understanding. Each lesson focuses on developing individual knowledge and may also involve paired work or group collaboration.

Structure

At Handforth Grange Primary School, we structure our daily mathematics lessons following the White Rose curriculum;

EYFS

- Active starter – number or maths song based upon learning step for overlearning.
- 'Flashback 4' – a page of questions for the children to discuss and complete both individually and in pairs.
- Input – interactive slideshow with examples, teacher talk and modelling.
- Task - Children complete an activity in small groups or individually.

Years 1-6

- Timestables - times tables to promote fast recall of multiplication and division facts
- 'Flashback 4'- a page of overlearning questions for the children to complete independently to assess knowledge and misconceptions.
- Interactive slideshow – each page follows a, my turn your turn pattern to ensure children develop knowledge using teacher modelling and display understanding by completing questions individually. A revision of language and support is used to adapt learning to suit differing abilities in the classroom.
- Step based questions – each child will complete questions/calculations or an activity linked to the step being developed. All children complete an expected level sheet, worksheet symbols are used to adapt learning as well as support. Children's knowledge is assessed throughout teacher making and misconceptions are addressed.
- Challenge – a challenge will be provided for children to extend learning.
- Each week, the children also take part in a written calculation lesson to support the development of calculation methods. We do this each week to ensure the children have a secure understanding of concrete and mental methods e.g. partitioning.

During each session pupils will record in books:

- The date and learning objective will be evident daily
- Any questions will be stuck into books daily for pupils to work on in books.

- Teachers will then feedback to pupils directly into books so that pupils can then respond to feedback daily in their books.
- All work will follow the White Rose curriculum.
- All working out will be recorded in books
- There will be emphasis on high-standards of presentation (including one number per square and accurate number formation and accurate layout of efficient written methods)

Impact

- The Mathematics subject leader ensures, through weekly monitoring, that the expectations are sufficiently high to match the curriculum; use the appropriate methods proscribed in the programmes of study and ensure the breadth and depth inherent in a broad and balanced curriculum. These expectations supplement our planning to address misconceptions and gaps in knowledge from previous years.

- The children's learning is tracked through termly summative assessments. Data is gathered in and analysed to feed into the planning of support and interventions.

- All children should progress and become fluent in the fundamentals of mathematics, to be able to reason, to solve problems and have a good understanding of mathematical concepts.