



St Mary's Church of England Primary School & Nursery

Be the best you can be.

Mathematics Policy



Rationale

All school policies form a corporate, public and accountable statement of intent - it is very important to create an agreed whole school approach of which staff, children, parents, governors and other agencies have a clear understanding. This policy is the formal statement of intent, implementation and impact for mathematics within St Mary's C of E Primary School. It reflects the essential part that mathematics plays in the education of our pupils.

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

- Calculation Policy
- Curriculum Policy
- Assessment Policy
- Marking and Feedback Policy

Introduction

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

(The National Curriculum for Mathematics, 2014)

At St Mary's C of E Primary School we firmly believe that mathematics is a fundamental component of a child's learning journey, introducing them to concepts, skills and thinking strategies that are essential in everyday life and which support learning across the curriculum. Mathematics helps children make sense of the numbers, patterns and shapes they see in the world around them, offers ways of handling data in an increasingly digital world and makes a crucial contribution to their development as successful learners. Studying mathematics stimulates curiosity, fosters creativity and equips children with the skills they need in life beyond school.

Aims

Following the introduction of the revised National Curriculum in 2014 the emphasis for our pupils has been to ensure that all children:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time
- develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations
- develop an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance. The EYFS Framework in relation to mathematics aims for our pupils to:

- develop and improve their skills in counting
- understand and use numbers

- calculate simple addition and subtraction problems
- describe shapes, spaces, and measures

At St Mary's C of E Primary School, our intention is to provide the children with a mathematics curriculum, which will allow them to become confident individuals, through presenting mathematics as a challenging, exciting, creative and relevant subject. We aim to employ approaches that help them to develop a deep and secure knowledge and understanding of mathematics at each stage of their learning, so that by the end of every school year or key stage, they will have acquired mastery of the mathematical knowledge, skills and understanding they've been exposed to, equipping them to move on confidently and securely to more challenging learning.

Through engaging and stimulating lessons, our children should develop:

- positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
- competence and confidence in using and applying mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- an ability to calculate accurately and efficiently, both mentally and in writing, drawing on a range of calculation strategies
- the skills needed to judge whether their answers are reasonable and have strategies for checking them where necessary
- a broad range of mathematical vocabulary in order to explain their methods and reasoning clearly, using correct terminology
- initiative and motivation to work both independently and in cooperation with others
- confident communication of mathematics, where children ask and answer questions, openly share work and learn from mistakes
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation

The National Curriculum for Mathematics also reflects the importance of spoken language in pupils' development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. At St Mary's C of E Primary School we understand the vital importance of developing the children's vocabulary within mathematics. Children will be supported in the use of correct mathematical vocabulary within their verbal reasoning and when discussing their thinking, so that it is clear to themselves and others. Teachers will ensure that children use discussion to probe and remedy misconceptions, so that secure foundations of learning are built.

Teaching and Learning

Each class teacher is responsible for the teaching of mathematics in their class, in consultation with and with guidance from the Mathematics Subject Leader. Teachers will plan and deliver lessons that suit the particular learning styles of the children within the year group. They will use their own judgement and formative assessment to ensure a flexible approach is adopted, which recognises the pace of learning within the classroom and which provides each child with the greatest opportunity to acquire mastery within the mathematics curriculum.

To ensure full coverage of the National Curriculum Programmes of Study for Key Stage 1 and 2, the school uses the White Rose Maths Scheme. This is a whole-school primary mathematics curriculum that creates continuity and progression in the teaching of mathematics. It has been designed to support a mastery approach to teaching and learning, while supporting the aims and objectives of the National Curriculum.

The White Rose Maths Scheme has been created to have number at its heart, with a large proportion of time spent reinforcing number to build competency. It supports pupils working together as a whole group and provides plenty of opportunities to build reasoning and problem solving elements into the curriculum.

The EYFS Statutory Framework 2014 informs planning in EYFS. This is supported by guidance from the White Rose Maths guidance documents for Reception. There are six key areas of early mathematics learning, with an emphasis on Spatial Reasoning.

All classes have a daily mathematics lesson of between 45 – 60 minutes, where possible. Teachers use their professional judgement to determine the activities, timing and organisation in each lesson in order to suit the teaching objectives. In all lessons, there will be an appropriate amount of differentiation in the work to meet the needs of individual learners.

Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach. Areas of provision within the classroom support mathematics, ensuring children are able to access throughout the day to practise and develop skills being taught. In addition, consistent, daily mathematics lessons take the form of direct teaching, which is followed up by enhanced activities placed in areas of provision in the classroom, which may be accessed independently or supported by an adult.

