



Egerton CP School

MATHEMATICS POLICY

Chair of Governors	Steven Skolosdra
Head Teacher	Sam Mitchell
Policy written by	Jonathan Mills – Mathematics Leader
Date approved by governors	16 th November 2023
Date of next review	
Committee Responsible	Curriculum

Intent

At Egerton, we are ambitious for all children to **learn** personal, social and academic skills and knowledge, **achieve** their potential in all aspects of their lives and **aspire** to bright futures both in careers and relationships in the modern world we live in.

Our goal for all our children is to ensure they access an aspirational curriculum that ensures they are successful in modern 21st Century Britain.

A Mastery Curriculum

At Egerton, we follow the principles of a mastery curriculum as set out by the National Centre of Excellence for Teaching Mathematics (NCETM). This methodology ensures that children acquire a deep understanding of maths and can apply this in a range of contexts.

We believe that all children have the ability to master mathematical concepts, through the careful planning and delivery of lessons using a mastery approach.

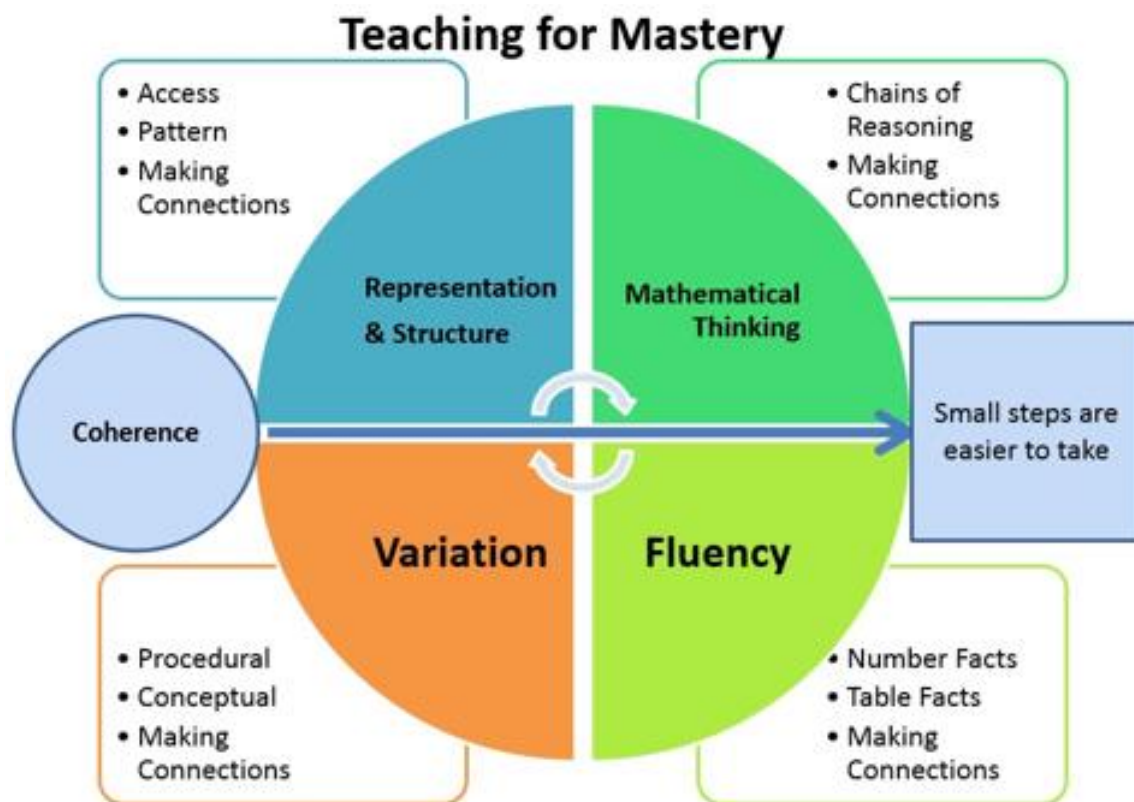
Key Principles

1. All children should leave Egerton CP Primary School with a sound understanding of key mathematical principles.
2. Children will make progress from their starting points.
3. Children understand concepts through a mastery approach and are not taught to follow rules that require little mathematical thinking.

