St Margaret's CE Primary School

Mathematics Policy
2024

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Contents:

1. **INTENT**

At the heart of St Margaret's Primary school, is our vision to be a shining light of love, aspiration and excellence that nurtures and enables all children to grow into the person God intended them to be.

Therefore, the intent of our Maths curriculum is to ensure that *all children* succeed, no matter their starting point. Through love, our classrooms are an enabling environment where every child feels supported and empowered to succeed. Through aspiration, we set high expectations and foster a culture where children know they can achieve great things. Through high quality Maths teaching, our children will develop a secure and deep understanding of fundamental concepts which will enable them to shine into all that God created them to be.

<u>Aims</u>

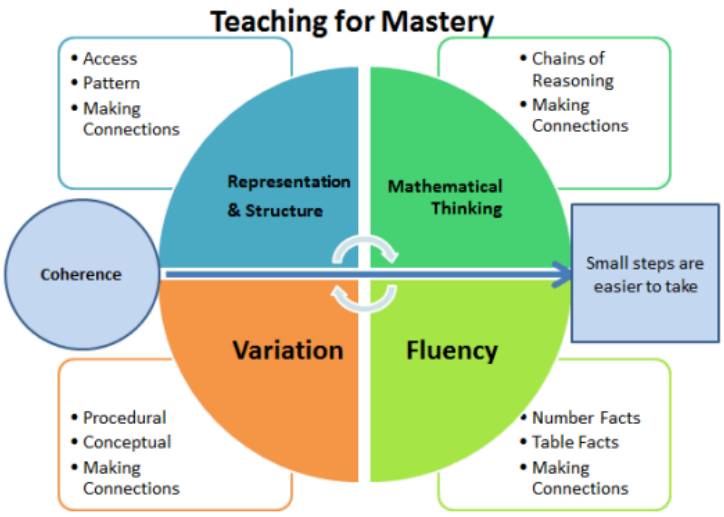
We aim for children to:

- Become fluent and accurate with number facts and relationships, being able to recall facts with automaticity
- Reason mathematically about their work, showing an ability to make connections and use accurate mathematical vocabulary.
- Become resilient problem solvers who can work systematically, spot patterns and apply their knowledge in unfamiliar and real life contexts.
- Develop a growth mindset and a positive attitude towards maths.
- Be curious about number, be inspired to solve tasks and challenge themselves to deepen their understanding.

<u>Principles</u>

In September 2021, our school engaged with our local Maths Hub and began transitioning towards a Mastery approach. We are now in the 'continuity' phase of the programme and our maths teaching is underpinned by NCETM's 'Five Big ideas':

- Teachers carefully select **representations** that expose key **mathematical structures.** Concrete manipulatives and pictorial representations are there to help children 'see' the maths, rather than as a tool to 'do' the maths. They are used simultaneously to support children to make connections.
- In every lesson, children engage in **Mathematical thinking**. These mathematical behaviours are used consistently across the school, in questioning and lesson design.
- Teaching is designed to ensure a **coherent** pathway through the learning, ensuring that children make a deep and



connected understanding of mathematics. Learning is sequential and progressive and can be seen as small steps slowly building on one another.

- **Procedural and conceptual variation** is used to draw attention to a key mathematical concept.
- Children are supported to become **fluent** by being accurate, efficient and flexible with recalling key facts, thus freeing their minds to think deeply about the maths. Automaticity of key number facts is reached through daily fluency sessions.

All of this is underpinned by the mindset that **Maths is achievable for all –** we have high expectations and encourage an 'I can' Mindset mindset towards mathematics in all pupils. Learning is carefully scaffolded so that it is accessible and therefore all children can make progress.

2. IMPLEMENTATION

Roles, Responsibilities and Resources

The subject leaders oversee and manage mathematics. They have an overview of how the mathematics curriculum is taught across the school, advise and support staff with their understanding whilst ensuring that the subject is sufficiently resourced. They are responsible for monitoring standards in the subject, both with the children's learning and knowledge and how the subject is taught in the classroom, keeping up to date with both National and County priorities.

Organisation: Curriculum design and planning

• Staff use the NCETM curriculum prioritisation as a starting point in order to develop a coherent and comprehensive conceptual pathway through mathematics. The focus is on the whole class progressing together. Collaborative 'S planning' with year group colleagues is encouraged to ensure consistency. Teachers use the PD materials to not only develop their own subject knowledge as they plan, but also their pedagogical content knowledge (how to teach it effectively).

• The Ready to Progress criteria is used to help teachers identify both prior knowledge and horizon knowledge for a specific learning objective. This ensures that learning of concepts has been carefully planned to ensure that each new learning outcome builds on the one in the previous lesson, year group or keystage.

