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Marlborough St Mary's CE VC Primary School



MARLBOROUGH
ST MARY'S
PRIMARY SCHOOL

Mathematics Policy

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CURRICULUM INTENT

Marlborough St Mary's' engaging, active curriculum is inclusive and experiential. We enrich children's learning through practical, cross-curricular activities, which build curiosity and resilience.

In a caring, inclusive environment, based on Christian values, we foster creativity, imagination and a love of learning that will build self-sufficiency and develop children's independence to become life-long learners.

Our curriculum is challenging, sequential and aspirational for all, building knowledge and skills while linking to real life experiences, preparing our pupils to take their place as global citizens.

Rationale:

Competence in mathematics is essential to everyday life – critical in areas such as science, technology and engineering and necessary for financial skills and most forms of employment.

As a school, we are committed to providing a high quality mathematics education that therefore provides a foundation for understanding the world. We believe in developing the children's ability to reason mathematically, fostering an appreciation of the beauty and power of mathematics and cultivating a sense of enjoyment and curiosity about the subject.

Overall Aims:

Mathematics is an important creative discipline that helps us to understand and change the world. We want all pupils at Marlborough St Mary's to experience the beauty, power and enjoyment of mathematics and develop a sense of curiosity about the subject. At Marlborough St Mary's, and as part of the CanDoAcademy, we foster positive 'can do' attitudes, believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems before acceleration through new content.

Statement for Equal Opportunities:

At Marlborough St Mary's we aim to nurture and develop a life-long enjoyment, understanding and competency in Mathematics with all the children in our care, irrespective of their background and attainment.

Organisation of the Mathematics Curriculum:

Mathematics is a core subject within the National Curriculum and forms an integral part of the whole curriculum for EYFS, Key Stage 1 and Key Stage 2. The teaching of Mathematics is guided by Development Matters for Reception and the National Curriculum, which sets out the key objectives for Year 1 through to Year 6 to enable pupils to become fully numerate. Mathematics is taught twice a day through two focussed sessions: one to introduce new learning and a MathsOnTrack (MOT) meeting, at a different time of day, to review previous learning and strengthen number fluency.

At Marlborough St Mary's we use the CanDoMaths Club across the school to ensure our teaching and learning is consistent throughout year groups.

By adopting the CanDoMaths Club approach we aim for all pupils to:

- Become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- Solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios
- Reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language
- Have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately

Planning:

Mathematics planning will be guided by the National Curriculum objectives for each year group and where appropriate will be linked to other areas of the curriculum and the topic for the term.

The sharing of expertise is important therefore, where possible, Mathematics is planned in year group teams and there is a common format for weekly Mathematics plans. These plans are always saved to a planning file on the shared drive with paper copies kept in a file in the classroom and annotated after each session – including assessment for learning notes.

The CanDo Maths club provides each year group with a yearly roadmap that sets out the order in which the maths units will be taught. Each unit is then broken down further into small manageable steps which maps out the sequence of lessons to be taught.

Each unit of work includes subject knowledge expertise videos which all staff are encouraged to watch to ensure that their approach is consistent across the school and to provide high quality professional development for all staff working within the classroom. These videos also provide a starting point for planning each unit of new learning.

The second (and shorter) maths lesson of the day (MathsOnTrack Meetings) is planned using the CanDoMaths Club yearly overview that covers all mental arithmetic for that year group. These sessions are also used to revisit previous learning which teachers plan based on their assessment of the children.

How we Teach Mathematics at Marlborough St Mary's:

Deepening conceptual understanding is at the core of all mathematical activities planned. Fundamental to this is the use of practical and visual stimuli to develop understanding and the proactive addressing of misconceptions.

Teaching and learning will involve high quality mathematical challenges in order to promote lateral thinking, enthuse and engage children. Most lessons will have a predominant focus on mastering concepts through the use of a range of strategies and practical activities including:

- Solving practical, context-based puzzles
- Logical thinking activities
- Always / sometimes / never
- Convince me
- Open-ended questions

- Noticing
- Child-led questions
- Discussion of reasoning / use of correct mathematical vocabulary / answering in full sentences
- Use of the outdoor learning environment
- IT based activities

The mathematical curriculum is implemented through two carefully planned daily lessons.

Mathematics Lessons: Teach Up M/T/W/T/F: (09:15 – 10:00)		Maths On Track Meetings: Keep Up M/T/W/T/F (times vary across the school)	
‘Learning Together’	‘Support & Challenge’	Deliberate Practice Sessions Arithmetic/Intervention/Practice	

Each mathematics lesson focuses on a manageable step of new learning based on the NC statements.

