Stogursey C of E Primary and Pre-School

Maths Mastery Policy

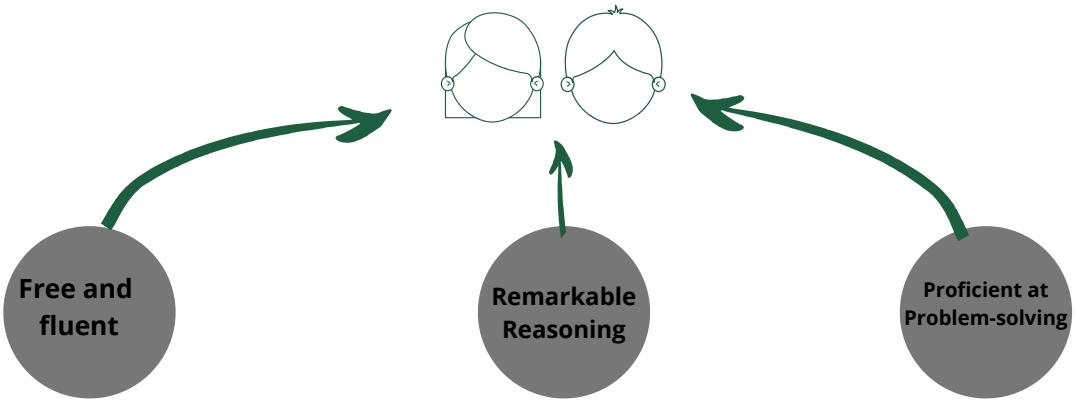
Approved by:	LGC	**Date:** 11.6.20
Last reviewed on: 11.6.20		
Next review due by:	**11.6.21**	

**To accompany this policy
Appendix 1- Maths Mastery Walkthrus

MATHS MASTERY POLICY

What?

What do we want to grow in our Novice Mathematicians?



Fluency aims:

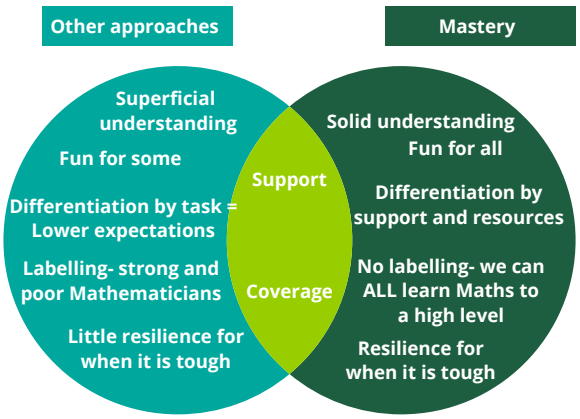
-Develop the **fundamentals** in Maths
-Secure a **conceptual understanding**
-**Recall useful facts** and grow a 'toolkit' of these
-Have an appreciation of **number and operations**
-Develop a 'bank' of **efficient strategies** to calculate

Reasoning aims:

-Understand and use **enhanced mathematical vocabulary**
-Progressively develop **reasoning skills**
-Develop own and others' **thinking**

Problem Solving aims:

-Apply maths to **variety of problems**
-Develop proficiency with the **5 types of problem solving**
-Progressively succeed with greater **complexity of problems**
-Experience **real-life and unfamiliar scenarios**
-**Connect knowledge across areas of Maths** to solve problems



Mastery is our chosen approach to growing our novice mathematicians. The main difference that stands out with the Mastery approach is that children are taught together to master their own year group's objectives and deepen rather than rush onto the next year's content. The mindset shift for adults is to not label children. All children are capable of learning Maths to a high level. Some children will take longer than others to grasp content and others will grasp content rapidly. This doesn't necessarily make them better Mathematicians.
To the left are the key differences between Mastery and other approaches to Maths teaching.

Why?

Mathematics plays an important role in children's lives and in our school quest to 'grow in the grace and knowledge'. The rationale behind this policy is that in order for children to grow as Mathematicians, they need to gain a deep understanding of the concepts underpinning Mathematics in order to flourish in the three aims of Fluency, Problem Solving and Reasoning.

Our Maths Curriculum is rooted in research and the decision to teach through Mastery came about as the only approach that aids conceptual understanding, promotes a connectionist approach (Askew et al) and truly develops children's confidence as Mathematicians. Mastery has also been identfied in Hatties's meta-analyses of what works as being highly effective (effect size= 0.57).

This policy sets out the expectations for our Mathematics Curriculum.

Benefits for children:

Deeper learning of content.

No child is left behind. **Everyone progresses together.** Teachers have higher expectations.