At Egerton CP Primary School, we believe that all children should have strong mathematical knowledge underpinned by deep understanding. We teach a mastery curriculum in maths, following the five key principles set out by the NCETM shown below. Our maths lessons are guided by these principles.

Implementation

The teaching for mastery approach:



The principles of this approach guide teachers in medium term planning and individual lesson plans to ensure that the curriculum is cohesive and progressive. We believe that through careful crafting of lessons all children can make progress.

'Mastering maths means acquiring a deep, long-term, secure and adaptable understanding of the subject. At any one point in a pupil's journey through school, achieving mastery is taken to mean acquiring a solid enough understanding of the maths that's been taught to enable him/her move on to more advanced material.'

NCTEM September 2017

Representation and Structure

We follow a CPA (concrete, pictorial, abstract) approach to teaching maths. Children have an opportunity to develop an understanding of a concept through the use of manipulations and pictorial representations alongside abstract approaches. Children should become fluent in the use of part-part whole models and bar models. These models are key to learning throughout the school and are to be embedded. Sentence stems are used to develop common language when discussing concepts. Our fractions, calculations and reasoning policies guide our teaching of maths through a mastery approach.

Mathematical Thinking

All children are given opportunities to use reasoning in maths every day. Reasoning gives all children the chance to puzzle and apply skills by making connections to learning. Our teachers consider misconceptions a child might have and bring their attention to these within a lesson.

Fluency

Becoming fluent in maths is essential. We want children to develop automaticity with key facts and be able to rapidly derive unknown facts. To become fluent, children need to be taught methods and understanding that underpins the concepts. Fluency should form part of every maths lesson. This provides the opportunity for children to practise skills that they know already. This should not be restricted to only number and calculation.

Variation

Making conscious decisions about changes (variance) in questioning style presentation is essential for children to have a deep understanding. Careful manipulation of questions should provide small steps and build upon each other. Conceptual variation focuses on the way a question is presented and

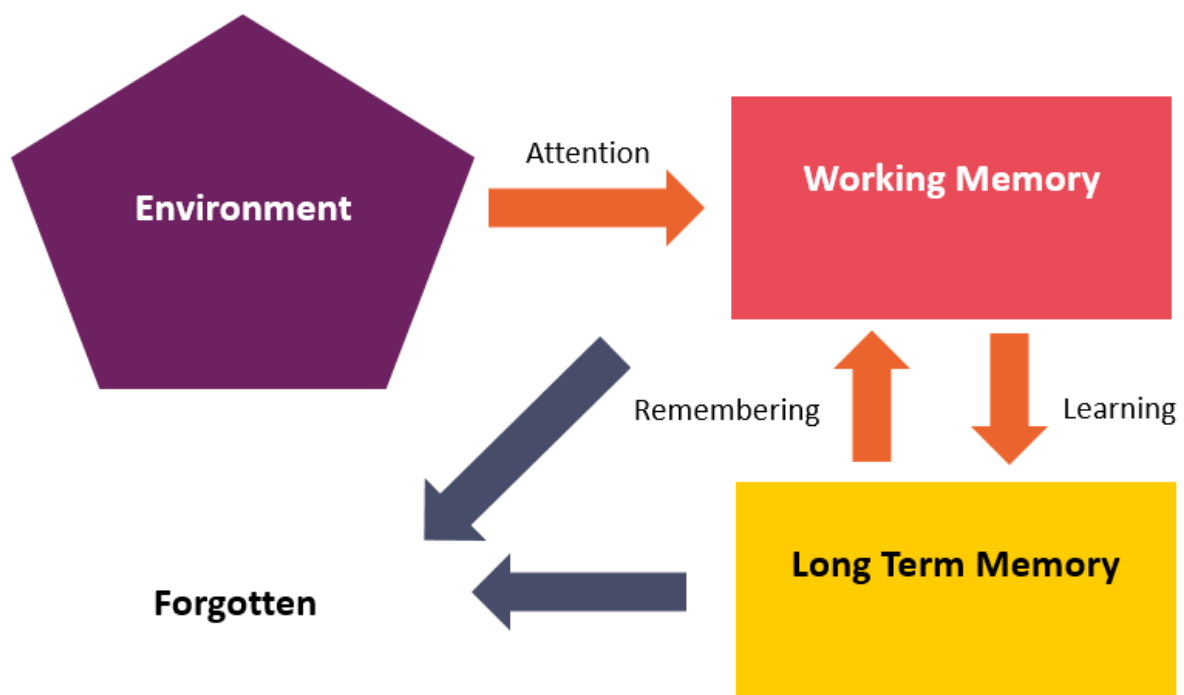
procedural variation involves looking at how to proceed with small steps through the lesson and series of lessons.

