



# **Policy for Mathematics**

**Reviewed and Updated: November 2022**

**Date for Review: November 2023**



This policy should be read in conjunction with the following school policies:

- Calculation Policy
- Assessment Policy
- Marking and Feedback Policy
- Equalities Policy
- SEND Policy
- Homework Policy

### **What Maths looks like at Much Marcle C of E Primary School.**

As with all of our subjects, within the Mathematics curriculum our drivers are at the heart of everything we do. Through our Mathematics lessons we promote:

- 1. Perseverance**
- 2. Confident Communicators**
- 3. Healthy Body, Healthy Mind**
- 4. World Citizens**

At Much Marcle C of E Primary School we recognise the importance of mathematics throughout each child's life. It enables children to understand relationships and patterns in both number and space in the world around them. It is essential to everyday life, critical to science, technology and engineering and necessary for financial literacy and most forms of employment. We intend to give each child the self-confidence and resilience to reach their full potential by ensuring that they have the tools to calculate fluently, reason logically, problem solve and think in abstract ways. We strongly believe that **EVERYONE CAN DO MATHS**.

To see where we are coming from, watch this short video clip:

<https://www.youtube.com/watch?v=ZonomJumRoM>





## **Intent – What are we trying to achieve?**

- Children become confident, competent and independent mathematicians
- Build a deep conceptual understanding of maths and its interrelated content so that children can apply their learning in different situations
- Develop children's ability to articulate, discuss and explain their thinking using appropriate mathematical vocabulary
- 'Mistake friendly' classrooms where children see mistakes as learning tools – there is an emphasis placed upon developing the power to 'think' rather than just the 'do'
- Instil the mind-set in every child and staff member that everyone can do maths and that maths is for everyone...EVERYONE CAN!
- Children develop into resilient and inquisitive learners – skills needed to become life-long mathematicians
- Deliver an inspiring and engaging mathematics curriculum, taught by highly-enthusiastic staff, which sparks curiosity and excitement and which nurtures confidence in maths

## **Implementation – How is our vision translated into practice?**

It is essential that children have a deep understanding of the most important elements that underpin the mathematics curriculum so that there is consistency and continuity as children move from one year group to the next. Therefore, if necessary, time may be weighted towards those objectives set out in the ready-to-progress criteria (non-statutory guidance provided by the Department for Education, created in partnership with the National Centre for Excellence in the Teaching of Mathematics).

In order to meet our aims above and the requirements set out in the EYFS framework and the Primary National Curriculum, we will implement the following:

### **EYFS**

Children in reception have daily directed maths teaching, in which they learn through stories, songs, rhymes, games and tasks using concrete manipulatives. Talking about maths is given high priority; children are invited to verbalise their thinking and guided in questioning that of their peers. STEM sentences and mathematical vocabulary are introduced and reinforced throughout the year.

### **Lesson Planning**

Where possible teachers teach both year groups in their class together. Where the two year groups are looking at very different objectives, the TA delivers the lesson to one year group (lesson is planned by class teacher) and the teacher delivers the other year group's lesson. The teacher and TA will alternate their groups.



Lessons are planned based on formative assessment of what students already know and we include all children in learning mathematical concepts. At the planning stage, teachers consider what scaffolding may be required for children who may struggle to grasp concepts in the lesson and suitable challenge questions for those who may grasp the concepts rapidly. This judgement is based on information from the elicitation tasks and previous lessons.

Each lesson focuses on one key conceptual idea and the children's learning is carefully planned across a unit of work in small steps. Connections are made across maths topics.

## **Classrooms**

All classrooms have a maths working wall. This displays the unit theme, the mathematical vocabulary (which is updated and referred to during the lesson) key questions and our learning journey throughout the week for the children to refer back to. The learning journey will be the pictorial representations from the lesson as well as worked and labelled examples and any 'top tips' that the teacher may have covered during the input to each lesson.

## **Lesson Structure**

Each lesson will follow a specific structure

- Daily Fluency which we refer to as Raising Attainment in Maths (R.A.M) – 15 mins
- Teacher input – (using a range of resources from agreed schemes)
- Independent application
- Challenge Questions (Reasoning and Problem Solving)
- Plenary

## **Teaching Strategies**

- Ping Pong method
- My Turn Your Turn
- Reasoning embedded throughout
- All children work towards same learning objective with differing levels of support
- Learning partners
- Stem sentences

**Fluency**– Fluency has dedicated teaching time, where the focus is on developing automaticity with number facts, and applying number facts to mental arithmetic strategies as well as formal arithmetic procedures. The focus of fluency lessons is on efficiency, accuracy and flexibility. Pupils are encouraged to notice the numbers before beginning a calculation, and to identify patterns, relationships or structures which may lead to an efficient calculation strategy.



**Ping Pong** – The teacher orchestrates a continuous back and forth dialogue with the children using questions, short tasks, explanations, demonstrations and discussions. This enables the teacher to vary the pace and the direction of the lesson if necessary and to continuously monitor the progress of the class.

**Differentiation** – Children are taught as a whole class and each child is given access to the same lesson content. Appropriate support is available for any child who might need it and there are opportunities to deepen learning through the provision of more challenging activities. No assumptions are made before the lesson about which children might need more support nor which ones will likely move on to the more difficult tasks.

**Conceptual variation** - Children are presented with carefully chosen examples and non-examples. Children are given time to think and discuss with their classmates and the teacher supports the class to listen to each other's ideas, to agree and disagree and to improve until we reach a consensus.

