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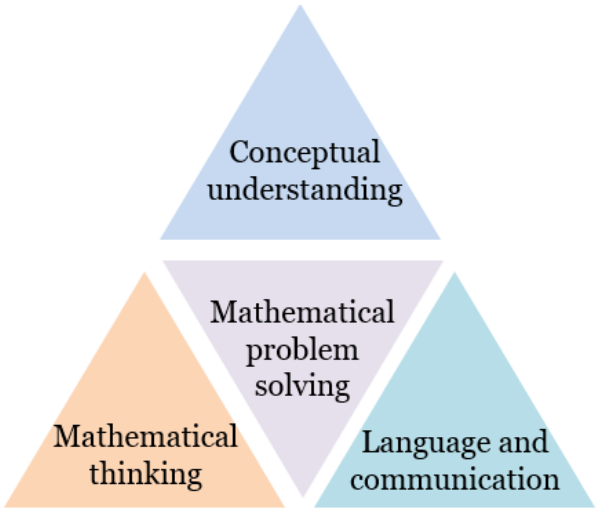
Mathematics Curriculum

At St Mary's Church of England Primary, we have adopted a **mastery approach** to mathematics. This enables our pupils to accomplish the three aims of the **National Curriculum**, **fluency**, **reasoning** and **problem solving**. The expectations of the National Curriculum for maths are that pupils will become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems. Children will **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. Pupils will also be able to **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.

Pupils at St Mary's follow the **Mathematics Mastery Ark Curriculum** programme of learning from Reception to year 6 Ark Curriculum Plus . The Mathematics Mastery curriculum is cumulative - each school year begins with focus on the concepts and skills that have the most connections, and this concept is then applied and connected throughout the school year to consolidate learning. This gives pupils the opportunity to 'master maths', by using their previous knowledge throughout the school year. These skills are developed by applying the 3 Dimensions of Depth to teaching and learning:

1. **Conceptual understanding**
2. **Language and communication**
3. **Mathematical thinking**

Problem solving is at the heart of mathematics teaching and learning.



The **Dimensions of Depth** underpin the mastery approach and enable pupils to develop a deep understanding in mathematics. When pupils have a deep understanding of the maths they are learning, they can represent it in different ways using appropriate mathematical language to explain what they know. This allows them to apply their understanding to a new problem in an unfamiliar context.

We support children to develop their **mathematical language** and communication skills by encouraging all pupils to answer mathematical questions in full sentences with a focus on the correct mathematical vocabulary and through the use of sentence stems for mathematical reasoning. Mathematical vocabulary is shared at the start of each lesson with an expectation that this is used during **'Talk Tasks'** with their peers and throughout the lesson. We explicitly teach mathematical language and insist on all pupils using it in sentences because of the complexity of the language required to be a competent and confident mathematician. Mathematics has a precise formal language, which is distinct from everyday language. **Mathematical language** strengthens conceptual understanding by enabling pupils to explain and reason. Talk is an essential element of every lesson and time is dedicated to developing confidence with specific vocabulary as well as verbal reasoning.

To experience mathematics in full, as it is described in the **National Curriculum**, learners need to be given opportunities to **think mathematically**. Throughout the curriculum you will see tasks that require learners to specialise and generalise, to work systematically, to generate their own examples, to classify and to make conjectures. This is aided by the **Ideas for Depth** which help make these important parts of mathematics more explicit. By the time they reach school, all pupils have demonstrated a significant range of innate ways of thinking that can be harnessed in the classroom to develop **mathematical thinking**. We must support pupils to develop mathematical 'habits of mind' -to be systematic, generalise and seek out patterns.

Mathematical **problem-solving** lies at the heart of the **Dimensions of Depth**. Teachers promote these within every Mathematics Mastery lesson, allowing access for pupils to become better problem solvers. Task design purposefully incorporates all three **Dimensions of Depth** across a range of problem types, with the aim that all pupils will be able to **solve non-standard problems in unfamiliar contexts**. Pupils acquire a rich schema of knowledge – with facts and methods learnt to automaticity - and they gain familiarity with different problem types.

In line with the **National Curriculum**, it is expected that pupils will move through the programmes of study at broadly the same pace, ensuring no ceiling is imposed on what learners can achieve. While there is only one curriculum, we recognise that not all learners come to each lesson at the same starting point. For this reason, the scheme includes additional resources, designed to help learners access the main curriculum. **Differentiated independent tasks** are provided as a starting point for teachers to increase challenge and

increase support, which exemplify a range of adapting techniques including scaffolding, applying the **Dimensions of Depth** and applying learning within an **unfamiliar context.**