• Learning is broken down into small, connected steps, building from what pupils already know. The lesson journey should be detailed and evident on slides (Flipchart or Google Slides) as there is no requirement for teachers to produce detailed paper plans.

• Maths lessons are 'Episodic', meaning that they are broken down into small, manageable and focused segments, each with a clear purpose. This helps to promote depth over speed at each small step. Consistent visuals are used across the school such as 'My turn', 'Our turn', 'Your turn' which reduces cognitive load. Episodic teaching helps teachers assess understanding at each segment which supports them in identifying and addressing misconceptions early.

•The children engage in daily fluency sessions (Y1-Y6 follow Mastering Number) that provide opportunities for retrieval and rehearsal of previously learnt number facts. See fluency progression document for more details.

•A graduated approach ensures that **all** learners can progress with their knowledge, skill and understanding of mathematical concepts at the same pace as their peers. We recognise that ability is not fixed, and so same day interventions are provided for children to consolidate their understanding before moving on, whilst challenge through rich and sophisticated activities is provided for children who have grasped a concept quickly, rather than being accelerated through content.

•Live marking and other AfL strategies enable teaching staff to be responsive to children's current needs and provide appropriate, correctly pitched support and challenge against each objective. Teachers use observations, discussions, whiteboard tasks, practical and written work.

•Mathematics lessons are taught in the most appropriate way for the age of the child. In KS1, some of this is done through continuous provision and small adult led activities.

•Fluency, reasoning and problem solving is taught and rehearsed in every sequence of learning.

• Daily retrieval practice is fundamental to strengthen memory pathways and improve retention of mathematical concepts. A 'last lesson', 'last week', 'last month', 'last term' quadrant is used at the beginning of all maths lessons as a form of retrieval practice.

•Pupils are encouraged to make connections and spot patterns between different concepts and use precise mathematical language, which frees up working memory and deepens conceptual understanding. Frayer models are one way that children are encouraged to do this.

•Challenge happens through depth not acceleration. Rather than accelerated content, (moving onto next year's concepts) teachers set tasks to deepen knowledge and improve reasoning skills within the objectives of their year group. Questions such as 'How do you know?', 'Prove it', 'Represent it another way', 'Create your own' are used to provide a challenge for all pupils.

•Weekly 'Big Maths, Beat That'- a low-stake quiz that is used for retrieval and assessment of key number facts.

<u>Early Years:</u>
In Early Years, the children have two or more mornings a week devoted to maths learning. There are a variety of maths-based activities for the children to access both inside and outside of the classroom. Adults develop the children's understanding through discussion and make observations of their progress.

<u>Year One:</u>
In Year One, the children have two or more mornings a week devoted to maths learning. During these times, children work with adults to engage in focused activities and participate in a range of independent maths tasks also. Children access their maths learning using both the classroom and outside area, in a carefully planned and enhanced environment that enables independent, child-initiated learning that meets Y1 maths objectives. They also engage in Mastering number- a daily fluency session.

Year Two:
In Year Two, children begin daily whole class maths lessons whilst still having access to indoor and outdoor continuous provision. The daily maths lesson is followed up by high quality interaction within 'Discovery time', whereby the teacher can follow up on any gaps or misconceptions in learning. The maths area is enhanced weekly, in line with the learning objectives covered in the whole class maths lesson. They also engage in Mastering number- a daily fluency session.

KS2:
In Years three to six, the children have a daily 1 hour maths lesson alongside Mastering Number- a daily fluency session.

Lesson Structure

• Following a CPA approach, there is regular interchange between concrete/contextual ideas, pictorial representations and their abstract/symbolic representation. By using CPA representations simultaneously and regularly interchanging between representations children make connections and gain a deeper understanding, in such a way that can provide both support *and* challenge.

• Stem sentences are made visible on the slides, working walls and in the children's books. This acts as a bridge between a concrete/pictorial and abstract representation, aiding children to articulate the maths clearly and accurately.

• Mathematical generalisations are emphasised as they emerge from underlying mathematics, which is thoroughly explored within contexts that make sense to pupils.

. • Making comparisons is an important feature of developing deep knowledge. The questions "What's the same, what's different?" are often used to draw attention to essential features of concepts.

• Repetition of key ideas (for example, in the form of choral response, repeating to talk partners etc) is used frequently. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.

• Live marking is carried out throughout the lesson; the teacher and support staff regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly.

•Children work in a variety of different ways during the lesson including adult led groups, mixed attainment groups, paired work and independent learning.

