
Mathematics Policy

January 2021

Summary

This policy outlines the mathematics procedures for Fieldhead Carr Primary School for classes from FS1 to Year 6.

Recommendation

Governors are requested to read this policy, consider its content and approve its adoption. This policy should be reviewed as any changes are made.

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Review date	As changes

Our vision statement

Our aim at Fieldhead Carr is for all children to enjoy mathematics and have a **secure** and **deep** understanding of fundamental mathematical concepts and procedures when they leave us to go to secondary school. We want children to see the mathematics that surrounds them every day and enjoy **developing vital life skills** in this subject.

Purpose of Mathematics

“Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history’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.”

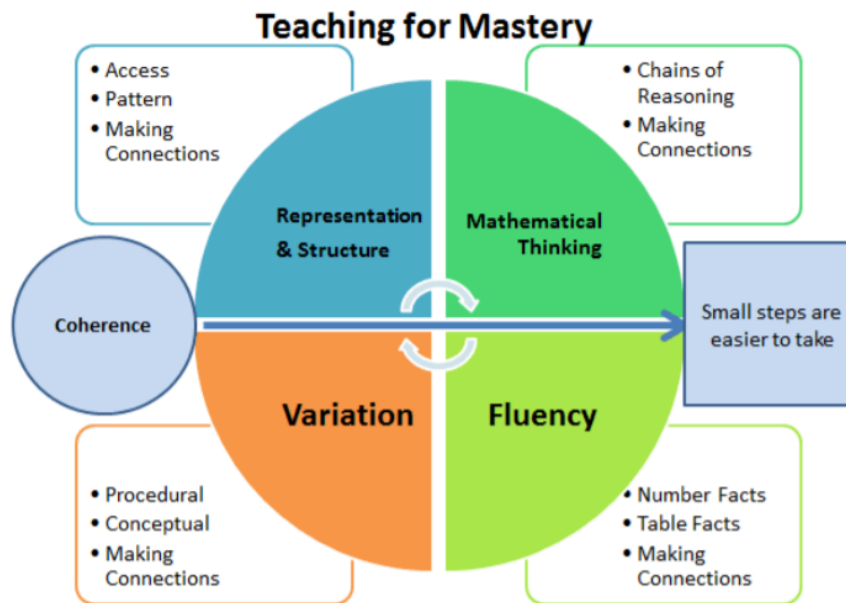
-National Curriculum 2014

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- To implement the current legal requirements of the Foundation Stage (FS) and the National Curriculum (NC).
- To foster positive attitudes, fascination and excitement of discovery through the teaching and learning of mathematical concepts.
- To ensure pupils become fluent in the fundamentals of mathematics, developing conceptual knowledge and an ability to recall and apply knowledge rapidly and accurately.
- To ensure that pupils can reason mathematically and solve problems
- For our children to develop a ‘can do’ attitude and perceive themselves as mathematicians.
- To broaden children’s knowledge and understanding of how mathematics is used in the wider world.
- For our children to use and understand mathematical language and recognise its importance as a language for communication and thinking.

The principles and features that characterise this 'mastery' approach are:



Our teaching for mastery is underpinned by the NCETM's 5 Big Ideas.

- Opportunities for **Mathematical Thinking** allow children to make chains of reasoning connected with the other areas of their mathematics.
- A focus on **Representation and Structure** ensures concepts are explored using concrete, pictorial and abstract representations, the children actively look for patterns and generalise whilst problem solving.
- **Coherence** is achieved through the planning of small, connected steps to link every question and lesson within a topic.
- Teachers use both procedural and conceptual **Variation** within their lessons and there remains an emphasis on **Fluency** with a relentless focus on number and times table facts.

8 Classroom Norms to Establish:

1. Everyone can learn mathematics to the highest levels.
2. If you 'can't do it', you 'can't do it **yet**'.
3. Mistakes are valuable.
4. Questions are important.
5. Mathematics is about creativity and problem solving.
6. Mathematics is about making connections and communicating what we think.
7. Depth is much more important than speed.
8. Mathematics lessons are about learning, not performing.

- **It is achievable for all** – we have high expectations and encourage a positive ‘can do’ mindset towards mathematics in **all** pupils, creating learning experiences which develop children’s resilience in the face of a Challenge and carefully scaffolding learning so everyone can make progress.
- **Deep and sustainable learning** – lessons are designed with careful small steps, questions and tasks in place to ensure the learning is not superficial.
- **The ability to build on something that has already been sufficiently mastered** – pupils’ learning of concepts is seen a continuum across the school.
- **The ability to reason about a concept and make connections** – pupils are encouraged to make connections and spot patterns between different concepts (E.g. the link between ratio, division and fractions) and use precise mathematical language, which frees up working memory and deepens conceptual understanding.
- **Conceptual and procedural fluency** – teachers move mathematics from one context to another (using objects, pictorial representations, equations and word problems). There are high expectations for pupils to learn times tables, key number facts (so they are automatic) and have a true sense of number. Pupils are also encouraged to think whether their method for tackling a given calculation or problem is Appropriate, Reliable and Efficient (A.R.E)
- **Challenge through greater depth** - rather than accelerated content, (moving onto next year’s concepts) teachers set tasks to deepen knowledge and improve reasoning skills within the objectives of their year group.