Typical lesson design:

- 1) Hook It: Introduction
- 2) Teach It: Live modelling of the new learning with explicit use of potential misunderstandings
- 3) Practise It: All children practise together **Support & Challenge**
- 4) Do It: Up to 5 examples – 5 ‘What it is’ or ‘3+2’ ‘What it is/What it’s also’ **Challenge 1: Procedural Fluency**
- 5) Secure It: 1 or 2 Misunderstandings (True/False, Spot the mistake) **Challenge 2: Conceptual Understanding**
- 6) Deepen It: Apply understanding to solve new problems **Challenge 3: Mathematical Thinking**
- 7) Review It: Lesson Recap: Key Concept Statement and Key Vocabulary

MathsOnTrack (MOT) Meetings

- Day 1: Arithmetic – using the arithmekits
- Day2: Arithmetic – using the arithmekits
- Day 3: Deliberate Practice: Past and Present
- Day 4: Deliberate Practice: Past and Present
- Day 5: Fast Facts Friday

Multiplication Tables

We recognise that knowing the 12 multiplication tables, and their associated division facts, supports mathematical learning and understanding and allows children to be equipped with key facts when learning new concepts. The teaching of multiplication tables is delivered through focussed lessons that explicitly teach the acquisition of facts as well as supporting the conceptual understanding of multiplication. Pupils from Year 2 to Year 6 use Times Tables Rockstars as a drive to enthuse and motivate the development of their recall and fluency of multiplication facts.

Assessment in Mathematics:

Assessment for Learning strategies are used daily by teachers to assess progress, achievement and attainment. We believe feedback is most effective when it is given verbally with the child during the lesson while the task is being done or immediately after it has been completed. This immediate feedback makes learning more meaningful. In this way, the results are more efficient because any mistakes or misconceptions of the pupils can be solved more quickly, right at the

moment when they are presented with the challenge. This can be achieved either with individual pupils, in a small group or with the whole class. Teachers will use morning tasks and MOT Meetings to review skills and concepts taught previously therefore ensuring that understanding is both retained and secure when working independently.

All children complete *Remember It* papers at the end of each term. These allow teachers to assess how well the children have understood the previous term's units of work. These papers consists of 20 questions and assess knowledge, reasoning and problem solving skills. Question level analysis grids are provided for staff to use to analyse their class' results and this data should feed into future planning particularly the focus of Wednesday's and Thursday's MOT meetings.

Overall achievement, attainment and progress will be recorded on to SIMs tracker at two key points in the year. These assessments will utilise evidence from a range of sources predominantly including: mastery activities; discussion of their reasoning; morning tasks and MOT meetings.

Teachers will ensure that a skill is evidenced accurately on a number of occasions before identifying that skill's National Curriculum objective as Secure or Mastered.

Year 2 and Year 6 will complete the SATs in May.

Year 4 will complete the Multiplication Tables Check in June.

Mathematical Methods

These are the methods and strategies that will be taught and practised within each year group. We believe in developing a depth of understanding (mastery) and all lessons will reflect that ethos. The mathematical methods used are shown in the separate Marlborough St Mary's Calculation Policy

Mastery:

Central to our teaching of mathematics and the CandDoAcademy is a focus on the skills of mastery whereby children have the knowledge and confidence to manipulate mathematical concepts demonstrating their knowledge and skills in a range of contexts.

An attainment standard of mastered is taken as a child who is secure in all areas without exception and is able to apply these in a large range of contexts fluently, habitually and confidently. Mastery learning opportunities will be provided for all children of all abilities across the whole curriculum Teaching for mastery is achieved through:

- **Coherence**
Connecting new ideas to concepts that have already been understood, and ensuring that, once understood and mastered, new ideas are used again in next steps of learning, all steps being small steps
- **Representation and Structure**
Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation
- **Mathematical Thinking**
If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned about and discussed with others

- **Fluency**
Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics
- **Variation**
Varying the way a concept is initially presented to students, by giving examples that display a concept as well as those that do not display it. Also, carefully varying practice questions so that mechanical repetition is avoided and thinking is encouraged.

Resources

Each classroom has a supply of core mathematical resources to support learning for all children. This core supply could include:

- Digit cards / number fans
- Place value cards and counters / straw bundles
- Counters inc. double sided
- Counting objects
- Dice / spinners
- Dienes / Cuisenaire rods / Numicon
- Bead strings / number lines (numbered and blank)
- Clocks
- Fraction aids
- 100 squares / multiplication squares
- Rulers / metre sticks / tape measures / trundle wheels
- 2D/3D shapes
- Sorting hoops
- Protractors
- Mirrors
- Money

Other resources are held in the ICT Suite as a centralised location.

This document should be read in conjunction with the following policies and documents:

- Mathematics Calculation Policy
- National Curriculum for Mathematics
- Early Years Framework/Development Matters
- Teaching and Learning Policy
- Assessment Policy