

Canon Popham C of E Primary Academy

Statement of Intent for Mathematics

Intent

At Canon Popham C of E Primary Academy, we take a mastery approach to the teaching and learning of mathematics. Fundamentally, this rests on the belief that all children can be successful in the study of mathematics. We believe that **every** child has the capacity to be interested and motivated by mathematics and **is** a mathematician; we believe that mathematical study should be challenging, exciting and promote deep thinking; we believe that **every** child has the potential to work at depth in aspects of the mathematics curriculum and should be given every opportunity to be exposed to challenge in their mathematical learning. Mathematics is important for everyone!

Our key drivers are:

- Every child should develop mathematical facts and methods and be confident and fluent in the use of basic skills
- Every child should be able to articulate their mathematical thinking using the appropriate subject specific vocabulary
- Every child should be able to apply their subject skills and knowledge in different contexts and in problem solving situations.

Implementation

The core principles of conceptual understanding, language and communication and mathematical thinking underpin all aspects of the curriculum with problem solving at its heart and embedded in the planning and teaching of all units. All pupils are able to participate in fluency, reasoning and problem-solving tasks.

In every lesson, children use multiple representations to support and deepen their understanding of mathematical concepts, All pupils, when introduced to a key new concept, have the opportunity to build competency in this topic by taking this approach. Pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

Concrete – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

Pictorial – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

Abstract – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.

Planning - We plan our learning by designing coherent extended units of work in the medium term which take into account the relevant mathematical progression. This allows our children to master the area of mathematics being studied before moving on to new learning. To support us in our long and medium term planning, we use a teaching for Maths mastery approach from Reception through to Year 6. Nursery children begin their mathematics learning at Canon Popham based on the Early Years Foundation Stage Framework but also engage in key Maths mastery strategies such as Maths Meetings. We adapt our teaching for Maths mastery plans to suit the needs of our children resulting in small steps which become our individual lessons.

Mixed-ability grouping - We do not set or stream by ability at Canon Popham. Similarly, we do not group children by their prior attainment, except for where very significant gaps in learning exist. We aim for all children to move together through the learning in order to avoid gaps in understanding from forming. Such gaps serve to hold some children back in the future. Therefore, we do not differentiate by activity; we believe that this creates gaps in learning and sends a message that not all children need to learn the content of each lesson. It represents a cap on expectations. All children are given the same work initially. Slower graspers are provided with additional scaffolding, which could be adult support, concrete resources or adapted work in some cases. Faster graspers are given the opportunity to deepen their understanding

through targeted questioning and tasks planned for this specific purpose. Greater depth questioning is planned for in every part of the mastery lesson structure to ensure that all children are exposed to aspects of deep thinking, not just those who understand a concept more easily.

Intervention - Children who do not meet the learning objective for a lesson are identified in the lesson and are given a same-day intervention where possible to ensure that they are ready to move on to the next day's learning. If the majority of the class have struggled, our teachers would seek to identify if there was a step in the progression that had been missed, if a pre-requisite from earlier learning was not understood fully by the children, or if the learning objective of the lesson needed further honing. After a professional discussion with their colleagues, our teachers would then respond appropriately the next day. This fluidity in the short term allows us to respond precisely to the needs of our children.

Children's work and feedback - Work in books usually includes elements of fluency, reasoning and problem solving to ensure that our children are exposed to varied question and problem styles. Maths recordings will also demonstrate the core principles of the Dimensions of Depth – conceptual understanding, language and communication and mathematical thinking. We aim to use progressive questioning within lessons, starting with easier questions that are accessible, but finishing with questions that pose more of a challenge, but always based around the same piece of learning. Our teachers do not give our children endless calculations to solve, but use variation in their question selection – the process of using fewer carefully-chosen questions which reveal mathematical structures to the children and deepen their understanding as the lesson progresses. Most of our feedback in mathematics is oral and at the point of learning, and written feedback supports this where it is useful.

Assessment - We assess maths in several ways at Canon Popham. Formative assessment takes place in every lesson and is integral to the teaching of maths. Our teachers quiz the children to test their understanding on a regular basis and Maths Meetings allow time for additional assessment in 'low stakes' contexts where staff can then follow up misconceptions, revisit prior maths learning, pre-teach a new concept or allow time for additional practice to embed new learning and commit this to long term memory. Our tests are linked to DSAT recommended tests as well as end of year SATs for Key Stage 1 and Key Stage 2 which allow our teachers to see how their children are progressing at regular intervals. They measure performance across the whole curriculum and teacher judgements are made for all children's mathematics attainment and progress based on a combination of test performance and performance in lessons.

Impact

The impact of our mathematics curriculum will not only be measured by assessment procedures which allow us to measure outcomes against all schools nationally but by the application of metacognitive practices to enhance children's understanding and learning in wider contexts through;

- The quick recall of facts and procedures
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The ability to recognise relationships and make connections in mathematics

A mathematical concept or skill has been *mastered* when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.