



Mathematics Strategy

Ethos

At Avanti House Primary School we believe that mathematics is a tool that equips the children to understand and change the world. To be fully integrated into society we all need to be able to communicate mathematically, which includes being able to reason, solve problems, and to think abstractly.

Aims and Objectives

The **National Curriculum** for mathematics aims to ensure that all pupils:

- 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.

Our aims in teaching mathematics are:

- To equip all pupils with the mathematics they need to become numerate
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world
- To develop each pupil's ability to apply mathematical skills with confidence and understanding when solving problems
- To enable pupils to express themselves and their ideas with assurance, using the language of mathematics
- To develop positive attitudes to mathematics, recognising that mathematics can be both useful and enjoyable
- To be able to use and apply the skills in other curricular areas and everyday life.

Principles of Teaching and Learning in a Mastery Curriculum:

The school uses a **variety of teaching and learning styles** in mathematic lessons. Groupings within classes are flexible and pupils will work in different groups dependent on their need. **Practise and consolidation** play a central role to mathematics learning. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem. Teachers use precise **questioning** in class to test conceptual and procedural knowledge and assess pupils regularly to identify those requiring intervention so that all pupils continue to make progress Teachers ensure that concepts are modelled to pupils using **multiple representations**. This ensures that **procedural and conceptual** understandings are developed simultaneously.

Curriculum Design

Effective mastery curricula in mathematics are 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.

Lesson Design

Lessons are crafted with similar care and are often perfected over time with input from other teachers, drawing on evidence from observations of pupils in class. They include a variety of representations needed to introduce and explore a concept effectively and set out related teacher explanations and questions to pupils.

Pupil Support and Differentiation

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is some differentiation - with the exception of certain pupils for whom it is difficult to access the curriculum - in content taught, however the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining pupils challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and where possible addressed with rapid intervention – commonly through individual or small group support later.

Productivity and Practice

Fluency comes from deep knowledge and practice; pupils work hard and are productive. At early stages, explicit learning of multiplication tables is important in the journey towards fluency and contributes to quick and efficient mental calculation. Practice leads to other number facts becoming second nature. The ability to recall facts from long term memory and manipulate them to work out other facts is also important.

Maths Curriculum Planning

Mathematics is a core subject in the National Curriculum and we use the objectives from this alongside with the White Rose Maths Hub scheme – small steps to support planning and to assess children's progress. Staff should use long term planning to ensure coverage of all areas of the National Curriculum. It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objective for each lesson and gives details of how the lessons are to be taught.

Assessment, Record Keeping and Reporting

Assessment, record keeping and reporting in mathematics follows the Assessment for Learning Policy.

Classroom Displays

Each classroom must have a working wall in the classroom, which should be interactive and encourage children to experiment with mathematical concepts. There could be examples of the current topic (for example post-it notes, flip chart displays, photos, display of children's learning, etc.) as well as more permanent features (such as a number line, a hundred square, etc.) which respond to the needs of the class as a whole. Mathematical vocabulary and some challenge activities could be a part of displays.

Home Learning

Children are given tasks to complete at home on a regular basis. Home learning is set to support the mathematics that children are covering in school, such as learning times tables and number bonds. In addition, the school has purchased licenses for the online mathematics program: Mathletics, as additional home learning.

Moderating and Review

Moderating of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leaders alongside members of the senior leadership team. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

Linked Documents

- SEND Policy
- Learning and Teaching Policy
- Assessment for Learning Policy
- Equal Opportunities Policy
- Calculation Policy
- White Rose Maths Mastery