

Marston Moreteyne VC School



Maths Policy

Date Policy last reviewed - October 2024

Rationale

At Marston Moreteyne School we are preparing our children for a positive lifelong relationship with Maths, we believe that Maths teaches us how to make sense of the world around us. We engage children in learning in real life environments, solving problems using concrete manipulatives and working across the curriculum. We aim to provide children with the skills to develop the ability to calculate, communicate, reason and to solve problems. This enables children to explore, understand, and appreciate relationships and patterns in both number and shape in their everyday life. We aim to promote confidence, resilience and competence with numbers and the number system, children are resilient and confident in their mathematical learning, seeing mistakes as a learning opportunity.

Intent

At Marston Moreteyne School, we aim to:

- provide the children with the skills and strategies necessary to develop into confident, collaborative, systematic mathematicians.
- ensure that all children make sufficient progress to meet or exceed age-related expectations.
- promote enjoyment and enthusiasm for maths through practical activity, exploration and discussion.
- ensure children make useful connections; noticing patterns between mathematical ideas and practical real life problems.
- promote confidence and fluency with numbers and the number system.
- build resilient mathematicians who recognise that maths is an exciting journey of discovery and understanding
- understand the importance of mathematics in everyday life.
- provide opportunities for children to model deeper reasoning; recalling and applying knowledge rapidly and accurately

In order to achieve these aims, we use a Mastery approach to teaching mathematics across the school. Our school works with the NCETM and our local Maths Hub to support the implementation of the teaching for mastery programme.

Implementation

Our Mathematics planning follows and combines:

- The Early Years Foundation Stage Framework
- National Curriculum 2014
- White Rose
- Mastering Number
- Ready to Progress criteria

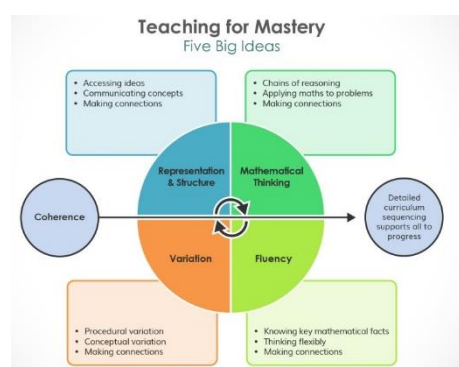
Mastery Approach

Mastering maths means acquiring a deep, long-term, secure and adaptable understanding of the subject. Children who have mastered key concepts are then able to apply their knowledge to a new problem or unfamiliar situation.

The key ideas of Mastery are:

- **Success in Maths is achievable by all** - we have high expectations for all pupils and encourage a positive mind-set towards maths. Learning challenges are scaffolded and supported so that all pupils can make progress.
- **Learning is deep** - Lessons are taught in blocks of learning where significant time is spent fully exploring and applying key ideas and concepts.
- **Learning is built upon and coherent** - Pupils build on prior learning from the year before that has been sufficiently mastered.
- **Reasoning and making connections** - Pupils are taught to make connections and notice patterns between areas of learning and use precise mathematical language.
- **Fluency**- Children learn key number facts and times table facts so that they have an automatic recall.
- **Representation** - New mathematical concepts are taught using a broadly concrete, pictorial, abstract approach (CPA).
- **Problem solving is central** - Pupils can truly grasp a concept through investigating it in new, alternative and more complex ways through problem solving.
- **Challenge through 'Going deeper'** - Rather than accelerating onto new content, pupils are given tasks which challenge their thinking, deepen knowledge and improve reasoning.

The teaching of Mastery is all based around the '5 Big Ideas' - Coherence, Representation and Structure, Mathematical Thinking, Fluency and .Variation



| Representation and Structure | Mathematical Thinking | Fluency | Variation | Coherence |
|--|--|---|--|--|
| Representations used in lessons expose the mathematical relationship and structure being taught. | Ideas are worked on by the children: thought about, reasoned and discussed with 'talk partners'. | We promote quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations. | We aim to represent the concept being taught in more than one way. We encourage the children to pay attention to what is kept the same and what changes. | Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children that enables them to apply the concept to a range of contexts. |

Concrete Pictorial Approach (CPA)

We recognise the importance of using manipulatives and representations to effectively teach new mathematical concepts. We use the Concrete, Pictorial, Abstract approach to help learners build strong mental images of the maths they are learning. Instead of being disembodied facts, children learn to visualise the meaning of the fact. Concrete objects and manipulatives are used to help the children understand what they are doing, pictorial representations alongside can then be used to help reason and solve problems. The use of concrete and pictorial representations in turn will support children with abstract concepts. All classrooms have a toolkit of concrete resources that can be accessed by the children to support their learning.

