The Federation of Spixworth Schools

Mathematics Policy

Agreed by Governing Body: Spring 2022
To be reviewed: Spring 2025
Group Responsible: SLT

Intent:

At The Federation of Spixworth Schools we will develop confident learners who are able to see and make connections between the different areas of Mathematics. Our children will be able to confidently solve problems, reason mathematically and successfully perform investigations by drawing upon the mathematical experiences and knowledge gained through a rich, broad and exciting Mathematics curriculum.

Mathematical learning at The Federation of Spixworth Schools will allow children to deepen their understanding and master key concepts. Children will use their skills and confidence to contribute positively to society.

By using comprehensive resources provided by White Rose Maths, the Federation of Spixworth Schools uses a Mastery approach to Mathematics to ensure all children achieve success.

Maths Mastery

We embrace the National Centre of Excellence in the Teaching of Maths (NCETM) definition: Mastering Maths means pupils of all ages acquiring a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to ensure pupils master maths. Maths Mastery makes use of the 5 Big Ideas:

1. Coherence

Lessons are broken down into small progressive steps that gradually unfold the concept. This leads to an understanding of the concept and the ability to apply the concept to a range of contexts.

2. Representation and Structure

Physical and pictorial resources are used in lessons to help develop understanding of the mathematical concept being taught until they are no longer needed by the child.

3. Mathematical Thinking

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the child: thought about, reasoned with and discussed with others.

4. Fluency

We support our children to be able to recall facts quickly and efficiently so they develop flexibility to move between different areas of maths.

5. Variation

Teachers represent concepts in more ways than one, to develop deep understanding. Steps are sequenced with activities and exercises to apply learning. Attention is paid to what is the same and what changes, to allow children to make connections within their learning.

Implementation:

The Federation of Spixworth Schools follow the White Rose Schemes of Learning. White Rose Maths provides detailed step-by-step lesson planning for each year group from Reception to Year 6 that meet all of the relevant year group objectives set out in the National Curriculum in England (2014). Long Term Planning is as detailed for each year group on the White Rose Website linked below:

Years 1-6: https://whiterosemaths.com/resources/primary-resources/primary-sols/

Reception: https://whiterosemaths.com/reception-sol/

Medium and Short Term Planning for years 1-6 consists of the lesson-by-lesson overviews also found here: https://whiterosemaths.com/resources/primary-resources/primary-sols/

For early years, planning is organised by the guidance for teachers available for each unit of work.

Each lesson is carefully designed to build on from previous learning, this ensures appropriate progression, enabling all objectives to be met.

Class teachers reflect upon all units taught and consider next steps or adjustments required. This is part of our day to day practise to inform planning for subsequent lessons and also part of each end of unit review to inform future teaching of each mathematical concept. These reflections support long term planning for subsequent years.

Entitlement and Curriculum Provision:

Lessons across the Federation use the concrete, pictorial, abstract (CPA) approach to embed mathematical concepts. The ultimate goal of the CPA approach is to support children in securing their understanding of abstract mathematical concepts by linking them to concrete and pictorial representations. All children receive high quality teaching that uses the CPA approach. Lessons ensure that all children are working towards the same outcome and that scaffolding is in place for children that may need extra support to achieve this.

Concrete - By using physical manipulatives, children can begin to develop conceptual understanding.

Pictorial - Through using pictures and diagrams, children can begin to link the physicality of concrete mathematics to the abstract.

Abstract - By developing a secure understanding of the concrete and pictorial representations, children can make sense of the abstract. Staff ensure children move on from the concrete and pictorial when conceptual understanding is secure.

Manipulatives

Manipulatives illustrate the concrete element of CPA. As children move through the year groups, manipulatives will generally be used to a lesser degree as children become more

secure with abstract maths. However, manipulatives are still used to introduce new concepts, reintroduce previous learning or support key objectives where mastery needs to be secured.

Key core manipulatives used across the Federation are listed below. These are versatile pieces of equipment that can be used in a multitude of ways.

- Ten frames
- Multilink cubes
- Straws or counting sticks
- Bead strings
- Base 10
- Double sided counters
- Place value counters
- Place value grid
- Numicon
- 100 squares
- Number lines

Keep Up Interventions are short small group or 1-2-1 focused sessions that ensure every child has achieved success in learning the lesson objective for the day. These will take place as soon as possible, on the same day after the lesson.

It is the responsibility of teachers and staff within the classroom to identify children who would benefit from a Keep Up session. These sessions will last no longer than 15 minutes to secure learning so children are prepared for the next day's objective.

Sometimes children have substantial gaps in their learning that cannot be addressed with a Keep Up session. Catch Up Interventions take place in a small group and are a block of learning over 6 weeks to close an identified gap. These are coordinated with the class teacher, SENCO and Maths Lead to ensure the most suitable provision.

