



# Numeracy Policy

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**Signed:** \_\_\_\_\_  
Head Teacher

**Signed:** \_\_\_\_\_  
Deputy Teacher

## Numeracy Policy

### **Aims**

At Mehria Primary School we aim to inspire all children to reach their full academic potential. In mathematics this means ensuring a curriculum that is fully inclusive of all children which:

- Develops children's knowledge and understanding of Mathematical concepts whilst enabling them to practice and hone skills and methods
- Providing interesting and challenging activities and investigations in order to deepen understanding through application
- Enables them to think critically and communicate their understanding
- Provides opportunities to use information technology
- Gives them opportunities to apply learnt mathematical skills in different contexts across the curriculum
- Encourages the children to discuss strategies and evaluate the methods and equipment used
- Uses regular assessment of the children's ability and understanding to aid planning future work and assess the level of support needed
- Builds upon earlier experiences and revisiting areas of study
- Is supported by the provision of stimulating materials, resources and displays which are readily available and accessible to the children
- Can be supported at home – refer to homework policy

As a result of their learning in mathematics and problem solving across the curriculum children will:

- Learn the facts and techniques that they will need to study the subject further and for everyday life
- Solve problems using the most appropriate method and think logically
- Reach the highest standard possible and to think for themselves within the subject
- Be creative and imaginative, to appreciate the power and beauty of mathematics
- Be confident to talk about their work
- Be confident to work mentally
- Have good numeracy skills
- Be prepared for applying their skills effectively in everyday life situations, in their future learning and in the work place
  
- Have the building blocks in place which provide a solid foundation to lead onto secondary, further and higher education

Our approach to the teaching of mathematics focuses upon the quality teaching of mathematics, in order to introduce, and then secure and embed key concepts. We provide opportunities to further embed and master these concepts through challenge, investigation and problem solving on a daily basis. As a result, children will learn to understand and clarify information; consider what they know that will help them to solve problems; realise

what they need to know next; create systems and strategies; organise information in a way that helps find patterns and ultimately solutions and to communicate and present their findings effectively. They will expect and welcome challenges which push them to deepen their learning. Our summative assessments will take into account not only whether a child understands a key concept or skill, but also the depth of understanding of an individual, be it emerging, meeting or exceeding a given objective.

### **Organisation**

From Year One all children have a dedicated mathematics lesson each day for 45 to 60 minutes.

Teaching will cover each the following areas of mathematics:

- Number
- Calculations
- Fractions, decimals and percentages
- Measurement
- Geometry
- Statistics

### **Planning**

- Planning begins from a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.
- Medium term planning will outline the areas of mathematics that will be taught during the term to ensure coverage of the National Curriculum.
- Within short term planning, clear success criteria for each learning objective taught should be created – demonstrating the progression needed to reach and exceed the objective. This will enable the class teacher to follow a clear and systematic teaching sequence, where input and activities are differentiated by considering which parts of the success criteria individual children are ready for.
- Short term planning will include opportunities for pupils to practice, securely embed and master the objective being covered.
- Where children are working significantly above or below the objective the majority of the class need to work towards, and where extending this by expanding the success criteria seems inappropriate, objectives from higher or lower age-groups will be planned and taught.
- Class teachers should regularly plan for opportunities for children to apply their maths skills to different problems within maths lessons and across the curriculum. This will also allow children to revisit, practice and consolidate different areas of maths and apply them within different contexts.
- When planning across the curriculum, questions should be used within lessons, to initiate an 'enquiry' approach. This will often be in the form of a 'challenge' or problem which requires the pupil to demonstrate their ability to apply the skill and in doing so deepen their understanding. The planning for these opportunities will be supported through reference to quality resources, such as progression papers with reasoning, which are published on the website for the National Centre for Excellence

in Teaching Mathematics and also the activities on the NRich website. (Both recommended by Ofsted.)

### Teaching

- Usually the class will be working on the same unit, allowing the teacher to work with the whole class, with groups of pupils and, at times, with individual pupils. Mostly pupils will be grouped according to their current level of ability in relation to an objective. Groups will be fluid and so will often vary on a daily basis.
- Throughout the lesson the teacher and other adults in the class will use questioning to clarify and challenge learners, and continually assess the effectiveness of the learning taking place. During the lesson, many pupils will talk about their work and be given opportunities to explain their thinking.
- We use a wide mix of games, puzzles and investigations as well as published schemes of work and online resources in order to enhance learning opportunities. We also incorporate regular opportunities to develop problem solving skills. In each unit of work every pupil should experience mathematics through a mixture of approaches.
- In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.
- Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.
- Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.
- Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.
- Children's mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities.
- A progression towards efficient written calculations should be developed and applied consistently in each year-group. The school Calculation Policy should be followed.
- Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven't yet mastered (perhaps recapping on class targets); learning something new OR learning to apply their knowledge to different contexts. They should be: 'doing' very quickly; working at a good pace and being productive; sharing their thoughts and methods and being successful.
- Teaching should ensure that progression in learning and / or understanding is made within each lesson for each pupil.

