Shellingford CE (A) Primary School

Headteacher: Miss Judith Terrell

"Inspiring hearts and minds"

MATHEMATICS POLICY

'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.' (National Curriculum, 2014)

This policy should be read alongside the school's Calculation and Mental Calculation Policies.

Vision

At Shellingford CE (A) Primary School, our core vision is to enable every child to become numerate, preparing them with the long-term knowledge and skills for adult life. Our Mathematics curriculum is planned and delivered through a mastery approach and has been developed to ensure every child can achieve excellence in mathematics, can experience a sense of achievement, joy, and pride as they solve a problem for the first time, discover different solutions and make links between different areas of mathematics and other parts of the curriculum.

Developing and increasing pupils' recall of core mathematical knowledge and skills is core to our curriculum. Our aim is for all children to be able to think mathematically, enabling them to reason, solve problems and assess risk in a range of contexts. We also want all children to have a positive experience of maths through providing them with a concrete, pictorial and abstract route to their learning.

Aims

The national curriculum for Mathematics aims to ensure that all pupils:

- Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils 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, and developing 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 content and principles underpinning the mathematics curriculum reflect those found in high performing education systems internationally, particularly those of east and south-east Asian countries such as Singapore, Japan, South Korea and China. The principles and features that characterise this 'mastery' approach are:

- Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics and therefore 'mastering' Mathematics.
- Most of the pupils' progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- Some pupils may follow an alternative programme with different starting points, although this will always be linked to the main curriculum.
- Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- Teachers use precise questioning in class to assess conceptual and procedural knowledge, and formatively assess pupils regularly to identify those requiring extra support or intervention so that all pupils keep up.
- Maths 'Talk' is vital to help pupils make progress during all parts of a lesson.
- The daily use of 'manipulatives' to support pupils during the 'concrete' phase of their learning is an essential requirement.

EYFS

EYFS children learn maths practically through the 'Mathematics' strand of the Statutory Framework for Early Years Foundation Stage (2021). Mathematical learning involves providing children with the opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces and measures. Learning is through play and cross-curricular activities; the children explore maths through roleplay, singing and outdoor play.

Curriculum Design

A detailed, structured curriculum is mapped out across all year groups, ensuring continuity and supporting transition. Effective mastery curricula in mathematics are designed in relatively small carefully sequenced steps. Skills and knowledge are secured first. This often entails focusing on curriculum content in considerable depth at early stages.

Teaching Resources

A coherent programme of high-quality curriculum materials is used to support classroom teaching ('White Rose' scheme, resources and supporting materials,). Concrete and pictorial representations of mathematics are chosen carefully to help build procedural and conceptual knowledge together. Exercises are structured with great care to build deep conceptual knowledge alongside developing procedural fluency. The focus is on the development of

arithmetical proficiency, deep structural knowledge and the ability to make connections. Making connections in mathematics deepens knowledge of concepts and procedures, ensures what is learnt is sustained over time, and cuts down the time required to assimilate and master later concepts and techniques.

Lesson Design

Lessons are crafted with similar care, drawing on evidence from observations of pupils in class. Lesson designs set out in detail well-tested methods to teach a given mathematical topic. They include a variety of representations needed to introduce and explore a concept effectively and set out related teacher explanations and questions to pupils.

Developing number fluency through regular counting is a key component of maths lessons at Shellingford CE (A) Primary School, as we appreciate the importance of children having secure number knowledge (which includes multiplication facts). We feel that well-structured reasoning activities, in addition to challenging mathematical problems, will help deepen children's understanding.

Teaching Methods

Pupils in each year work on their specific year group objectives so that they can cover the curriculum fully. Concepts are often explored together to make mathematical relationships explicit and strengthen pupils' understanding of mathematical connectivity. Precise questioning during lessons ensures that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts. There is no prioritisation between technical proficiency and conceptual understanding; in successful classrooms these two key aspects of mathematical learning are developed in parallel.

Pupil Support and Differentiation

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. At times however, alternative tasks addressing the same content may be used to support some children's understanding. The questioning and scaffolding individual pupils receive in class as they work through problems will also differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed through pre or post teaching or with intervention. This may take place alongside the teacher within the classroom or through targeted sessions in a smaller group setting.

Shellingford CE (A) Primary School does not teach children by ability groupings.

Assessment and Reporting

Assessment is something that continually happens within the classroom, with day-to-day observations and discussions with pupils often outlining the next steps in learning. Children in Years 1, 2, 3, 4, 5 and 6 will undertake an end of term White Rose assessment in November, February and July. This enables teachers to see how children perform under these types of conditions and also support us in our teacher assessment at that point. Children in Years 6 will complete statutory SAT's in May of each year providing and end of KS2 judgement and Year 2 use non-statutory SAT's materials to make an end of KS1 judgement. There are two formal parents' evenings over the course of the academic year where teachers report on pupils' progress in Mathematics and inform parents of the next steps in their child's learning. In

addition to this, there are separate points within the year where parents can come into school and view their child's work.

Calculation Support

Our formal Calculation Policy can be located on our website providing models and images that might help support children through their calculations. These documents are used by teaching staff throughout the school and offer guidance for the calculation strategies that are being taught within each year group. As a school, we believe that all pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by using the CVA approach (Concrete, Visual, Abstract).

- Concrete – students should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.
- Visual – students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.
- Abstract – with the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

Homework:

The school has a subscription to the 'Times Tables Rock Stars website that provides activities to support the learning of times tables / multiplication facts. Additional mathematics homework is provided at the discretion of the class teacher and the needs of the children.

Appendix

A separate Calculation Policy and Mental Calculation Policy forms part of this document.

See also: Assessment for Learning Policy; Feedback and Marking Policy.

Written by: Jane Merritt (Mathematics Subject Leader)

Date written: January 2025 **Review Date: January 2028**

Policy Agreed by the Curriculum Committee on ……

Signed …… **Chair of Curriculum Committee**

Signed …… Headteacher