



*Belonging, Believing; Together Succeeding.*

**Policy:**

**Maths Policy**

Date Reviewed by Staff:

16/4/2021

Education committee

22/04/2021

Next Review Date: (3 years unless  
otherwise advised)

March 2024

## Our Vision

Our vision as a Church of England primary school, deeply rooted in a strong Christian tradition, is to develop happy, young people with enquiring minds, a lifelong love of learning, respect for themselves, others and the environment so that they will have the skills, resilience and adaptability to thrive in a rapidly changing world.

### Overarching Vision for Maths

At Barrington we use the mastery approach for the teaching of maths. At the centre of this approach is the belief that all pupils have the potential to succeed. All children should have access to the same curriculum content and, rather than being extended with new content from other year groups, they should deepen their conceptual understanding by reasoning and problem solving. Our aim 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.

### Aims for our pupils

- To develop a growth mindset and positive attitude towards mathematics.
- To become confident and proficient with number, including fluency with mental calculation and look for connections between numbers.
- To become problem solvers, who can reason, think logically, work systematically and apply their knowledge of mathematics.
- To develop their use of mathematical language.
- To become independent learners and to work co-operatively with others.
- To appreciate real life contexts to learning in mathematics.

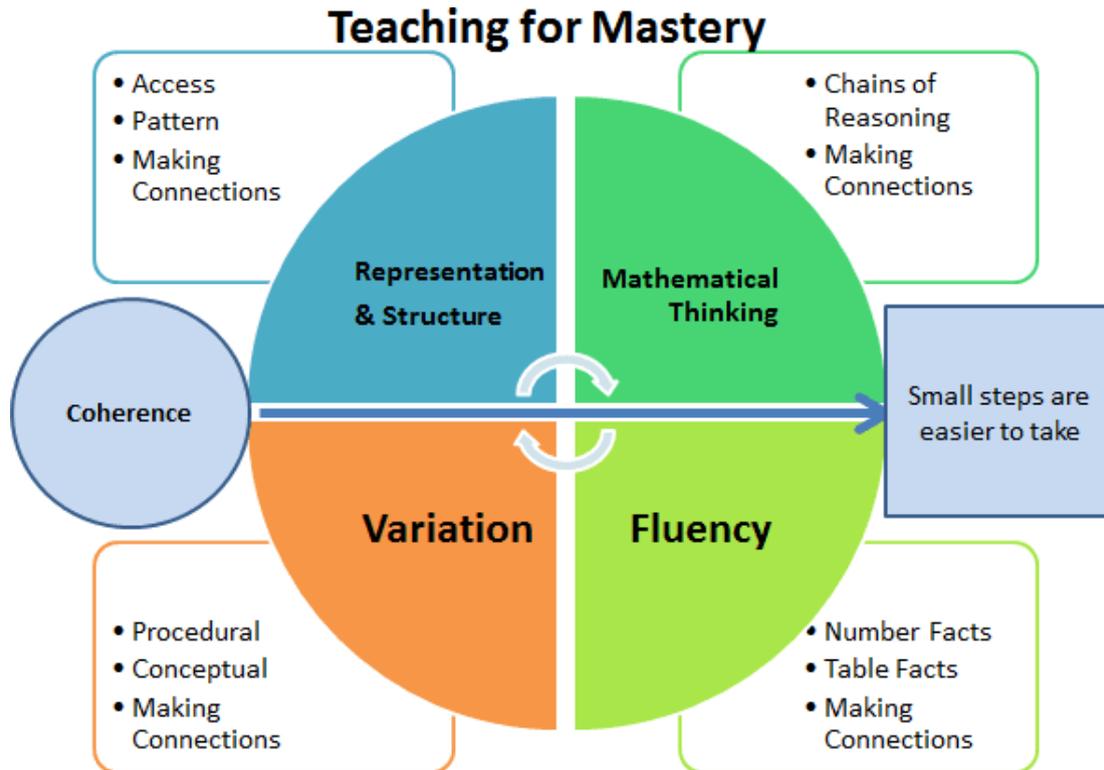
### Introduction

The rationale behind changing our approach to teaching mathematics lay within the NCETM Maths Hub Programme as well as the 2014 National Curriculum, which states:

- *The expectation is that most pupils will move through the programmes of study at broadly the same pace.*
- *Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content.*
- *Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.*

## FLUENCY – REASONING – PROBLEM SOLVING

These three key aims of the National Curriculum should be addressed in each sequence of learning.



