



**MELLERS PRIMARY SCHOOL  
MATHS POLICY  
JUNE 2021**

## National Curriculum

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of Maths'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. 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.

## Vision for Maths

The teaching of mathematics at Mellers is aspirational and inspirational. We aim to provide high quality teaching that will deepen understanding and enable each individual to achieve their full potential. We strive to equip our pupils with skills, knowledge and a lifelong love of the subject. In order to become competent mathematicians, we believe children should have opportunities to explore structure and pattern; to explain their mathematical thinking and to make sense of abstract concepts. We want them to savour success whilst developing resilience, to ask questions as well as answer them and experience moments of awe and wonder rather than fear.

## INTENT

### Aims and objectives

At Mellers Primary School the intent is for our maths teaching to enable each child to develop their learning and achieve their full potential. We endeavour to not only develop the mathematics skills and understanding required for later life, but also to foster an enthusiasm and fascination about maths itself. We aim to increase pupil confidence and ambition in maths so they are able to express themselves and their ideas using the language of maths with assurance. We aim to inspire and excite students by making learning exciting, personalising our interactions with pupils through feedback and expectations, promoting independent study and encouraging risk taking by rewarding the process not just the final outcome.

Our aim is to ensure that all children:

- Become **Fluent** in the fundamentals of mathematics, including varied and frequent practice using increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Are able to **Reason and Explain** 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 skill and confidence, including breaking down problems, persevering in tasks and being able to consider a variety of approaches.

At Mellers, we value and encourage, across all classrooms, talk opportunities, a concrete, pictorial, abstract path to learning which supports pupils to work towards having the resilience and skills

required to be real life problem solvers and to be fluent in both their number skills and ability to express their understanding.

## **Maths curriculum planning**

We have developed a mastery approach to the curriculum and use this as a basis for planning.

Planning is supported by a number of resources including 'Maths No Problem', White Rose and NCETM. These resources address the aims of the mastery curriculum and provides lessons that have been carefully crafted as a result of mathematical research.

The mastery approach is based on pupils being taught longer units of work over the course of the year to ensure that they have the time to cover the different areas of mathematics in more depth.

- Our long-term planning sets out the length of each unit of work and where it will be taught within a year.
- The medium-term planning ensures that all objectives have been covered from the curriculum and allows us to use assessment data to ensure the needs of the pupils are being met.
- Short term planning is carried out weekly and shows in greater depth the concepts that will be taught and practised over the course of a lesson. It should be clear how pupils are challenged and supported within the lesson and how progress will be assessed.

Teachers are expected to reflect upon lessons and adapt planning when appropriate. Planning is monitored by the maths leader annually.

## **IMPLEMENTATION**

### **Pedagogy**

A deep understanding of pedagogy is key to the effective delivery of our maths curriculum. All teachers have received training to understand its importance in both the planning and teaching stages. We based our knowledge on the five core principles of the mastery approach:

- Coherence: small steps of coherent development are planned for within lessons.
- Representation and structure: mathematical concepts and problems are shown through the use of concrete, pictorial and abstract representations and attention is drawn to patterns and relationships.
- Variation: questions asked within a lesson are structured carefully to draw attention to the patterns and relationships
- Fluency: planning enables pupils to become fluent by making sense of mathematical concepts rather than simply learning facts
- Mathematical thinking: lessons are planned with opportunities for pupils to reason, solve problems and work collaboratively

We also use 'Rosenshine's Principles of Learning' to ensure that the teaching is based on cognitive science and research. The principles are:

- 🛡️ Begin a lesson with a short review of previous learning

- 🛡 Present new material in small steps with student practice after each step
- 🛡 Ask a large number of questions and check the responses of all students
- 🛡 Provide models
- 🛡 Guide student practice
- 🛡 Check for student understanding
- 🛡 Obtain a high success rate
- 🛡 Provide scaffolds for difficult tasks
- 🛡 Require and monitor independent practice
- 🛡 Engage students in weekly and monthly review.