Curriculum and lesson design

- Staff use White Rose Maths Schemes of Learning as a starting point in order to develop a coherent and comprehensive conceptual pathway through the mathematics. The focus is on the whole class progressing together. Collaborative planning with year group colleagues is encouraged to ensure consistency.
- Learning is broken down into small, connected steps, building from what pupils already know.
- Difficult points and potential misconceptions are identified in advance and strategies to address them planned.
- Key questions are planned, to challenge thinking and develop learning for all pupils.
- Contexts and representations are carefully chosen to develop reasoning skills and to help pupil’s link concrete ideas to abstract mathematical concepts.
- The use of high quality materials and tasks to support learning and provide access to the mathematics, is integrated into lessons. These may include White Rose Maths Schemes of Learning, NCETM, Testbase, Classroom secrets, NRICH, visual images and concrete resources.
- Opportunities for extra fluency practice (KIRF’s, such as number bonds, times tables, division facts, addition and subtraction facts).

EYFS:

The EYFS provide a wide range of areas of provision, each promoting learning opportunities across some or all of the areas of experience. Children develop mathematical understanding through spontaneous, adult led and structured activities. EYFS practitioners provide opportunities for children to manipulate a variety of objects which supports their understanding of quantity and number. In Foundation Stage 2 children are brought together to discuss ideas about numeracy, reasoning and problem solving, and challenges are then put forward for them to pursue in the areas of provision. We follow the Maths Mastery Number Blocks planning which focuses on an alternative number per week. This uses models and images for numbers as a solid foundation for further progress. Children in EYFS explore mathematical concepts through active exploration and their everyday play-based learning.

Year 1-6:

- Instant recall practise across all times tables.
- KIRF's (Key Instant Recall Facts) focus.
- Introduction to the day's concept
- Mathematical vocabulary modelled and used by the children.
- Develop learning
- Independent/group task.
- Plenary
- Flashback 4 (either used in soft start or during maths lessons).

Teaching in attainment groups

With the transition to mastery, the school is reviewing its long-standing policy of teaching in attainment groups in years 4-6. Historically, in these year groups, it was felt that grouping pupils by attainment would help teachers tailor learning to their needs.

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 no differentiation in content taught as such, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with intervention – commonly through the school's 'Same Day Intervention' (SDI). This may take place alongside the teacher within the classroom or through targeted sessions in a smaller group setting often in the afternoon following the morning's maths lesson.

Lesson Structure

- Lessons are sharply focused; digression is generally avoided.
- Key new learning points are identified explicitly.
- There is regular interchange between concrete/contextual ideas, pictorial representations and their abstract/symbolic representation.
- Making comparisons is an important feature of developing deep knowledge. The questions “What’s the same, What’s different?” are often used to draw attention to essential features of concepts.
- Repetition of key ideas (for example, in the form of whole class recitation, repeating to talk partners etc.) is used frequently. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.
- Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils’ knowledge and understanding and adjusts the lesson accordingly.
- Gaps in pupils’ knowledge and understanding are identified early by in-class questioning. They are addressed rapidly through individual or small group intervention, either on the same day or the next day, which may be separate from the main mathematics lesson, to ensure all pupils are ready for the next lesson.
- Teachers discuss their mathematics teaching regularly with colleagues, sharing teaching ideas and classroom experiences in detail and working together to improve their practice.

Marking

Marking of mathematics books should be completed in line with the Fieldhead Carr marking policy. It is essential that all marking picks up and addresses any misconceptions/mistakes and thorough questioning ensures children have clarified their thinking clearly.

Assessment and Reporting

In addition to the formative assessment undertaken in lessons, teachers will use termly summative assessments (during Assessment Week) supplied by Rising Stars- PUMA to reinforce their judgements and provide further opportunities to identify gaps in pupil learning and tailor future lessons. Teacher judgements are then entered onto ‘in year progress trackers’ each term and teachers talk through the progress of their pupils at termly pupil progress meetings: this ensures targeted support can be given to those who need it.

Inclusion and Special Educational Needs

Fieldhead Carr aims to meet the needs of all, taking into account gender, ethnicity, culture, religion, language, disability, age and social circumstances. The provision for children with special needs is detailed in the SEND Policy. SEN pupils may be supported by additional adults, different resources, differentiated activities. They may also complete additional activities outside of the mathematics lesson (Personalised Learning Plan, targets taken from BSquared progressions steps). We have high expectations of all children and strongly believe that all children are able to achieve in mathematics. Some may take longer to grasp concepts and may need careful scaffolding or extra time/support.