#### Our teaching 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.

### **Teaching for Good Mathematical Understanding**

- **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 as 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).
- **Problem solving is central** – this develops pupils’ understanding of why something works so that they truly have an appreciation of what they are doing rather than just learning to repeat routines without grasping what is happening.
- **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 design and planning**

- 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. The lesson journey should be detailed and evident on flipcharts (Smart Notebook or PowerPoint) as there is no requirement for teachers to produce detailed paper plans.
- Difficult points and potential misconceptions are identified in advance and strategies to address them planned using diagnostic assessment materials.
- 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 pupils to 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 and Assessment Materials, NCETM Mastery Assessment*** materials, ***NRICH***, visual images and concrete resources.
- Opportunities for extra fluency practice (*instant recall of key facts, such as number bonds, times tables, division facts, addition and subtraction facts*) should be provided outside mathematics lessons (morning starters or post-lunch).

### **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.
- Mathematical generalisations are emphasised as they emerge from underlying mathematics, which is thoroughly explored within contexts that make sense to pupils.
- 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.
- Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities.
- 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, on either 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 school marking policy. Next steps are not necessary as the next lesson is normally the next step in learning. However, 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 Record Keeping**

In addition to the formative assessment undertaken in lessons, teachers will use termly summative assessments (during Assessment Week) supplied by the **White Rose Maths Hub** to reinforce their judgements and provide further opportunities to identify gaps in pupil learning and tailor future lessons. Teacher judgements are then entered onto **Target Tracker** each term and teachers talk through the progress of their pupils at termly tracking progress meetings: this ensures targeted support can be given to those who need it.

### **Inclusion and Special Needs**

Barrington Primary 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. Additional adults, different resources, differentiated activities, may support SEN pupils. They may also complete additional activities outside of the mathematics lesson or be taught in a smaller group. 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.

### **Home/School Link**

At Barrington C of E Primary we encourage parents to be involved in the mathematics curriculum by:

- Providing parents with guides outlining what mastery teaching involves in EYFS and KS1 & KS2 and how they can support at home.
- Running Cafes for All teaching for mastery workshops for parents and children to work together. .
- Inviting parents in twice a year for parents evening to discuss their child's progress.
- Reporting on mathematical progress in their child's report.
- Using our mathematics page on the school website to provide information about how we teach the four calculations as pupils move through the school.

Pupils are provided with mathematics home-learning on a weekly basis.

### **Early Years Foundation Stage (EYFS)**

Children in EYFS explore mathematical concepts through active exploration and their everyday play-based learning. Children are taught key concepts and develop number sense using a hands-on practical approach. EYFS practitioners provide opportunities for children to manipulate a variety of objects which supports their understanding of quantity and number. Pupils explore the 'story' of numbers to twenty and the development of models and images for numbers as a solid foundation for further progress. Practitioners allow children time for exploration and the use of concrete objects helps to support children's mathematical understanding. Mathematics in the early years provides children with a solid foundation that will enable them to develop skills as they progress through their schooling and ensures children are ready for the National Curriculum. This Area of Learning and Development includes seeking patterns, making connections, recognising relationships, working with numbers, shapes, space and measures, and counting, sorting and matching. Children use their knowledge and skills in these areas to solve problems, generate new questions and make connections across other Areas of Learning and Development. Mathematical understanding will be developed through whole class sessions as well as stories, songs, games and imaginative play.

### **Role of the Subject Leader**

- Ensures teachers understand the requirements of the National Curriculum and supports them to plan lessons. Leads by example by setting high standards in their own teaching.
- Leads continuing professional development; facilitates joint professional development – especially Lesson Study; provides coaching and feedback for teachers to improve pupil learning.

Leads the whole-school monitoring and evaluation of teaching and learning in mathematics by observing teaching and learning in mathematics regularly; analysing assessment data in order to plan whole school improvement in mathematics; conducting work scrutiny to inform evaluation of progress; conducting pupil interviews.

- Takes responsibility for managing own professional development by participating in external training, independent private study, engaging in educational research and scholarly reading and keeping up-to-date with Teaching for Mastery developments.
- Keeps parents informed about mathematics issues.
- Ensures that the school's senior leaders and governors are kept informed about the quality of teaching and learning in mathematics.
- Works in close partnership with the school's senior leaders to ensure the learning needs of all pupils in mathematics are met effectively.
- Keeps the school's policy for mathematics under regular review.