

An Baya Federation



Maths Policy

**St Marys CE Primary
&
Madron Daniel CE Primary**

1. Rationale

Maths across the An Baya Federation

At St Marys and Madron Daniel we believe that the teaching of mathematics is hugely important as it equips pupils with a uniquely powerful set of tools to understand and change the world.

2. Intent

The aims of the maths national curriculum are:

That children should:

- be **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

3. Objectives

What does our planning look like?

We use white rose schemes of learning to structure our maths year. This provides us with a long term planning and orders the units so there is a focus on number at the beginning of the year. The schemes are broken down into suggested small steps that teachers can choose to use if they wish. However, it is up to the teachers' professional opinion to decide if they choose to use those small steps, or change the order or add their own small steps. The teacher is responsible and the most well equipped to make a decision about what is to be taught as they will know what the children can and cannot do. The white rose powerpoints are a very useful resource but they are not to be followed as a scheme. These should be adapted and used at the discretion of the teacher. The white rose videos should only be used for remote learning or if the teacher is absent. They cannot be used in whole class teaching as they need to be adapted to the needs of each class. There is no written versions of planning recorded but teachers are responsible for recording their chosen order of small steps so that is available for the maths lead to monitor progression.

Implementation

To support the teaching of the national curriculum, we have adopted teaching for mastery at St. Marys and Madron Daniel. Our practises and approaches are constantly being evaluated and adjusted to provide children with the most effective maths teaching.

Why use a teaching for mastery approach?

Mathematics teaching for mastery rejects the idea that a large proportion of people 'just can't do maths'. All students are encouraged by the belief that by working hard at mathematics they can succeed and that making mistakes is to be seen not as a failure but as a valuable opportunity for new learning.

What does teaching for mastery look like in the classroom?

Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time, as happens in Shanghai and several other regions that teach maths successfully. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind. Differentiation is achieved, not through offering different content, but through paying attention to the levels of support and challenge needed to allow every student to fully grasp the concepts and ideas being studied. This ensures that all students gain sufficiently deep and secure understanding of the mathematics to form the foundation of future learning before moving to the next part of the curriculum sequence. For those students who grasp ideas quickly, acceleration into new content is avoided. Instead, these students are challenged by deeper analysis of the lesson content and by applying the content in new and unfamiliar problem-solving situations. If some students fail to grasp an important aspect of the lesson, this is identified quickly, and early intervention ensures that they are ready to move forward with the whole class in the next lesson.

Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points, and a carefully sequenced journey through the learning. In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion. It is recognised that practice is a vital part of learning, but the practice is *intelligent* practice if it aims to, develop students' conceptual understanding, and encourage reasoning and mathematical thinking, as well as reinforcing their procedural fluency.

Significant time is spent developing a deep understanding of the key ideas and concepts that are needed to underpin future learning. The structures and connections within the mathematics are emphasised, which helps to ensure that students' learning is sustainable over time. Key facts such as number facts are learnt and practiced regularly to avoid cognitive overload in the working memory. This helps students to focus on new ideas and concepts.

What is small step planning?

We use smart board presentations to deliver our lessons. These need to be seen as part of a sequence of learning rather than one off lessons. From looking at the presentations, it should be clear to see how that the teacher is leading the children on a journey through the topic. In each group, there should be evidence of the CPA approach being used to embed concepts. Teachers should refer to the school's calculation policy to see which methods should be taught in their year groups.

As a staff we discussed what should be included in our small step lesson approach. These things should be present in all lessons:

- ✚ New vocab should be introduced and explained and any other vocabulary to be revised. For children to be able to explain their reasoning, we need to encourage children to use the correct language.
- ✚ Number fact/times table fluency. This might consist of number bonds practise, doubles/halves, times tables and division facts, number of the day etc. This could be revisiting previously covered material.
- ✚ A challenge slide at the end of the lesson. We work on the principles that we teach, they learn, we 'confuse' and they understand. This 'confuse' slide will help the teacher to assess who has really mastered the topic and who needs more support.
- ✚ Slides will show that the CPA approach is embedded throughout our lessons. Different representations and structures will be carefully chosen by the teacher so that the children can grasp the concept.
- ✚ Slides should demonstrate intelligent practise. Teachers should think carefully about their choice of numbers and questions so that they can move the children through a small step approach. It is not a variety but variation. The teacher needs to know why they have chosen those numbers and what effect they will have.

Within each sequence of lessons, there will be evidence of;

- ✚ Fluency. Fluency is about instant recall but should not just be about rote learning and is not just limited to recalling a set of known facts. Children need to be encouraged to notice key aspects of the mathematical structure in order to develop fluency with their number facts, derive further numbers facts, and identify inaccuracy in their work.
- ✚ Variation. The teacher will use conceptual variation and procedural variation to secure a deep understanding of the concept. Conceptual variation helps the child to understand what the concept is and what it is not. Procedural variation provides the opportunity to explore the structure of the mathematics being explored. The teacher uses a carefully designed set of questions, that will draw children's attention to a particular aspect of mathematics.



