



St Mary & St Thomas Church of England Primary School



Maths Policy

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We are a rights respecting school. All our policies and procedures are written and reviewed to ensure that children's rights, as detailed in the United Nations Convention on the Rights of the Child, are respected and promoted and this policy ensures:

Article 28 (right to education) Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights. Richer countries must help poorer countries achieve this.

Article 29 (goals of education) Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures, and the environment.

The National Curriculum outlines the key learning which should take place in specific year groups. The Early Learning Goals for 3-5 year olds are accounted for within the Foundation Stage Curriculum. Key learning in each year group is outlined below.

Key Stage 1:

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (for example, concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2:

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have rapid recall of their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2:

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With

this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Organisation

Class Organisation

Class teachers are responsible for their own class organisation but should follow guidelines as set in the National Curriculum. Each classroom should have a Maths area where all labelled Maths resources can be found, in order to encourage independent learning. Every class should have a Maths working wall with the following three sections: What we are learning, Times Tables Focus and Methods.

Planning

At St Mary and St Thomas, schemes from Maths Mastery are used to support the organisation and planning of lessons. The long-term overview and medium-term planning are used to sequence the progression of mathematical learning. Short-term planning/daily lesson guides are used to provide the structure of lessons and can be adapted to fit the needs of the learners, at the discretion of the class teacher. The Headteacher and SLT will use monitoring and lesson observations to support and review the lesson structures where appropriate.

Staff consider what all pupils will need to do in order to access learning in lessons. Same day interventions should be timetabled daily to support pupils to keep up.

Starter activity

Plan an appropriate consolidation activity that all pupils can access.

Introducing the key concept for the lesson

Consider how you will ensure that:

- Everyone understands the key vocabulary, linking it to prior learning
- Everyone has opportunities to use the key vocabulary in key sentence structures
- Pupil responses and explanations are given in full sentences
- Misconceptions are anticipated
- Adults and children model key concepts with appropriate representations (e.g. concrete manipulatives) to make links to prior learning and develop understanding
- Everyone is listening, ready to answer questions and build on others' ideas
- You are aware of pupils' understanding so that you can adapt learning (AfL) to ensure all can participate (i.e. What questions and prompts will you use? How will pupils share their thinking?)

Providing structured opportunities for talk

Consider how you will ensure that:

- Everyone is speaking in full sentences
- Everyone uses words and symbols accurately
- Everyone is using appropriate representations that support conceptual understanding of the key vocabulary

Pupils should work in mixed-attainment pairs and it may be necessary to develop their paired working skills to ensure that both partners are developing their language.

Developing understanding of the key concept for the lesson

Consider how you will ensure that:

- Understanding of the key concept is consolidated and / or deepened by, for example:
 - ☐ using and making links to additional representations
 - ☐ comparing and contrasting representations
 - ☐ drawing pupils' attention to specific aspects of a concept
 - ☐ linking to other known concepts
 - ☐ anticipating misconceptions and likely errors
- You are aware of pupils' understanding so that you can adapt learning to ensure all can participate
- All pupils have opportunities to reason about the key concept
- Everyone is listening, ready to answer questions and build on others' ideas using full sentences
- There are opportunities for all pupils to use mathematical ways of thinking (e.g. by comparing, classifying, generalising, working systematically etc.)

Transitions between lesson segments

If your normal classroom routines include movement (e.g. from carpet to tables), consider how you can use these transitions to consolidate key skills and/or fluency (e.g. times tables chants, counting skills, call & response). If pupils do not need to move, consider how you might incorporate similar routines to provide movement or 'brain breaks' if it will support engagement for your pupils.

Depth for all

All pupils should be given opportunities to deepen their understanding. Pupils are less likely to consolidate understanding of a concept if they have only a simple, procedural understanding of it that relies heavily on limited representations with no connections to familiar ideas or contexts. Consider how you can support deeper understanding throughout the lesson.

Applying learning independently of adults

When planning tasks, consider how you will ensure that:

- Everyone is engaged in working on tasks
- Everyone uses manipulatives or models to support / deepen understanding
- Everyone is engaged in learning about the same mathematical concept or skill, with an appropriate amount of scaffolding.
- There is an emphasis on understanding which supports fluency, rather than rushing to 'finish' the

work.

Plenary

- Consider what opportunities can be provided to allow pupils to reflect on their learning.
- How will pupils be encouraged to focus on the learning process (strategies, perseverance, effort) rather than just the outcome?
- What questions and prompts could be used to consolidate or deepen understanding?

Key vocabulary

Identify the key mathematical content vocabulary. These words should be shared meaningfully with the whole class at (or before) the start of the lesson. As well as all pupils repeating them, teachers should ensure that pupils develop understanding of each word, making use of appropriate representations (concrete or pictorial) and / or contexts that are familiar. The intention is for all pupils to use this key vocabulary accurately throughout the lesson.

Key sentence structures

Identify the key sentence structures that pupils will need to use when explaining and reasoning about the key concept in the lesson.

Resources

Appropriate representations, including images, pictorial models and concrete manipulatives should be planned for, to allow pupils to make links to prior learning and to develop a meaningful understanding of new concepts.

Differentiating

Consider how differentiation can be planned for throughout the lesson:

- through questioning
- through depth
- through scaffolding and constraints
- by outcome
- through consolidation
- through focus groups

When using the lesson guides from Maths Mastery to plan learning, class teachers should consider the following:

Get an overview of the unit

- Watch the short unit tutorial.
- Complete the Task for Teachers and consider the maths needed and the reasoning required.
- What should pupils be able to do by the end of this unit?
- How does the unit progress?
- What is the Key Learning which needs to be covered?

- Are there links to previous/future learning?