**Procedural variation** – Children will be encouraged to focus on patterns and relationships between calculations. They will use one problem to work out the next. The teacher will facilitate this noticing by asking, 'What's the same?' and 'What's different?' The concept can then be presented in a range of different ways such as missing box problems and changing the position of the equals sign in a calculation etc.

**Questions** - Teachers use questioning throughout every lesson to check understanding and to challenge thinking. A variety of questions are used such as:

Explain how you know? Why is that correct? Why is that incorrect? Can you prove it? Are you sure? What's the same/different about? Can you explain that? What does your partner think? What do you notice? Where have you seen this before? What do you already know about this?

Children are expected to listen to each other's responses and may be asked to explain someone else's ideas in their own words, or if they agree/disagree etc. All responses are collected by the teacher and recorded on the board. Children are then given time to self-correct, notice mistakes and prove that their response was correct, before the correct answer is agreed upon. Children are also encouraged to ask their own questions

**Stem Sentences and Mathematical Vocabulary-** Generic Stem sentence starters are displayed around the interactive whiteboard to encourage responses to be in full sentences. Topic specific Stem sentences are displayed on the Working Wall. All Stem sentences are modelled by teachers and are used by the children to help make sense of the structure of maths.

**Reasoning and problem-solving** – Staff facilitate mathematical thinking through their careful planning of open-ended, low threshold/high ceiling activities. They use the WRM worksheets to supplement this. Children who require extra scaffolding are



guided through the reasoning and problem-solving by a teacher or TA and specific questions are chosen for the children to focus on, to allow for them to really explore and understand the questions. Children use the language of reasoning (which is displayed in each classroom or in books) when talking about maths, challenging each other and the adults in their class as well as justifying their thinking.

**Marvellous Mistakes (MM)** - The children are encouraged to experiment with maths. As part of this, taking risks is encouraged and therefore mistakes are inevitable. MMs are celebrated and the children are encouraged to identify why the mistake was made, how they can learn from it and what they can do to overcome it. Some MMs are shared with groups or the whole class as a learning point for all children. Common MMs are recorded on the maths working wall. You may see MM written next to an incorrect answer in a child's book and the child will be expected to correct the mistake as well as explaining what they did wrong.

**Marking** – Marking in maths follows the schools marking policy.

**Assessment** - Children's progress and attainment is closely tracked through termly assessment which is carried out through:

### **Summative Assessment**

Using White Rose Hub termly assessments, pupils are assessed against their year group objectives every half term. National Curriculum tests are used at the end of KS1 and KS2; teachers use past and sample papers to inform their assessments as they prepare pupils for these assessments.

### **Formative Assessment**

NCETM Mastery Materials help triangulate teacher judgements alongside work in books at the end of each half term. Where possible, same day intervention (post-teach intervention) is used through the use of afternoon sessions so that no child is left behind and that they are able to access the learning of the following day.

**SEND pupils** – may be supported by additional adults, different resources or differentiated activities. They may also complete additional activities outside of the mathematics lesson. NB: We do not label our children. We have high expectations of all children and strongly believe that all children are equally able to learn mathematics. Some may take longer to grasp concepts and may need careful scaffolding or extra time/support (guided groups, same day catch-up, additional homework, pre-teaching, intervention groups etc), but when concepts are presented in the right way all children can learn.



## **Impact – What is the impact of our curriculum?**

- Children are happy learners who talk enthusiastically about their learning and eager to further their progress in maths
- The impact of 'mastery' and the emphasis on accurate use of mathematical language is evident during class/pupil discussions
- Children's fluency in number is evident in our proven track record of high success in arithmetic
- More consistent teaching practices that are well-known to be more effective for pupil progress long term, evident across school
- Cross-school moderation highlights the high level of challenge for all ability groups, evident throughout topics through reasoning and problem solving activities
- Teacher assessment of the depth of learning is also increasingly accurate
- These factors ensure that we are able to achieve high standards, with achievement at the end of KS2 in-line with that of the national average, as well as an increasing proportion of children demonstrating greater depth, at the end of each phase.

## **Role of the Subject Leader**

1. Ensure teachers understand the requirements of the National Curriculum and support them with lesson planning ideas.
2. Lead by example by setting high standards in their own teaching.
3. Lead and signposts CPD opportunities.
4. Lead the whole school monitoring and evaluation of teaching and learning in mathematics by observing lessons, modelling lessons, analysing data, conducting book scrutiny and engaging in pupil conferencing.
5. Take responsibility for managing own professional development by participating in external training, private study, engagement in educational research and reading.
6. Keep parents/carers informed about mathematical issues.
7. Keep the school policy for mathematics under regular review.
8. To work closely with the Headteacher / SLT to further develop and monitor the mastery approach to maths.
9. Work with the SHaW Maths Hub to adjust and refine our curriculum for the children at Much Marcle.

Monitoring and Evaluation Monitoring and evaluation will be carried out by:

- Headteacher
- Mathematics Subject Leader



- External advisors
- Colleagues from other schools

The monitoring of progress is against age related expectations so that pupils falling behind or exceeding targets are swiftly identified and intervention is then provided.

## **Classroom Observations**

The Headteacher, Mathematics Subject Leader and colleagues are responsible for classroom observations and feedback to teachers, to provide professional development and develop further outstanding teaching and learning.

## **CPD and Staff Development**

The ready to progress materials, provided by the Department for Education in June 2020, have been outlined during staff training, adopted by each class teacher and are incorporated into daily planning.. Professional discussion regularly takes place within staff meetings on the teaching of Mathematics to enable confident mathematicians. The Maths Subject Leader will regularly liaise with the SHaW Maths Hub and keep abreast of developments within the NCETM and from the Department for Education.