Mathematical thinking. Mathematical thinking involves

- looking for pattern in order to discern structure;
- looking for relationships and connecting ideas;
- reasoning logically, explaining, conjecturing and proving.

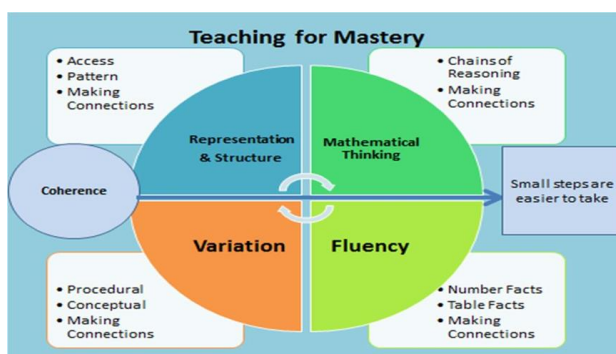
Impact

How do we mark maths at St. Marys?

Marking and evidence-recording strategies should be efficient, so that they do not steal time that would be better spent on lesson design and preparation. Neither should they result in an excessive workload for teachers. Therefore, at St. Marys our marking is simple and clear. Because teachers are planning a clear sequences of lessons and we are using the mastery approach, we expect the majority if not all of the children to succeed. If the children has shown in their written work that they have understood the concept, the teacher will tick the work. If there are small misconceptions, teachers will highlight green and ask children to check their answers again in the next lesson. For those children who have shown in their written work that they have not understood the concept, rapid intervention will be used to ensure that the child grasps the concept. They then will be ready to continue the learning with the rest of the class in the next lesson. This ensures that they keep up with the rest of the class rather than falling behind. This will be recorded in their books by RI.

How do we assess?

Mastery can only be secure if teacher's have a clear understanding of what their children have understood. We no longer plan out a week of lessons but rather each lesson is planned on the progress of the previous one. Teachers must adjust their pace and lessons for mastery to occur. This will ensure that all children will move together. Assessment therefore is a daily process that informs the next day's learning. We also use white rose end of unit assessments to help highlight strengths and areas of weakness and NFER end of term assessments to track progress.



Responsibilities

The Head teacher is responsible for:

- ensuring that there is provision for all curriculum subjects
- ensuring that learning is excellent for all children
- ensuring that all staff are trained to a high standard to deliver the curriculum and lead their subject areas effectively.

These areas will be reported on to governors regularly who will hold the head teacher to account on curriculum coverage and standards.

The Maths leader need to ensure that

- Ensuring that all aspects of maths are covered in our curriculum and that the learning in their subject is of a high standard.
- Monitoring learning in maths.
- Maintaining subject leader files
- Developing actions plans as part of the SIP
- Support and advise colleagues to ensure the highest possible standards in maths.
- Ensure that the maths is well resourced and relevant CPD is provided.

Class teachers are responsible for

- Day to day planning, teaching and learning
- Assessment
- Differentiating work or support to meet the needs of children in their class. Regular consultation with our SENDCo and Inclusion Co-ordinator facilitates this.
- Mark work effectively according to the marking and feedback policy.

Teaching assistants are responsible for:

- Day to day delivery of the curriculum supervised by class teachers.
 - Following explicit guidance from the class teacher to support identified children with their day-to-day learning
 - Providing feedback to the teacher about the learning needs of the children they assist.
- Special Needs – key issues regarding children with SEN relevant to the policy

Equal Opportunities

We are committed to providing equal opportunities for all our children and ensuring that **all** children have access to the full maths curriculum.

Health and Safety including risk assessments and e safety

It is the class teacher's responsibility to assess the activity and inform the subject leader. The subject leader will ensure that the appropriate risk assessments are produced prior to the activity taking place

On-line Safety

All pupils and staff need to have signed our Acceptable Users Agreement on internet and digital images. See also our on- line safety policy.

Safeguarding and Prevent Duty

All staff must follow school policy and procedures on Safeguarding and the Prevent duty

Parental involvement

At St. Mary's we believe that education works best when working in partnership with parents and carers. All parents and carers are given a topic leaflet each term outlining the main objectives to be covered and detailing how to support this.

Governor involvement

The maths governor is invited into school regularly to monitor subject learning. These reports are then shared at governors meeting and points of action noted and acted on.

Glossary and extras

What do Maths working walls look like?

- Each class should have a clear calculation board to show what methods are taught in each year group. This can remain constant throughout the year to help teacher workload and to be a reference point for children.
- Vocab- there should be displayed the current vocab for each topic. (twinkl have vocabulary in age groups)
- Representation and structure – the models and images that are used in teachers' presentations could be printed off and displayed. They can be slides from presentation as this will minimise preparation for teachers.
- Teaching points from lessons. Teachers to use their own discretion to decide which points are important and should be displayed.
- Pupil challenge/conjecture – teacher to choose their own way that is appropriate for the children in their class. The children should be given opportunity to explain their reasoning.

It should be a learning resource that

- Supports children's understanding
- Extends their thinking
- Shows what the children have been learning about

It should not

- Be a burden on teachers workload
- Have to be well presented. Hand written questions or printed slides are enough.