Consider how the key principles will underpin the unit - these will need to be reinforced throughout the unit.

- What are the key sentence structures and vocabulary?
- What concrete, pictorial and abstract representations would be most appropriate during the unit?
- What misconceptions will need to be addressed or anticipated?
- What questions will promote a deeper understanding of the concepts taught?

Decide how the unit will need to be adapted for your class

- Will any pre-teaching be required? When would it be most useful to use consolidation lessons- at the beginning/end/middle of unit?
- Will more/less time be needed on certain Key Learning objectives?
- What are my expectations of how pupils will progress?
- Are the tasks appropriate for my pupils? Do they need changing? Do they need adapting?
- How will tasks be differentiated?

Marking

(See also policy on Marking and Presentation)

The teacher will mark the books with the child whenever possible. Ticks and crosses will be used to indicate correct/incorrect answers. If appropriate, corrections will follow the piece of work. In KS2, the children can complete this in green ink. If the child has met the assigned learning objective, this will be ticked by the teacher.

Assessment

(See also policy on Assessment)

Assessment is an essential part of teaching in the effective implementation of the Mathematics curriculum. At St Mary & St Thomas, assessment is built into each unit of work and is based upon a range of activities within the normal routines of the classroom.

- Assertive Mentoring (AM) is used to assess children from Y2-Y6 as assessment without levels system. Year 2 and Year 6 will use Assertive Mentoring with levels in line with National Expectations.
- Pupils at Year 2 and Year 6 carry out the statutory National Curriculum End of Key Stage Tests.
- Y1-Y6 assessments are carried out during assessment week, once per term, three times in total throughout the academic year. Results are recorded and tracked and are used to inform future planning and target setting.

Informal assessment

At St Mary & St Thomas, mathematics is assessed in a variety of ways:

- Observation of children or groups on task.
- Discussion with children about their work.
- Marking children's work.
- Children's own evaluation of their work.
- Questioning children's understanding.

Record Keeping and Reporting

We believe in the need for continuity and progression of experience for our pupils. The National Curriculum and Assertive Mentoring system provides opportunities for this to take place.

Records

- A school tracking chart tracks children's progress from Y1 through to Y6.
- Termly Maths assessment results are recorded on the school-tracking chart.
- Continuous assessment of all children's work is recorded in the form of daily marking of work.
- Target setting is carried out 3 times per year. Once a term, the targets will be shared with the child and parent during the parent meeting conversation. All targets are reviewed before new ones are set.

Reporting

- Each child receives an annual written report stating their mathematical progress throughout the year.
- End of Key Stage results are reports to parents, school committee and to the LA.
- End of Key Stage 2 results are reported to appropriate Secondary School as printed in Assessment and Reporting Arrangements Booklets produced by QCA.

Monitoring

Monitoring is essential if there is to be continuity and progression within mathematics. The overall responsibility of monitoring mathematics lies with the Headteacher and Maths Subject leader.

Monitoring of the quality of learning

The quality of teaching and learning is monitored in many ways by the Headteacher, Maths subject leader and SLT.

- Lesson Observations
 - The Headteacher/Maths Subject Leader observes the teaching of mathematics and focus upon a particular part of the lesson.
- Assisting in class

- The Headteacher/Maths Subject leader assist the class teacher by helping with the group work as well as teach exemplar lessons.
- Tracking
 - Within each class, children from each of the 3 bands are tracked to ensure that they are making adequate progress.
- Scrutiny of work
 - Books are collected and monitored to ensure consistency in marking as well as evidence of differentiation, progression, standards of presentation.
- Auditing test results
 - At the end of the year audit of test papers is carried out in order to highlight the strengths and weaknesses of particular age groups/individuals within school. The results of this audit are reported back to staff.

Monitoring the Needs of Staff

The Maths Subject leader liaises with individual teachers in order to clarify issues/areas of concern and to ensure that they are kept abreast of new initiatives and documentation. Regular whole staff meetings are held devoted to Mathematics and where possible, in service training will be arranged or staff will attend meetings/courses or visit schools to enhance their professional development.

Monitoring use of resources

Any requirements for resources should be reported to the Maths Subject leader. Broken or missing equipment should also be reported so that the Maths Subject leader can arrange for necessary replacements.

Monitoring Documentation

The Maths Subject leader is responsible for preparing, updating and reviewing documentation relevant for the teaching and learning of Maths and for keeping abreast of all new initiatives relating to Maths. The Subject leader also represents the school on matters relating to Maths and keeps the Headteacher informed of progress and intended developments.

Resources

A variety of Mathematics resources are available in school. These include resources in each individual classroom and a wealth of computer-based resources.

Special Educational Needs

We believe that all pupils should be given equality of opportunity. Where a child is considered to have SEN in mathematics, it is the responsibility of the class teacher to alert the SENDCO. Children will be monitored initially and placed on catch-up plans if they are not sustaining progress. Following liaison with the SENDCO, interventions can be put in place to support math's progression and an individual support plan may be necessary to target the specific area of need within mathematics, setting targets alongside strategies to secure progress from starting point. Every opportunity is taken to ensure suitable challenge for those pupils who are considered more able. From Reception through to Y6 this is done by deepening knowledge

through a wealth of reasoning and problem-solving activities. Children will be provided with more variation in which they can apply their skills and be appropriately challenged.

Equal Opportunities

All teaching and non-teaching staff at St Mary & St Thomas are responsible for ensuring that all children irrespective of gender, ability, ethnic origin and social circumstances have access to the whole curriculum and make the best possible progress. All children have equal access to the mathematics curriculum and its teaching and learning. Day-to-day monitoring of the Mathematics Policy and the provision of equal opportunities in mathematics is the responsibility of the class teacher. General monitoring is the responsibility of the Head and SLT.