Sutton Veny CofE Primary School
Mathematics Policy

Our Intent for Mathematics

To inspire a love and passion of numbers, enabling all children to enjoy exploring mathematics and develop strategies, methods and a way of thinking that allows them to succeed in maths and prepares them for the next stage of their education and life. As a school, we aim provide high-quality teaching to meet the needs of all the children. We aim to provide a safe and encouraging learning environment that has high expectations for all children, who are all challenged to maximise their potential in mathematics.

To ensure we achieve our intent we aim:

- to instil a passion and enjoyment of mathematics across the school.
- to provide a progressive curriculum that ensures the children build on their prior mathematical knowledge.
- to ensure the children become fluent in key calculation skills and can apply this knowledge in different ways.
- to develop the children's mathematical thinking skills, by providing rich opportunities for reasoning and problem solving.
- to plan effectively for the needs of all the children in maths, including appropriate levels of challenge and support.
- to use accurate assessment to inform next steps in learning.
- to enable the children to use and apply mathematical knowledge, understanding and concepts with confidence.
- to teach key mathematical concepts and methods with consistency.
- to help the children recognise and use mathematics in other areas of the curriculum.

The National Curriculum

Mathematics is a creative and highly inter-connected 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 aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

Mathematics Curriculum at EYFS and KS1

The EYFS Framework and the National Curriculum set out the programmes of study for mathematics and map the progression of the mathematical skills, knowledge and understanding that the children will acquire by the end of Year Two. Teaching and learning in maths focuses on building a strong mathematical foundation for all children. The children begin to broaden their understanding of mathematical vocabulary as they progress through KS1 and begin to solve simple mathematical problems. The children use counting in different steps as a precursor for understanding multiplication and begin to understand multiplication and division as a concept in Year Two.

At this stage of their education, the children use a range of physical and pictorial resources to help them understand key mathematical concepts that underpin the development of their understanding of number and calculations. The representations used help the children to 'see the maths' and supports their understanding of the abstract nature of mathematics. The key representations used across the EYFS and KS1 include:

- Place Value Charts
- Ten Frames
- Counters / Place Value Counters
- Part, Part Whole models
- Bar Models
- Cuisenaire Rods
- Base Ten
- Arrays

By the end of KS1 the children need to secure the following key knowledge, understanding and skills:

- Number Formation
- Place Value of two-digit numbers
- Addition and Subtraction Facts to Twenty *(see appendix)*
- Counting Forwards and Backwards *(across the ten and hundred place value columns)*

Mathematics Curriculum at KS2

Throughout Key Stage Two, children's mathematical understanding builds on the solid foundations developed in the EYFS and KS1. Their knowledge of the number system and the four operations is taught -and developed- progressively, appropriate to their age and level of understanding. Teaching and learning experiences still promote the use of physical and pictorial representations, especially when new concepts are being introduced. Increasingly, the children will move towards the abstract when they have secured their understanding of the concepts being taught.

The children regularly practise and consolidate fundamental number and calculation skills. This helps the children to develop fluency in these skills and means they can apply this knowledge with confidence during mathematics lessons. Teaching and learning provides the pupils with opportunities to reason mathematically and problem solve, with increasing difficulty, as they progress through KS2. These opportunities help the children deepen their understanding of key mathematical concepts and challenge them to explain 'how' and 'why' mathematics works in the way that it does.

Throughout KS2, the children expand their mathematical vocabulary and develop confidence in selecting the best mathematical approach or method, depending on the question or problem posed to them. They also become more efficient in their mathematical thinking, choices and calculations, choosing the most appropriate way to solve different problems. In upper KS2, the children will understand how the different strands of the subject are linked and inter-connected.

By the end of KS2 the children need to secure the following key knowledge, understand and skills:

- Place Value up to 10,000,000
- Fluency in Multiplication and Division Facts *(up to 12 x 12)*
- Written and Mental Method of Calculation *(all four operations)*
- Application of Mathematical Knowledge and understanding to Reasoning and Problem Solving Questions

Planning in Mathematics

The mathematics curriculum is structured to allow the children to progress through the programmes of study set out in the EYFS Framework and The National Curriculum. These objectives have been mapped out by the school to ensure the children develop through the content in a logical, sequential and progressive manner.