Builds schemata for long-term retention.

Gain confidence and change perceptions of Maths.

Small steps approach ensures **cognitive overload doesn't occur.**

Benefits for teachers:

Evidence-based. **It works!.**

Less marking & planning to do.

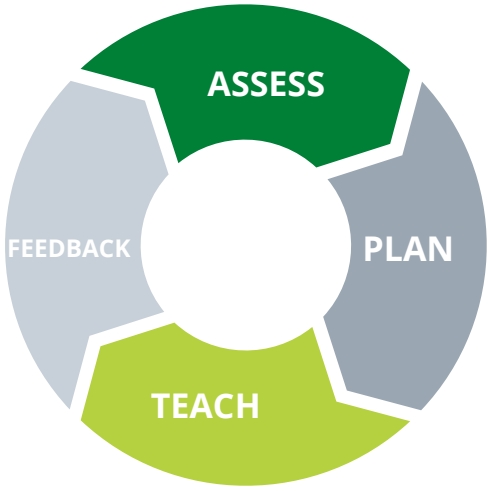
It is **fun to teach** and staff develop confidence as generalists.

How?

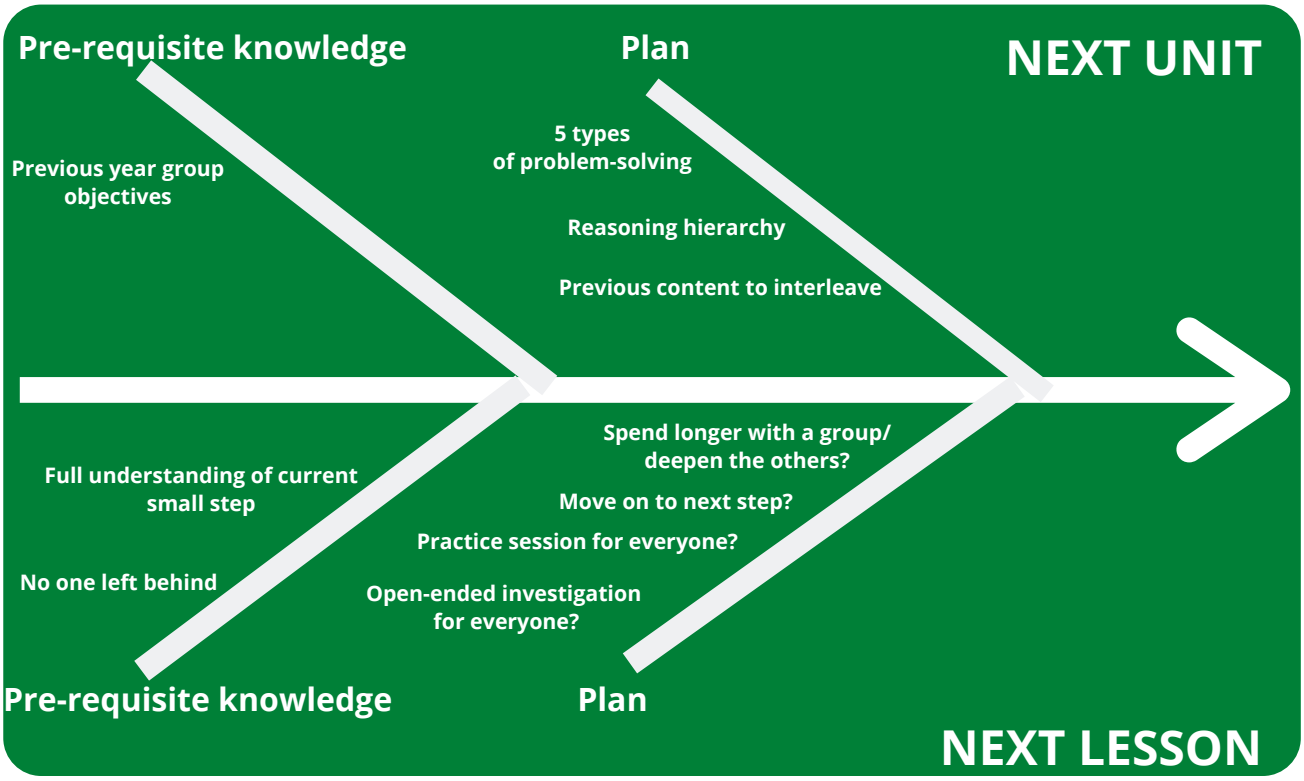
A cyclical approach to units and lessons

We follow the overview from White Rose Maths and do not follow a spiral curriculum. The sequence is well-thought out and the order builds on previous units. The small-steps approach builds on prior learning both from the previous lesson and the previous year. Topics are revisted each year except for year-specific topics.