Progression:

We follow the White Rose calculation policy and progression document which tracks all the national curriculum objectives. These documents ensure teachers know what learning has come before and what will take place after in terms of the current year and future years.

Impact:

Evidencing children's work will come in many forms and vary depending on the task, concept and year group. Not all learning will be recorded and teachers are trusted to make judgements based on evidence that is sometimes not recordable. Where learning is predominantly practical, photographs and pupil and staff voice will support evidencing learning. In EYFS and KS1, Tapestry is used to illustrate children's learning.

Assessment:

Formative assessment takes place on a daily basis by teachers monitoring the learning within lessons, this will inform Keep Up sessions.

Marking is in accordance with the Feedback, Marking and Assessment policy.

Block Assessments are used at the end of each White Rose unit. Results are logged so teachers and the subject leader can track and monitor progress.

Summative assessments take place termly using the assessment resources provided by White Rose Maths. These allow monitoring of and response to children's retained understanding.

Statutory assessments are completed as required. This currently includes the Reception Baseline, Key Stage 1 SATs, the Multiplication check in Year 4 and Key Stage 2 SATs.

SATs:

SATs (Standard Assessment Tests) measure children's educational achievement in Years 2 and 6.

In Year 2 the tests are informal, so untimed and they take place in a normal classroom situation. The outcome of these tests inform the teacher's judgements.

In Year 6 formal tests in arithmetic (1 paper) and reasoning (2 papers) are undertaken. The arithmetic paper is 30 minutes in length and each reasoning paper is 40 minutes in length.

Roles and Responsibilities:

Role of Teachers:

- Adopt the 'every child can achieve' mantra, identifying and supporting all children to give them the best chance at success.
- Promote a positive attitude towards mathematics in school and the wider community.
- Use the CPA approach and the Mastery Approach, and seek out support when necessary.
- Use precision high-level questioning to deepen children's understanding and develop metacognition within mathematics.
- To follow long, medium and short term planning provided by White Rose and adapt this to suit the needs of the class.
- Plan lessons which provide effective scaffolding for learners. All children will be given the opportunity to access age related expectations. Children who are working at greater depth will be working on mastery of the same concepts within their year group.
- Ensure that children meet the same mathematical concepts in a wide variety of contexts.
- Focus task progression on the mastery of concepts, avoid "more of the same" extensions and instead, use and apply learning to new problems.
- Use manipulatives as a tool across the Federation to develop abstract concepts with the end goal being to be able to solve problems without them.

- Enable children to work independently and collaboratively to suit the task.
- Ensure that class organisation and grouping is, fluid to match the learning and context.
- Develop their understanding of the children's ability through the use of formative and summative assessment in order to adapt future lessons to suit the needs of the children.

Role of Teaching Assistants:

- Adopt the 'every child can achieve' mantra.
- Promote a positive attitude towards mathematics in school.
- Use the CPA approach and the Mastery Approach, and seek out support when necessary.
- Follow planning provided by the teacher and have a clear understanding of the expectations and outcomes of each lesson.
- Support pupils with selecting and using appropriate manipulatives and resources.
- Work with individuals and groups, in class and during Keep Up/Catch Up sessions, to support with mathematical understanding and mastery.
- Recognise when to support and scaffold and when to allow pupils time to work independently.
- Mark books and provide feedback, following the Feedback, Marking and Assessment policy.

Role of Subject Leader:

The **Subject Leader** will ensure that the whole school approach is being embedded and that there is consistency and progression across year groups. In addition to this, they are expected to:

- Keep up to date with local and national initiatives by attending courses and network meetings.
- Identify need, organise or deliver training to support mathematics within the school.
- Provide guidance and support to colleagues to deliver the National Curriculum.
- Create and follow a Maths action plan which links to the School Improvement and Development Plan (SIDP)
- Monitor the quality of teaching and learning across the school.
- Analyse data and use it to support future actions.
- Encourage and support Maths in the wider curriculum and increase its profile with stakeholders.
- To report termly, through the subject leader summary, on the progress and actions within Maths.
- Work with EHT and HoS to purchase, organise and maintain teaching resources.

Role of Head of School:

- To ensure that the legal requirements of the National Curriculum for Mathematics are met across the Federation.
- To support the subject leader to complete their role to a high standard.

Links to other policies:

- Multiplication and Division Calculation Policy
- Addition and Subtraction Calculation Policy
- Feedback, Marking and Assessment Policy

Monitoring and Review of Teaching and Learning

Forms of monitoring include:

- Whole school or Key Stage moderation
- Book looks / Tapestry looks
- Child voice
- Staff voice
- Learning walks
- Lesson observations

Teachers report children's age related expectations termly using Pupil Asset after combining formative and summative assessment.

Parents will be kept informed of their child's progress and attainment through parent/teacher meetings held four times across the year and with an end of year report.

Review

This policy is reviewed every three years by the Subject Leader and SLT.

Any changes made to this policy will be communicated to all members of staff and relevant stakeholders.