Ss Peter and Paul Catholic Primary School

Maths Policy: Teaching for Mastery

Together with the Spirit
we will create an oasis
where every child matters

Vision Statement: Ss Peter and Paul Catholic Primary School is an innovative learning community committed to excellence.
Mission Statement: We will endeavour to achieve this by:

- Constantly striving to find and create better ways of pursuing our goals
- Providing a happy, supportive and safe environment in which everyone can achieve their full potential
- Being truly inclusive and giving every child the opportunity to develop talents
- Encouraging everyone to become creative, motivated and life-long learners prepared for an ever-changing, global community
- Valuing and respecting every member of the school community
- Recognising and celebrating success

Teaching for Mastery: Mathematics Policy Overarching Vision

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 to 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 cooperatively with others.
- To appreciate real life contexts to learning in mathematics.

Introduction

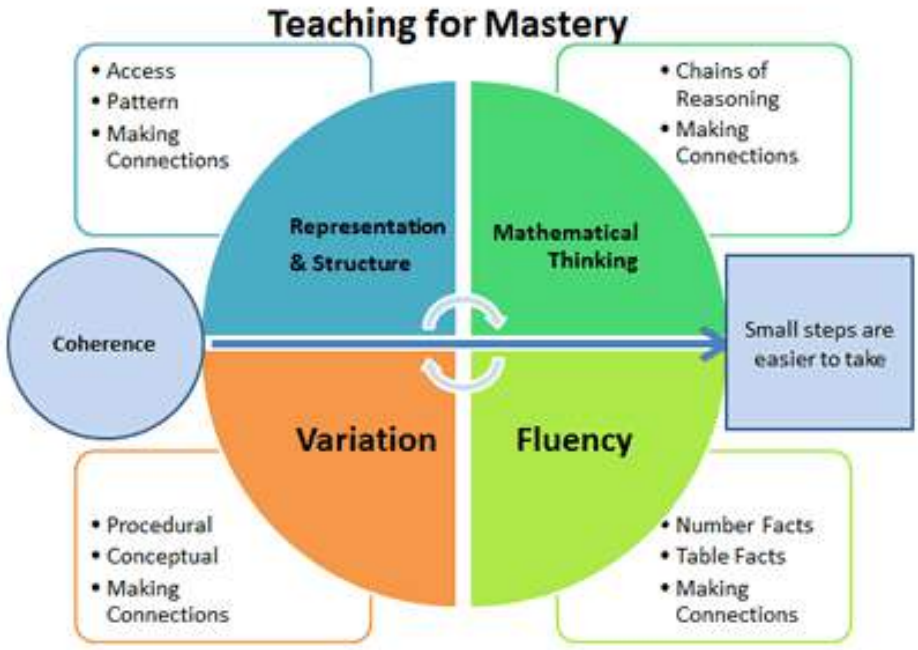
We began transitioning towards a mastery approach to the teaching and learning of mathematics after joining the NCETM Maths Hub Programme. We adhere to the rationale that:

- 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.
  (Taken from National Curriculum 2014)

The Five Big Ideas for Mastery [1]

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



1 This document has been created using content provided by the NCETM/Maths Hub Mastery Specialist Programme.

Teaching for Mastery Principles

• **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** as a starting point in order to develop a coherent and comprehensive conceptual pathway through mathematics, ensuring coverage is accurate for their pupils. The focus is on the whole class progressing together.
• 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 pupils link concrete ideas to abstract mathematical concepts.
• The use of high quality materials and tasks to support learning and provide access to mathematics, is integrated into lessons. These may include **White Rose Maths Starters and Assessment Materials, Corbett Maths questions, NCETM Mastery Assessment materials, NRICH, visual images and concrete resources**.

Lesson Structure

• Lessons are sharply focused.
• 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.
• 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 our marking policy. We operate a "live marking" approach which picks up and addresses any misconceptions/mistakes as the lesson progresses, 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 end of block White Rose Assessments and termly summative assessments to reinforce their judgements and provide further opportunities to identify gaps in pupil learning and tailor future lessons. Teacher judgements are then entered onto FFT 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.

Early Years Foundation Stage (EYFS)

Children in EYFS explore mathematical concepts through active exploration within 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. The CPA approach is used when teaching children key mathematical skills. 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 Key Stage One.

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.
- Provides coaching and feedback for teachers to improve pupil learning.
- Undertakes the five lens approach alongside the Headteacher to quality assure the delivery of Mathematics in school for all pupils.

Written by: S Coyne
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