Coherence (small steps)

The teaching of maths should include small steps that build upon prior learning. Children should master these steps and then develop and make connections to the next step of learning. These small steps are imperative to deepen a child's understanding for them to master a concept.

Long-term memory

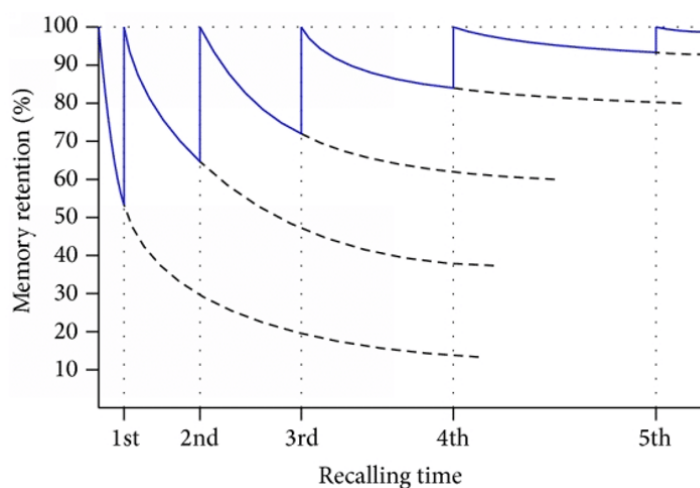
Another key consideration for staff is learning vs performance. Learning is a persistent change in our long-term memory. Learning goes on inside our minds and we cannot see this. Performance is immediate behaviour or knowledge that can be observed and measured. This can be challenging because learning cannot be seen – it is an internal process, and we can only make inferences about learning based on performance. In order for us to invoke lasting changes in pupils' understanding and capabilities, we need to consider an important factor in learning – memory. This has two key elements: working memory and long-term memory.



Willingham's simple model of memory highlights that we only learn what we attend to. We need to orient our attention to what we are learning. Therefore, it is vital that classrooms are set up ready to attend to learning. Working walls should be up-to-date and should only contain necessary information.

Once we attend to what we need to learn, it enters our memory. Memory is divided into two parts: working memory and long-term memory. Working memory is the conscious state of where we do our thinking. Long-term memory is where successfully processed information is stored.

We can also forget information that has entered our long-term and short-term memory. Forgetting is not a negative thing as it is an important part of learning.



Key Idea:

After learning something, our memory of it will decline over time unless we retrieve or review it. Therefore, it takes time to strengthen long-term memories.

The Ebbinghaus forgetting curve demonstrates that practice helps us retain memories. Each time we return to something, we are able to relearn that memory both quicker and will retain it for longer. Forgetting and remembering are both crucial in the learning process – 'practice makes permanent'.

Impact

All children should leave Egerton CP Primary School with a sound understanding of key mathematical principles.

Due to the well-sequenced and progressive nature of our curriculum, children regularly revisit concepts and link ideas together. Therefore, they know more, can remember more and do more in all areas of maths. Children will make progress from their starting points, and their achievements in statutory testing are consistently in line or above the national averages.

All pupils move onto the next stage of their education with the mathematical knowledge and skills to **learn** further, **achieve** their goals and **aspire** to their future success.