



Mathematics - Intent, Implementation, Impact **2024/25**

'The only way to learn mathematics is to do mathematics.' - Paul Halmos

Intent

At St. Robert's RC First School, our goal is to ensure that all pupils develop the skills and confidence to solve a wide range of problems through fluency with numbers and mathematical reasoning/ problem solving. We strive to instil a love of mathematics in our children, encouraging them to explore, question, and find joy in the mathematical world around them.

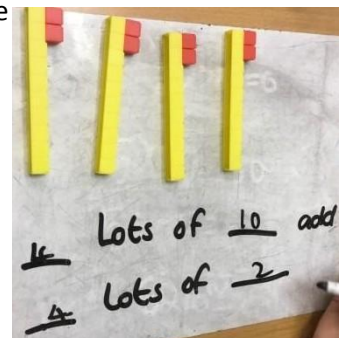


We are embarking on our mastery journey to improve the teaching and learning of mathematics. Our school is part of the Teaching for Mastery programme run by the Great North Maths Hub. By engaging in Teacher Research Groups and receiving support from a Mastery Specialist, we aim to refine our teaching practices using evidence-based pedagogies. This approach, which includes small, carefully structured steps, helps build strong mathematical foundations from which our pupils can grow.

Implementation

At St. Robert's, we employ a concrete-pictorial-abstract approach to teaching mathematics, promoting mastery and depth for all children. Our lessons focus on problem-solving and mathematical reasoning, enabling students to make connections, visualise concepts, and communicate their understanding both verbally and in written form. We emphasise the importance of teaching mathematical vocabulary, starting from Early Years and building through Key Stages 1 and 2.

Topics are taught in extended blocks in order to allow sufficient time for children to practise, refine and ultimately master concepts and processes. They are carefully sequenced so that skills and knowledge are continually revisited and applied through procedural and conceptual variation.



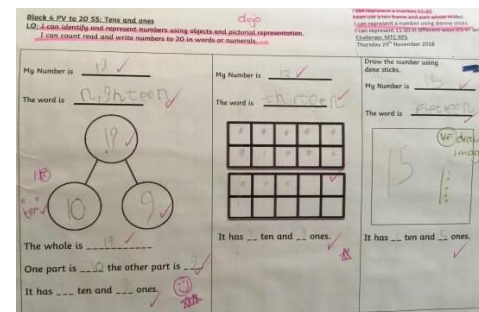
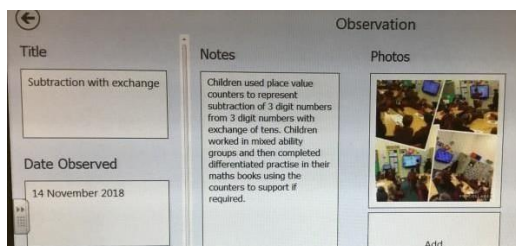
Lessons are carefully designed to ensure all children access rich, problem solving tasks and do not just focus on development of procedural fluency. Teachers use assessment for learning to determine whether in the lesson children need further guided practice or independent practice. Through this approach, no child is given a predetermined label based on prior attainment and all children's needs are met.

There is a whole school focus on developing an instant recall of key facts, such as number bonds, times tables. However, we recognise that fluency is not just about remembering facts



so we develop all aspects of fluency in lessons - accuracy, flexibility and efficiency.

Lessons include activities designed to build fluency, spot patterns and make connections. Reasoning style question (Sometimes, Always, Never; What's the same, what's different?; Explain to me what it is not?; Odd one out, True or False, Develop your partner's great idea, Who can justify this idea?) This provides good opportunities for mathematical thinking, reasoning and explaining. Some of this work may be recorded. Teachers will record evidence of children's learning via photographs and video through observations that are attached to our online assessment tools Sonar, Tapestry and Smartgrade.



Key Strategies and Approaches:

1. KIRFS (Key Instant Recall Facts):

- We have introduced KIRFS in all year groups to support rapid recall of key mathematical facts, such as number bonds and times tables. This foundation is critical for developing fluency and supports deeper mathematical understanding.
- KIRFS are monitored regularly to track progress and identify areas where additional support is needed.
- We provide short, focused interventions for students who need extra help, supported by volunteer parents who offer 1:1 sessions. These interventions are designed to reinforce KIRFS and build confidence in students' mathematical abilities.