Maths in Our Early Years Settings

We recognise the importance of a strong start in maths to help children build the necessary building blocks for later learning. Problem Solving, Reasoning and Numeracy skills are all developed in accordance with the Early Years Foundation Stage Statutory Framework. An interest in maths is developed by sharing songs, stories and rhymes, fostering opportunities to use maths in real world practices. As part of the White Rose Maths planning high quality books are shared with the children embedding their understanding of new mathematical concepts.

Children at Marston Moreteyne School are provided with an enabling mathematical learning environment that facilitates a developing understanding of number, measurement, pattern, shape and space. The varied activities offered allow them to enjoy, explore, practice and talk confidently about mathematics in a broad range of contexts, they begin to build a 'have a go' attitude where they are not afraid of mistakes and are encouraged to talk to adults and peers about what they notice.

Maths Progression through the School

Our broader curriculum follows a thematic approach, we therefore work in Maths to make useful connections between identified mathematical ideas and to anticipate practical problems the children are likely to encounter in adult life. We will engage learners with questions, generalisations, conjectures and statements that they can then prove/disprove as they develop their learning. This mirrors the Cornerstones Process used in our wider curriculum following the cycle of Engage, Develop, Innovate and Express. Maths at Marston Moreteyne School will link learning to real life environments and problems.

The yearly overview for Mathematics is taken from the White Rose Scheme of Learning. These blocks inform the medium term and short term planning for Maths, which are annotated and amended as formative and summative assessments indicate. The learning

objectives remain the same for all groups within the year, but content level is informed by ongoing assessment and reference to the framework's progression sheets. Ready-to-progress criteria, is used to supplement planning to support teachers to deliver the Nation Curriculum more effectively, bringing greater clarity and coherence.

In addition to Maths lessons Reception and KS1 are also using the scheme Mastering Number to develop children's number sense. Our aim is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.

To supplement the White Rose Maths scheme of learning, regular opportunities are given for children to recall knowledge, revisiting learning outside of the lesson objectives. In Key Stage One this is through the use of songs, rhymes and exploring concrete, pictorial resources to ensure children are fluent and able to rapidly recall past learning. In Key Stage Two flashback four is used to provide these opportunities.

During Maths lessons children are taught in small steps, with concrete resources and manipulatives helping them to represent number. Children are encouraged to see mistakes as a learning opportunity, with purposeful questioning helping to inform next steps and provide assessment opportunities. Teaching assistants are used effectively to scaffold learning, extend understanding and facilitate opportunities for reasoning and problem solving. The use of pre-teaching through interventions helps to support fluency and children's confidence when working as a whole class.

Problems are posed to the children to encourage them to show skills of reasoning and problem solving. They will need to apply problem solving skills to develop their understanding, we recognise the importance of reasoning and problem-solving abilities that will stay with them for life.

We work with our local maths hub, Engima to ensure our maths curriculum is innovative and up to date. High-quality staff training is in place to ensure all staff have the knowledge and skills to implement the high quality practice outlined.

Use of Computing

All children in KS1 have access to Numbots which they can use at home and school to develop a core understanding of maths from an early age, helping them to establish a strong mathematical foundation. In KS2 My Maths and TT Rockstars provide opportunities for the consolidation of both Maths and computing skills. TT Rockstars supports children with rapid recall of times tables facts preparing them for the times table check in Year 4.

Assessment

We are committed to best practice with regard to Assessment for Learning. Enabling staff and pupils to discuss and review progress and inform learning and target-setting.

Feedback is both 'over the shoulder' and presented as a whole class slide the next day with examples for discussion and exploration.

At the end of each block, White Rose summative assessments are carried out to determine how well pupils have met the success criteria for the planned learning. This helps to ensure that pupils are working at the appropriate level and determine what needs to be taught when the block of work is next revisited.

In EYFS, ongoing observations, work within the environment plus teacher judgement inform assessment records. Summative judgements made about each pupil's progress in both Number and Numerical Patterns. Professional judgement is used to gather observations and monitor progress in Maths which is used as baseline information for teaching in Year 1.

Cornerstones summative assessments are used at the end of the year with gap analysis tools used to inform planning for the next year group and support end of year judgements as children transition to middle school.

Learning Environment

Working walls in classroom are used by teacher, teacher assistants and children to support the learning. Pictorial examples are displayed and the children are encouraged to actively engage and use the working wall.

Maths is taught by the whole year group team with class teachers and HLTAs within the year group team supporting intervention through pre teaching. However, as gaps emerge and children need support with the foundations underpinning their mathematical understanding, the year group team will identify these children and may teach them in smaller focus groups. Teaching new concepts in a small steps approach helps to minimise the gap and ensures that all children are challenged to reason more deeply.

As a school Maths is celebrated collectively, with Maths week, number day and summer term challenges highlighting children's enjoyment in Maths. This provides opportunities for Maths to be celebrated at home.

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