Planning and content
Please refer to the EYFS policy for more detail on their curriculum. Teachers in Early Years use the Revised Statutory Framework for the Early Years Foundation Stage (September 2021) to plan a unique curriculum that covers all aspects of learning including opportunities to develop their skills in mathematics. The Educational Programmes in the framework set out the activities and experiences for children under the 7 areas of learning. Teachers use the Development Matters Non-statutory curriculum guidance to set out the pathways of children's development and provide checkpoints throughout the year to assess progress through these stages.

Links with other subjects

Mathematics is at the heart of our curriculum and feeds into the rest of the curriculum. The children's learning is linked to current topics, events and real-life situations, making lessons relevant and engaging for example, covering line graphs in geography, measuring and weighing accurately during design and technology lessons. In Early Years and Year 1, these opportunities are being continually offered through continuous and enhanced provision, whereby children apply their maths skills in a range of self-initiated contexts, in turn developing a love of learning.

Knowledge and skills

The intent part of the EYS policy details the skills and knowledge at three checkpoints in the year e.g. by the Autumn 1, Spring 1 and Summer 1 and this is what the children will be able to do in the area of mathematics. By the end of the year, the children need to reach the Early Learning Goal for this area of learning.

Our maths lessons follow the objectives laid out in Early Years Foundation Stage Profile and the National Curriculum. There is a focus on developing the children's mental fluency with counting activities, number and times table tasks so they become quick and accurate, being able to choose a range of strategies to assist with mental calculations.

Wider opportunities

Mathematics is such a broad subject so it is used frequently outside of the classroom environment. As part of our Forest Schools programme, children consolidate their mathematical skills whilst working outside in our nature area.

Homework

Children in Early Years and Key Stage One have a variety of practical-based mathematical activities as part of their home learning which consolidate the work covered in school. The children regularly use a number-based computer program called NumBots. NumBots is also available for use in school during 'Discovery time'.

In Key Stage Two, children are required to learn number and times table facts to encourage them to become quick and accurate. The children in years three and four use a website called Times Table Rockstars to help aid their quick recall and the children in years five and six use a website called Sumdog. Both can be used to provide personalised, targeted work. Children have access to these online resources at school during timetabled sessions during the week.

Health and Safety

Teachers expect the children to work safely when handling concrete manipulatives and act appropriately to their age range.

3. IMPACT

Marking and assessment

Work is marked regularly according to the marking policy, providing pupils with valuable, live feedback. Children's work is monitored and marked according to the task. In Early Years and Key Stage One, children are given verbal feedback and work marked alongside the child so their progress with an objective is clear. Occasionally, it is more appropriate for an adult to mark the work away from the lesson and give feedback the next day via pupil conferencing.

In Key Stage Two, where possible, children are involved in the process through peer-marking or self-marking. It provides them with immediate feedback to allow them to see their progress during the lesson.

Children in Year six are required to take Statutory Assessment Tests (SATs) which are administered in line with government guidelines. Moderation meetings, with a strong focus on analysing children's work, take place regularly. In KS1 and KS2, Children are assessed termly as Working towards (WTS), Expected (EXS) or Greater Depth (GD) against the end of year or Key Stage expectations. In EYFS , Seesaw online learning journal is used to document 'Wow moments'. The school's judgements are moderated externally, within the locality, every term.

For children who are not on-track, additional support is put in place after discussion with Leaders of Learning and the Inclusion Manager.

Formative assessment, with a whole school focus on Assessment for Learning, is integral to this process. Summative assessment takes place at the end of each unit; Y1-Y6 use the RTP to create booklets in order to assess pupils' understanding against the learning objectives taught within that unit. This is recorded on a central spreadsheet in order to track progress and ensure that early intervention can take place for those identified children. We use child voice to assess reasoning, mathematical language and confidence. Staff are required to complete a windscreen each term showing the attainment of the children in their class in maths. This windscreen clearly shows which children are working at ARE, below or above. This document is then used to show progress on a whole school assessment spreadsheet.

Pupils in year four complete the Multiplication Tables Check (MTC) which is designed to see how fluent the children are with their times table knowledge. The score is reported to parents in the annual report.

<u>Monitoring and evaluation</u>

The subject leaders, along with the SLT, are responsible for monitoring the standards of mathematics across the school by looking at planning, children's books, learning walks and observations of classroom practice. Results of the National Curriculum SATs are monitored and reviewed by the subject leaders and SLT.

<u>Reporting to parents and governors</u>

All teachers are required to discuss the children's progress in mathematics with parents as part of the consultation evenings (twice a year) and through an annual report which outlines the children's effort and attainment with mental calculations, mathematics knowledge and problem-solving ability.

Subject leaders are required to give feedback to the curriculum governors every year.