## **TEACHING METHODS AND APPROACHES**

The teaching of mathematics must contain the following:

- Revisit: an opportunity to answer questions with the aim of committing strategies to the long-term memory
- An anchor task: used to present a problem, usually in a real-life context, at the start of a lesson. This engages the pupils, facilitates discussion and provides a useful assessment opportunity for teachers.
- Let's learn: used to focus the pupils' attention on the key concepts and strategies that will be developed in the lesson.
- Guided practice: questions to work collaboratively on to apply the skills and strategies.
- Challenge: an opportunity for pupils that's have grasped the concept quickly to deepen their understanding
- Support: identification of how struggling learners will be support to meet the expectations of the lesson
- Journaling: a recording activity that encourages pupils to reflect on what they've learnt in the lesson.

## **Foundation Stage**

We teach maths as a discrete subject in the Foundation Stage. We focus on the pupils having secure number sense and achieve this by planning very small steps of progress in understanding the numbers to 10. This includes a knowledge of composition, cardinality, counting and pattern. We recognise that the ability to subitise is key to the pupils being able to work fluently as they progress through key stage one. The children participate in short, focussed sessions and then have access to learning in continuous provision. The structure of a lesson gives opportunities to revisit prior learning, learn a new concept, practise the concept and then apply it to a new problem. The adults observe and make assessments of how they can support and challenge pupils further.

## **The contribution of mathematics to other subjects**

The teaching of mathematics is more effective when developed in a holistic way. There are clear links to how maths can be developed in other subjects for example science and design technology. We also encourage that the concept of time is on a daily basis with adults drawing pupils' attention to time at varying intervals during the day. Pupils across all year groups should be given opportunity

to develop skills of working collaboratively to solve problems and to ask questions in all areas of learning.

## **Special educational needs (SEN)**

At our school we teach Maths to all children, whatever their ability. Maths forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Maths teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

Children identified with special educational needs and needing additional support will be provided with an Individual Provision Map (IPM). The IPM may include, as appropriate, specific targets relating to maths. We enable pupils to have access to the full range of activities.

## **Equal opportunities**

As a staff we endeavour to maintain an awareness of, and to provide for equal opportunities for all our pupils in mathematics. We aim to consider cultural background, gender and language differences, both in our teaching attitudes and in the published materials we use with our pupils.

## **Resources**

We value the use of high-quality resources in maths and carefully choose manipulatives that enable all pupils to develop a conceptual understanding. We believe that the 'Maths No Problem' scheme matches our ethos and resource our classes according to their philosophy.

Resources for the delivery of the maths curriculum are stored both centrally and in classrooms. Everyday basic equipment is kept in classrooms. Additional equipment and topic-specific items are stored centrally. There are central stores in the corridor areas.

## **Monitoring and review**

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the subject leader. The work of the 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. The subject leader has specifically allocated time in which to fulfil this role by reviewing samples of children's work and visiting classes to observe teaching in the subject. They also monitor planning and ensure that the intent for Maths is being effectively implemented.

A named member of the school's governing body is briefed to oversee the teaching of mathematics. This governor meets with the subject leader to review progress termly and receives a written report. Where children are to participate in activities outside the classroom, for example, a visit to an outside site, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## **IMPACT**

### **Assessment and recording**

At Mellers we are continually assessing our pupils and recording their progress. We see assessment as an integral part of the teaching process and endeavour to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress. Assessment is carried out on three levels.

- Short-term assessments are an informal part of every lesson and are closely matched to the teaching objectives. These are recorded by a marking code on the day's learning objective.

√ Objective fully met  
↑ Objective partially met, additional work needed  
← Objective not met

- Pupils also have the opportunity to self-assess their learning at the end of every lesson using a traffic light system  
Green: I understand the work and feel confident so no help needed  
Orange: I understand parts of the work but need a little bit more help  
Red: I don't understand the work. I feel confused and I need more help

- Medium term assessments are carried out at the end of every unit of work using 'Learning Ladders'. Pupils are assessed on whether they have achieved the objectives for the unit of work. In order to fully complete the objective, there must be evidence of them demonstrating their understanding on three occasions. This equates to three ticks on their individual ladder. Class teachers are expected to report on pupils' progress in maths each half term.

- Long-term assessments are carried out towards the end of the school year when pupils' attainment is measured against school and national targets in the Summer Term. In Years Two and Six, this assessment is in the form of a Standard Attainment Test (SAT). In other year groups, the class teacher assesses each pupil against the curriculum.

All parents receive an annual written report on which there is a summary of their child's effort and progress in mathematics over the year. Parents will also be invited to hold a structured conversation with their child's class teacher to discuss their progress in maths.

**Signed:**

**Date:**