Teachers are expected to teach using the cyclical approach for units and lessons so that deep knowledge and understanding of the concepts are gained.

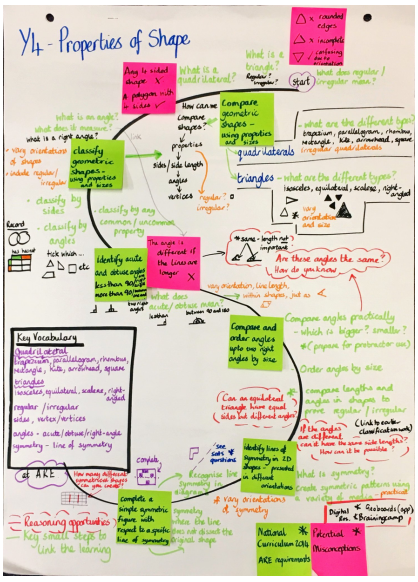


ASSESSING FOR WHAT'S NEXT



PLANNING

There is no preferred lesson planning format. All that is required is a unit 's-plan' to show what has been planned in a unit and this should be displayed somewhere in the classroom so that adults and children alike can see the learning journey ahead as well as to track what came before. An example is below.



MIXED-AGE CLASSES

Due to our school's size, most teaching is done in mixed-age classes. This can be a challenge, although not impossible. Mixed age planning and overviews are availabe from White Rose and the vast majority of the time, concepts can be matched up across year groups. and **the whole class can be taught together**. Here are some options to consider making it work when they don't match.

Teacher teaches one Year group

Other Year group deepens (apply) from a previous lesson

Teacher teaches one Year group

Other Year group does some Pre-teaching with Teaching Assistant

Teacher teaches one Year group

Other Year group consolidates (practise) from previous lessons

PLANNING A LESSON

There are three purposes to Maths lessons in our school and suggested sources of planning are listed with each purpose.

UNDERSTAND

This wll be for the majority of lessons. We **use White Rose to plan lessons** to include all 3 aims of Maths but in a structured way. The Premium Resources also set out tasks and include Procedural Variation to aid quicker progress.

PRACTISE

This needs to be built in regularly. There should be regular evidence of practice built into units so that **children can consolidate learning**.

APPLY

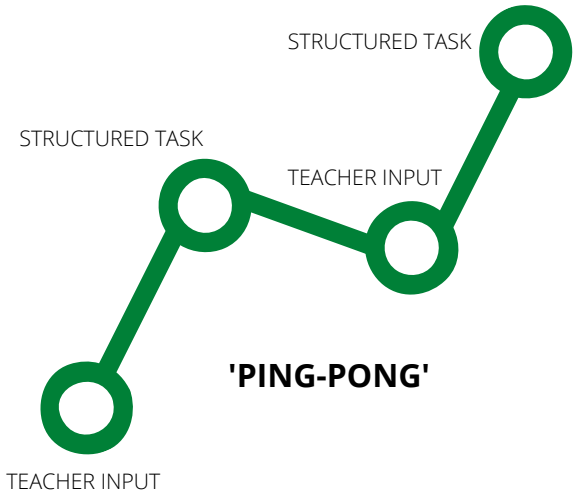
It is important that not just the 'rapid graspers' do this. Each unit needs to have a chance to develop at least one of the 5 types of problem solving in more depth. Open-ended investigations like Gareth Metcalfe's **'I See Problem Solving'** has a structured, systematic approach to build confidence using the Maths content as context. It is expected that this is seen at least once in a unit.

KNOW THE PURPOSE OF THE LESSON

DECIDE THE STEPS IN WHICH UNDERSTANDING WILL BE GAINED

PLAN FOR A 'PING-PONG' BACK AND FORTH STRUCTURE (IF NECESSARY)

DECIDE HOW TO **CATER FOR 'RAPID GRASPERS'** IN ADVANCE



When planning a structured task, it is crucial not to aim for pages and pages of questions. This does not aid understanding. Each structured task should have **no more than 5 questions**. The aim is for children to 'keep up' not 'catch up'. 'If you finish' questions that are open-ended are key in building resilience in your rapid graspers as well as freeing adults up to support those who need it.

In an 'understand' lesson, structured task 1 should enable the children to 'practise the fundamentals' to understand the concept being taught in the small step. The next structured tasks should enable the children to look at 'what it is also' as well as 'what it is NOT'. Lessons should teach from misconceptions and teachers should know this in advance.