Teachers produce detailed layers of planning to map out the mathematical journey for the year group they are responsible for. e.g.

Long Term Planning – Objective Overviews – Weekly Planning

When planning, teachers give careful consideration to identify the prior knowledge pupils need to access new mathematical learning. They decide on the best way to represent new concepts to the children and plan carefully to meet the needs of all children in the class, including those who require additional support and those who need challenging. Teachers have the confidence to respond to the children's needs and adapt their planning and teaching methods accordingly. All planning is stored centrally on the school server.

Assessment in Mathematics

Assessment is a continuous process and teachers use a range of assessment techniques, before, during and after the lesson, to inform the next steps in teaching and to respond to the needs of the children they teach. Understanding in mathematics is assessed in the following ways:

- Marking of children's work and books
- Identifying errors and misconceptions
- Asking questions and listening to responses
- Facilitating and listening to mathematical discussions
- Observing children during lessons
- Making use of the children's self-assessments

The marking of children's books is essential in assessing their understanding. Work is marked against the objectives for that lesson and in line with school expectations. Children are encouraged to reflect on their own understanding and use self-assessment; the self-assessment strategies used are dependent on the age of the children.

Teachers use the key objectives from the EYFS Framework and The National Curriculum to assess the children's understanding and track their progress against these objectives. Teachers will look for a range of evidence that demonstrates that the children can independently meet the objectives before assessing their competence against the objectives. This assessment practice is consistent across the school.

Pupil progress meetings are scheduled at different points throughout the year and are held with members of the school's SLT. These meetings help track the progress of the children in relation to their starting points and supports planning for their progress. All class teachers make a formal assessment about each child's attainment at the end of the academic year. This indicates whether the child is:

1) **Working towards** the national standard in maths.
2) **Working at the expected** standard maths.
3) **Exceeding** the expected standard in maths.

This information is reported to parents and carers through the end of year profile, which is produced for every child.

Teaching and Learning

The key features of teaching and learning in mathematics at Sutton Veny:

- Consistent morning work is structured to promote the fluency of key calculation skills.
- Targeted booster or SEND support is delivered during morning work to meet the needs of children vulnerable to underachievement.
- Weekly objectives and key vocabulary are displayed in classrooms and used as teaching points.
- Enthusiastic teaching and excellent pedagogical knowledge guides the children to make progress.
- Lessons are planned to identify appropriate levels of support and challenge.
- A safe and encouraging learning environment promotes taking risks and celebrates effort and thinking.
- Any misconceptions are used as teaching points to promote understanding and progress.
- The children's understanding is assessed throughout the lesson, using a range of assessment strategies.
- Teaching responds to the needs of the children, providing support, and moving children on, when appropriate.
- Mathematical representations are used consistently to help the children understand mathematical concepts and abstract nature of the subject.
- Lessons provide a balance between the children developing their fluency, reasoning and problem solving skills.
- Mathematical vocabulary is used accurately when teaching or discussing mathematical concepts.
- There are high expectations of the children's behaviour and engagement.
- Teachers have high expectation of the effort and quality of work that the children produce.
- A consistent approach to planning and assessment is embedded across the school.

Subject Leadership

The maths subject leader provides overall direction for the subject. They are responsible for monitoring and evaluating the subject and identifying priorities for development. They are supported by the school's SLT and the Link Governor for mathematics. The effectiveness of teaching and learning in maths will be monitored and evaluated by:

- Monitoring planning and assessment practice across the school.
- Analysing school, local and national data.
- Lesson drop-ins, learning walks and observations.
- Monitoring the quality of the children's work in their maths books.
- Feedback from staff.
- Discussions with the children.
- Monitoring activities with the maths link governor.
- Evaluating the quality and impact of CPD in mathematics.

Subject Leader: Adam Lewis

Date: May 2021 (AL)

Next Review: April 2022 (AL and JS)