



Mathematics Policy

Pioneer Federation

This policy was adopted **October 2019**
This policy is due for review **July 2020**

Mathematics across the Pioneer Federation aims to develop children's mathematical thinking through developing a 'mastery' approach to teaching and learning. This allows pupils to acquire a deep and sustainable understanding of the subject.

Mathematics equips pupils with a powerful set of tools to understand and change the world: including logical reasoning, problem solving skills and the ability to think in abstract ways. It is integral to all aspects of life and we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics.

Aims of Our Mathematics Teaching

It is our aim to ensure that each pupil:

- Becomes fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual and procedural understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reasons mathematically by following a line of enquiry, recognising and understanding relationships, justification or proof using mathematical language, e.g. "I know that...so..." "If.....is, therefore...."
- Is given the opportunity for every relevant subject to develop their mathematical fluency and mathematical skills and apply these across the curriculum
- Develops their understanding and use of mathematical specific vocabulary

Our pupils will show this by:

- displaying a positive attitude towards mathematics
- having confidence in their mathematical knowledge, concepts and skills
- their ability to solve problems, to reason, to think logically and to work systematically and accurately.
- using their initiative and ability to work both independently and in cooperation with others
- their ability to communicate mathematics and mathematically
- their ability to use and apply mathematics across the curriculum and in real life
- Their understanding of mathematics through enquiry and investigation
- Confident communication of maths where they ask and answer question, openly share work and use mistakes as a basis for learning

Coverage

In KS1 and KS2 we follow the White Rose schemes of learning for mixed year groups, which can be found at <https://whiterosemaths.com/resources/schemes-of-learning/primary-sols/>

These schemes provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving, the key aims of the National Curriculum. They support a mastery approach to teaching and learning and have number at their heart. They support the ideal of depth before breadth and support pupils working together as a whole group and provide plenty of time to build on reasoning and problem solving.

Organisation and Planning

In KS1 and KS2 lessons are 60 minutes long. Teachers of EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

The schools use a variety of maths resources for planning and teaching Maths including online resources, support and current research based pedagogy. Medium term plans for each term are developed based on content and teachers plan a short-term weekly plan and adapt planning to meet the needs of their pupils. Lessons should provide opportunities for all children access a range of fluency, reasoning and problem-solving activities as well as assessment activities appropriate to each unit of work covered. Times tables are taught explicitly according to year group expectations and 'Timestable Rockstars' is used as a tool for children to practice in and out of school. MyMaths is used weekly to set homework.

Teaching Methods

Teachers plan and deliver lessons that suit the individual learning styles of the children within the group, within this they use a range of teaching strategies to engage the children in maths and ensure progress is made by all children within a class. Teachers make effective use of projectors, working walls, flipcharts and whiteboards to model concepts A typical lesson would include:

- Both teaching input and pupil activities,
- A balance between whole class (ping-pong style), small groups, guided grouped and independent work, (groups, pairs and individual work)
- differentiated activities/objectives and appropriate challenge.

Use of key questions to support development is a key part of mathematical thinking and questions such as, 'How do you know?', 'Can you explain that in a different way?' and 'What's the same? What's different?', deepen the children's understanding and ability to articulate mathematical concepts.

The Concrete → Pictorial→ Abstract (CPA) sequence is also used to aid children's understanding of underlying patterns and relationships. Children are given access to additional structures to enable them to access the learning (concrete resources and same day intervention). As well as access to a range of varied fluency, reasoning and problem-solving tasks.

Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient. Children are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Children's own jottings to support their work are encouraged throughout all year groups.

Working Walls

Maths working walls and flipcharts are present in all classrooms and are set up with a clear purpose; they display current learning, show written methods, represent the weekly journey and display key concepts. Subject specific vocabulary is presented and stem sentences (If the.....is the whole, then the.....is part of the whole) and sentence stems (I noticed that....) are used.

EYFS

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance. The teaching of maths in the EYFS involves providing children with opportunities to develop and improve their skills in:

- counting,
- understanding and using numbers,
- calculating simple addition and subtraction problems;
- and to describe shapes, spaces, and measures.

The teaching of maths in the EYFS involves providing children with opportunities to undertake maths activities within continuous provision/outdoor play and enhancements linked to the current learning through planned, purposeful play and through a mix of adult-led and child-initiated activities.

NCETM resources provide support materials linked to the Numberblocks programmes which are used to teach number. A wide range of concrete resources are used daily and are part of everyday practice.

It is expected that the vast majority of children in Nursery and Reception will be taught maths in mixed ability groups, with the whole cohort working towards the early learning goals at broadly the same pace. Pupils who grasp concepts rapidly will be challenged through having access to a wider variety of problems, whilst those children who are not sufficiently fluent in their understanding will be given opportunities to further develop their understanding before moving on. Children's understanding is assessed and recorded daily through observations, pictures and annotations by EYFS staff.

Equal Opportunities and Differentiation

In our schools we have a policy of equal opportunities for all pupils. Children who have been identified as needing extra support, through teacher assessment and other testing methods, are supported by the SENCO and the Teaching Assistants. Within Mathematics lessons the activities for different groups of children are differentiated, depending on their ability.

Resources

Copies of the National Curriculum are available online. Concrete resources for are largely shared between classes and made accessible to pupils, with shared resources in a central location within each school. Supporting documents are also available to a on the Federation Google Drive and are added to regularly.

I.C.T.

Every class has access to the school laptops and a class Ipad. Each teacher has a SMART board to use in lessons and visualisers.

Assessment

Assessment takes a variety of forms, including testing and teacher assessment. SATs take place at the end of Key Stage 1 and Key Stage 2. And Y4 will sit the Multiplication Tables check.

There are optional tests in Years 3, 4 and 5.

In Key Stage 2, at the end of each term, the children do maths tests to assess their learning across the term. Teachers monitor pupils' mathematical ability through their progress in the classroom and use the results to inform their planning. Live marking is used in the lesson to respond to the needs of the pupils, assess understanding, pick up on any misconceptions and creates a dialogue between pupil and teacher.

Role of the Headteacher and Mathematics Leader

It is the responsibility of each teacher to ensure that the children are receiving the best possible teaching in Mathematics and ensuring that they achieve their learning potential. The Mathematics Leader monitors progress throughout the two Key Stages and supports the teachers in their overall delivery of the curriculum in Mathematics. It is also the responsibility of the leader to keep abreast of current developments and new initiatives, and to inform teachers of new ideas.

The Head teacher must aim to ensure that the teaching of Mathematics is of the highest standard possible. Lessons are observed within the year. It is the responsibility of the school Governors to be aware of the way in which Mathematics is taught in our schools, and further to ensure that this is done to the highest possible level of achievement.