2. Assessment and Data Analysis:

- We use a range of assessment tools, including termly summative assessments, to monitor pupil progress and understanding.
- The data collected from these assessments is collated using Smartgrade, allowing teachers to analyse student performance and identify trends or gaps in learning. This system enables us to compare our results with national averages, ensuring that we maintain high standards and address any areas of concern promptly. We always aim to use the data collected to best support pupils and ensure they excel in St. Robert's, better preparing them for Maths at KS3 and beyond.



3. Problem-Solving and Fluency Sessions:

- To enhance problem-solving skills and mathematical fluency, we have introduced dedicated sessions every Friday. These sessions focus on developing children's ability to verbally reason and solve mathematical problems practically.
- Through structured activities and discussions, children learn to articulate their thought processes, make connections between concepts, and apply their knowledge to new and challenging situations.

4. Lesson Design and Sequencing:

- Our lessons are carefully designed and sequenced to ensure that all children engage with rich, problem-solving tasks. Topics are taught in extended blocks, allowing ample time for children to practise, refine, and ultimately master concepts and processes.
- We use a range of representations, including manipulatives and visual models, to help children explore mathematical concepts in depth.

5. Inclusive Practice and Differentiation:

- All children are encouraged to achieve mastery in mathematics, regardless of their prior attainment. There are no predetermined labels, and every child's needs are met through tailored support and challenge where appropriate.
- For students who grasp concepts quickly, we provide opportunities to "go deeper" rather than moving on to new content. This might include explaining a concept clearly, devising their own related problems, or exploring alternative methods and solutions.

6. Use of Manipulatives and Visual Models:

- We use a variety of manipulatives, such as Numicon, Dienes/Base 10, place value counters, tens frames, and Cuisenaire rods, to support conceptual understanding across all year groups. These tools help children visualise and internalise mathematical concepts, fostering a secure understanding and confidence in their calculation methods. The equipment that we use:

Numicon

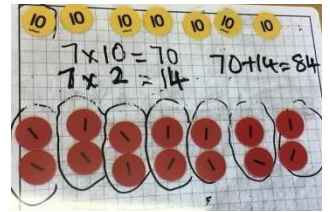
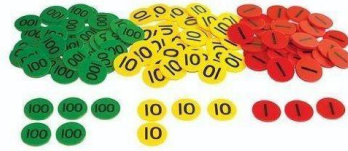


Dienes/ Base 10

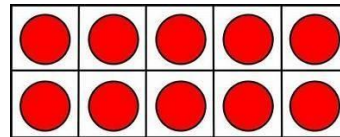




Place Value Counters



Tens Frame



Cuisenaire Rods



7. Mathematical Vocabulary and Reasoning:

- We emphasise the importance of precise mathematical language and provide structured opportunities for children to use mathematical vocabulary to explain, reason, and justify their thinking. This practice begins in Early Years and is built upon in Key Stage 1 and Key Stage 2.
- We model and scaffold mathematical discussions using structured stem sentences, enabling children to articulate their understanding confidently and accurately.

8. Assessment for Learning:

- Teachers use ongoing assessment for learning strategies during lessons to identify children's understanding and areas for development. This allows us to provide immediate support or additional challenges as needed.
- Children are encouraged to engage in peer and self-assessment, reflecting on their learning and providing feedback to one another.

9. Use of Technology:

- We utilise online assessment tools, such as Sonar Tracker and Smartgrade, to record evidence of children's learning, including photographs and videos of their work. This helps us track progress and adapt our teaching to meet the needs of all learners.



Impact

We want every child at St. Robert's to develop a genuine passion for mathematics, enabling them to continue building upon this foundation throughout their education. Through our mastery approach, we aim for our pupils to become resilient learners who can make connections between concepts, persevere through challenges, and take pride in finding solutions to problems.

Our approach ensures that children are not just focused on obtaining the correct answer but are deeply engaged in understanding the methods and reasoning behind their solutions. By the time they leave St. Robert's, our pupils will have a strong, deep understanding of mathematical concepts, a love of the subject, and the skills to approach mathematical challenges with confidence and curiosity.