The teaching of mathematics at St Mary's C of E Primary School provides opportunities for children to develop their mathematical skills through individual, group or paired work, along with whole class teaching.

Careful planning and preparation ensures that throughout the school, children engage in:

- the development of a range of mental strategies
- written methods
- practical activities and games, using a variety of resources
- investigational work
- problem solving to challenge thinking
- mathematical discussion
- continuous consolidation of basic skills and number facts
- purposeful practice, to allow children to apply their learning in different contexts

When introduced to a new concept, children are given the opportunity to build competency by taking a CPA approach:

- **CONCRETE** - children use concrete objects and manipulatives to help them understand what they are doing.
- **PICTORIAL** - children use pictorial representations. These representations can then be used to help reason and solve problems.
- **ABSTRACT** - both concrete and pictorial representations should support children's understanding of abstract methods.

At St Mary's C of E Primary School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. To support children we have introduced KIRFs (Key Instant Recall Facts). Each half term, children will focus on a Key Instant Recall Fact (KIRF) to practise and learn regularly in school and at home. Children's learning will be assessed at the end of each half term. In addition to this, children in Reception, Year 1 and Year 2 practise key skills in number bonds, addition and subtraction using 'NumBots'. While children in Years 2 – 6 engage in the Times Tables Rock Stars programme, designed to help children master the times tables, focusing on the importance of speed and accuracy. Both programmes are built into each class' weekly timetable, with the focus on 'little and often' (5 minutes, 3 or 4 times a week).

Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use mathematics in real contexts. At St Mary's C of E Primary School staff make cross-curricular links where possible, in order to provide meaning and context to their teaching. This allows the children to gain an understanding of how mathematics fits in to everyday life and make connections with the real world.

We endeavour to set work that is challenging, motivating and encourages the children to talk about what they have been doing. We use the correct mathematical vocabulary when planning to help determine the appropriate terminology to use in our teaching, and children are expected to use it in their verbal and written explanations.

Inclusion

All children at St Mary's C of E Primary School have an equal entitlement to access the mathematics curriculum and make progress in order to attain the best they can in the subject. Daily mathematics lessons are inclusive to children with Special Educational Needs and Disabilities. In all lessons, modelling, scaffolding and challenge is provided to ensure learning is accessible for all individuals. Intervention groups take place both within the mathematics lesson and outside; these sessions may be delivered by the teacher or teaching assistant and may involve individual or small group work.

Resources & Displays

In order to support the delivery of mathematics lessons to all children, the school has a range of resources available. Within the classroom, general mathematics resources are available at all times, these include basic resources such as number lines, 100 squares, rulers, counters, Numicon, etc. Other specific resources (eg, balance scales, metre rulers) are stored centrally.

We recognise the importance of a stimulating learning environment. Each classroom has a mathematical display area, which includes a working wall with mathematical vocabulary, visual aids and interactive activities where appropriate. This is updated regularly in accordance with the area of mathematics being taught at the time. Children's achievements in mathematics are regularly celebrated in the weekly Achiever's Assembly. Children are also rewarded for rapid recall of number bonds (Key Stage 1) and Times Tables (Years 2 - 6), and celebrated through a central display, which is updated weekly.

Monitoring Teaching and Learning

Monitoring within the school is undertaken by the Mathematics Subject Leader, the Senior Leadership Team and Governors. This is recorded on the whole school monitoring schedule. Areas to be monitored will be decided upon in accordance with priorities indicated within the mathematics action plan and the whole school development plan.

Evidence in monitoring will be gathered, evaluated and reviewed through:

- learning walks
- formal lesson observations
- planning scrutiny
- children's work scrutiny
- pupil conferencing

Results of any monitoring will be fed back to staff quickly and to SLT at their meetings so that any action required can be carried out effectively. Areas for staff training and CPD will be identified and delivered, as appropriate to the needs of the staff and school.

External monitoring, conducted by the School Improvement Partner and OfSTED, ensures that the school is supported in raising standards in the teaching of mathematics.

Parental Involvement

We encourage parents to be involved by:

- inviting them into school twice yearly to discuss the progress of their child
- providing a full annual report in the summer term
- inviting parents into school, in the summer term, to discuss the annual report
- providing weekly homework
- providing a booklet of key objectives in mathematics for each child, as appropriate to their year group
- holding workshops and open mornings/afternoons