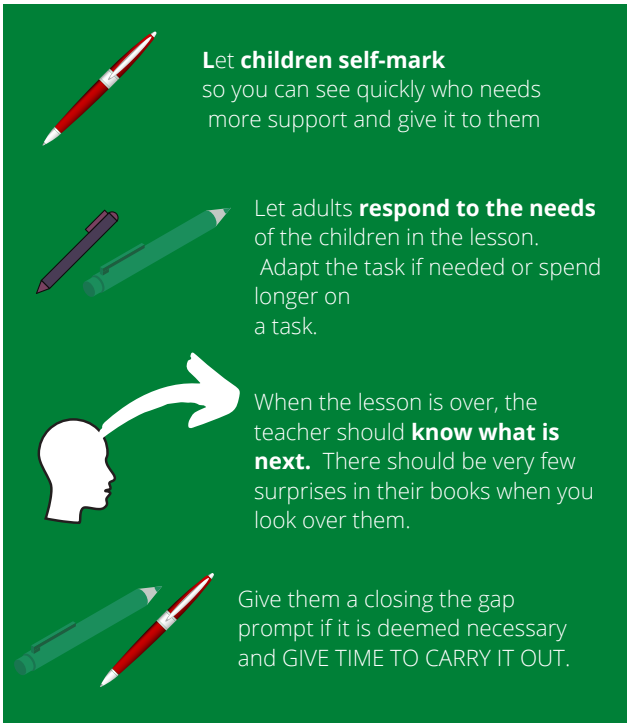
A small step does not equate to one lesson. Most take longer. White Rose shows how children can move their understanding from concrete to pictorial to abstract thinking for each step.

HIGH STANDARDS

Vocabulary- adults should be modelling enhanced subject knowledge through the words they use. This in turn, aids children's reasoning.

Star Challenges- this should be at the end of a lesson and it is not expected that all children get to this. It should be a 'tricky' problem that is complex and draws in other areas of the Maths Curriculum. Periodically, the whole class can experience this but it is mainly for 'rapid graspers' to develop resilience.

LIVE FEEDBACK AND MARKING



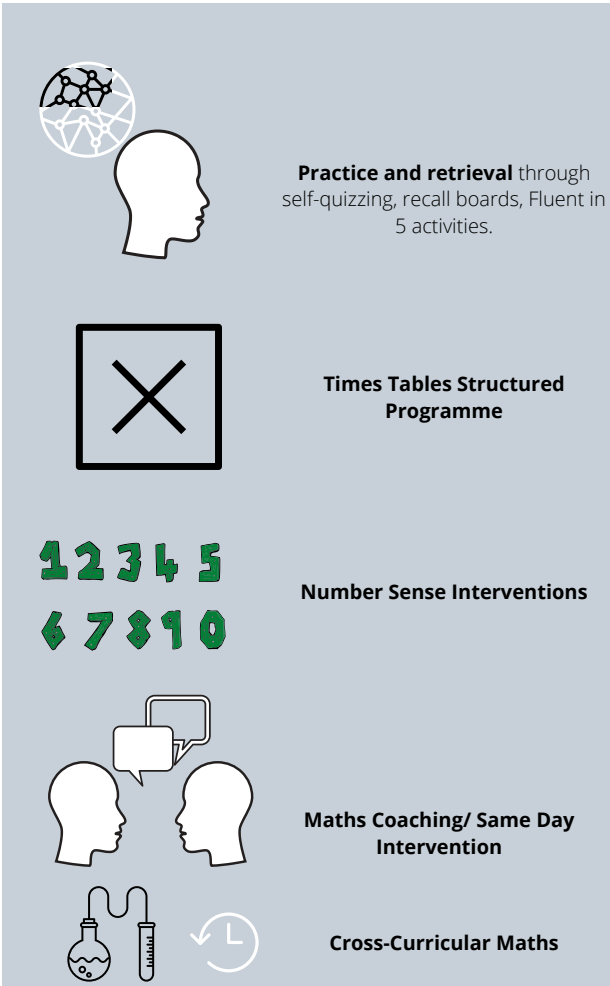
When?

There should be a daily lesson of Mathematics except in exceptional circumstances like trips, events etc.

The length of a lesson depends on the children's ages. 3/4 of the time should be on the lesson. The remaining 1/4 should be spent on mental maths spaced practice.

Where else?

Maths is a subject in its own right. However, it can be seen in other activity in the school.



Who?

The Maths Team in our school

Louise Day- STEM Lead
Gary Tucker- Assistant Maths Lead
Brenda Wall- Lead TA for Maths
Teresa Miller- Link Governor