## **Problem Solving**

*To help children become good at solving logic problems and puzzles it is important that they are taught and acquire essential skills and strategies and understand how and when to use them.*

When solving logic problems and puzzles, the strategies children need to draw upon include:

- *Identifying carefully what is known and what needs to be found and thinking about how they might relate;*
- *Looking through the information that is given for any relationships or patterns that can be developed or used;*
- *Developing a line of thinking that involves making references and deductions, for example 'if I know that, then this must or could be true', and testing these out against the given information;*
- *Taking one piece of information and changing it, whilst keeping everything else fixed, to see what effect it has on the problem;*
- *Choosing a way of recording and organising the given information that helps to see how the problem is structured;*
- *Checking answers along the way to see if they satisfy the conditions or rules.'*

## **Formative Assessment**

- Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.
- On a daily basis children should self-assess against the learning objective and success criteria, giving them a sense of success. Children should know when they are meeting their targets and be self-assessing against those too.
- Pupils' work should be marked in line with the Marking Policy.
- Evidence of feedback to children either written or verbal should be evident, and children should be expected to respond to this and given time to do so, enabling them to learn from their misconceptions or incorrect methods.
- Future lesson design should depend on class success evaluated through marking and observations made during the lesson.
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## **Summative Assessment against National Curriculum end-of-year expectations.**

During the year, each child's progress should be recorded by the class teacher with regard to their progress towards meeting the end-of-year expectations for their year group. The leadership team will meet with class teachers on a termly basis in order to review the progress from each class and the individuals within it, to ensure that expected progress is being made. This is called the Pupil Progress meeting. As a group the leadership team will support the class teacher in setting appropriate targets and discuss actions for the following term based on evidence from the pupils' work, the outcome of assessments and the rate of progress.

- We assess what pupils have done against what we hoped they would learn. This enables us to plan what they should do next. Assessment by standardised test and against National Curriculum expectations follows school policy.
- Assessments will take into account the depth of understanding of mathematical

skills and concepts. Teachers will use the language 'emerging', 'expected – meeting' and 'exceeding' in relation to the individuals depth of knowledge.

- We prepare pupils for the KS1 and 2 SATs so that they can achieve as well as possible. We also use the SAT optional assessment materials and other assessment material in order to inform our teaching and the needs of the pupil.
- There will be regular assessment activities set by the class teacher to evaluate the learning of individuals and the class as a whole, in order to inform future planning. These take a variety of forms and may be formal or informal dependent upon the age of the pupils, the unit of work and time of year. End of year assessments are more formal in style as they contribute to the year on year progress data for the class, cohort and school as a whole.
- Tracking systems and the use of targets for groups or individuals will be used to ensure areas where the majority of the class have not grasped a concept can be revisited and mastered, and interventions implemented where needed.

### **Tracking and Intervention:**

- We aim to provide children who are not making good progress with extra support through interventions. Interventions in maths should be based on developing key number skills that are appropriate for the children involved. We use CM as our school tracking system and class track to record progress against the end of year expectations.
- Intervention provided to boost children's progression in maths should be tightly planned, with success criteria set and assessments made frequently to ensure progress is being made. Whilst interventions could be carried out by Teaching Assistants, for example, what is being taught and how it is delivered is the class teacher's responsibility and communication is essential.

### **Resources and display**

- We do not follow a particular scheme of work, however resources from the Abacus Maths Scheme along with other resources are available to staff within school to support the teaching and learning in Mathematics.
- Practical resources (such as Dienes apparatus, numicon, bead strings and 100 squares) which help pupils to visualize numbers, grasp concepts and create concrete foundations in their understanding are used regularly and are standard practice across all year groups. These should be age appropriate and readily accessible by the children.
- Mathematical vocabulary should be displayed so that children use this in the communication of their understanding.
- There should be maths work on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards mathematics for all groups of children.
- Pupils use calculators for calculating from Year 5 onwards, where it is appropriate to do so. We teach the pupils how to use them, and set tasks that enable them to learn to choose when to use them. When we expect pupils to work without calculators (mentally or to help them develop their pencil and paper methods) we specify this.

### **Learning across the curriculum**

- As teachers, we need to ensure that mathematics contributes to learning across the curriculum in order to provide real life opportunities which demonstrate the purpose and need for mathematical skills. We aim to enhance thinking skills, financial capability, enterprise and work-related learning. We do this by ensuring that these areas are addressed in our planning and teaching in a variety of ways. Mathematics contributes in major way to the key skills of communication, application of number, ICT, working with others, improving own learning and performance and problem solving.
- Mathematics contributes greatly to the development of ICT skills and competencies. We will teach children to use spread sheets, to handle data by creating graphs, tables and charts, use logo in measures, shape and space and other software to develop pupils' understanding of mathematics. The children will be taught how to use appropriate apps and other internet resources in order to enhance their mathematical learning.

### **Equal opportunities**

All the mathematics we work on shows positive images of the various groups in society. We seek to celebrate the mathematical heritage of all the cultures in the school and to recognise that the mathematics we do comes from all over the world.

### **Monitoring**

The class teachers, the mathematics co-ordinator and the Head teacher will monitor the approaches detailed in this policy, in line with school policy. The focus for monitoring each year will be decided at the start of the year. We will monitor using a variety of strategies including work scrutiny, lesson observations, pupil interviews and the termly Pupil Progress meetings.

### **Special Educational Needs**

In line with the school policy on Special Educational Needs, the SEN co-ordinator, mathematics co-ordinator and the class teacher will be involved in ensuring that pupils will have work planned to meet their needs. Classroom assistants will also provide additional support. Those pupils with significant needs in mathematics should have specific mathematical targets set when we produce their

**This policy will be reviewed every two years or in light of changes to legal requirements.**