



## **St Monica's RC Primary School** **Mathematics Policy**

### **Purpose**

*Mathematics is a creative and highly interconnected 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

### **Intent**

At St Monica's RC Primary, our Maths curriculum is one that is accessible to all and maximises the development of every child's ability and academic achievement. We aim for all children, irrespective of background, race or gender to:

- Foster a positive attitude so that they may enjoy the subject and study it with confidence, fascination and excitement of discovery through the teaching and learning of mathematical concepts.
- Develop a 'can do' attitude, especially when problem-solving.
- Use a wide range of models, manipulatives and practical resources to develop a deep conceptual understanding alongside procedural fluency.
- Reason confidently about their mathematics, using appropriate mathematical vocabulary, recognising its importance for communication and deep thinking.
- Broaden their knowledge and understanding about how mathematics is used across the curriculum and in the wider world by making rich and varied real-life connections.

### **Implementation**

#### **Early Years Foundation Stage**

At St Monica's, the teaching of Maths in Nursery and Reception meets the requirements of the Statutory Framework for the Early Years Foundation Stage. In both Nursery and Reception, an enabling environment supports independence by exploratory play. Children have the opportunity to self-select Maths resources to consolidate their learning.

In Nursery, children begin to develop mathematical awareness through songs, rhymes and games. Using Mastering the Curriculum, Nursery children follow small steps to success to introduce them to new concepts and build their confidence in using Mathematical focused language accurately. During independent play, children have the opportunity to develop maths skills by, for example, handling money in a role-play shop, exploring capacity in the water tray and using the balance scales with playdough. With adult support, they start to expand their mathematical vocabulary to describe patterns, shapes and numbers.

When children move up to Reception, exploration of mathematical concepts in free play continues. The whole class sessions, based on the White Rose Maths programme, are fun, practical, active and accessible. In small groups, supported by an adult, the children develop their skills and understanding using practical equipment and begin to use mathematical language to describe and explain what they are doing. Targeted questioning and appropriate challenge develops reasoning, deepens their understanding and challenges misconceptions.

## **Key Stage 1 and 2**

To ensure consistency and progression across the school, we use the DfE approved Power Maths scheme (this is aligned with White Rose Maths) for Years 1 to 6. The scheme fully supports a mastery approach and rejects the notion that some people simply 'can't do maths'. Instead, it encourages hard work, practice, collaboration and a willingness to see mistakes as learning tools. To develop Mastery in Maths, children need to acquire a deep understanding of mathematical concepts, structures and procedures, step by step. Complex mathematical concepts are built on simpler components and when children understand every step in the learning sequence, Maths becomes transparent and makes sense. Interactive lessons establish deep understanding in small steps, as well as fluency in key facts, such as times tables and number bonds.

For each year group, the curriculum is broken down into core concepts, taught in units. A unit divides into smaller learning steps - lessons. Step by step, strong foundations of cumulative knowledge and understanding are built.

## **Maths Lessons**

A typical lesson using Power Maths lasts approximately one hour. Maths is taught daily in Key Stages 1 and 2. However, when required, teachers may choose to include additional mathematics lessons in their weekly timetables to support or deepen a particular concept. Additional White Rose Maths resources are used in these lessons. Children are taught in mixed ability classes throughout the school, in line with the mastery approach.

The learning in each lesson will focus on one key conceptual idea and connections are made across Mathematical topics. Power Maths lessons in both key stages follow the same sequence:

**Power Up** - The lesson starts with a short power-up activity which supports fluency in and recall of number facts; this could also be times table practice, number bonds, working with place value or a 'fluent in five' activity.

**Discover** - Practical real-life problem solving, sometimes a puzzle or a game, usually paired work. These are engaging and fun and designed to get all children thinking and to generate curiosity. Children may use manipulatives (practical apparatus) to help them understand the Maths and explain their method.

**Share** - The children share their ideas and compare different ways to solve the problem, explaining their reasoning with hands-on resources and drawings to make their ideas clear. Children can develop their understanding of the concept with input from the teacher.

**Think together** - Children work in groups and pairs, discussing methods and solutions to problems. This encourages all children to think about how they solved the problem and explain it to their partner. Concrete materials are on tables to support and reinforce learning.

**Practice** - Children practice individually or in small groups, rehearsing and developing their skills to build fluency, understanding of the concept and confidence. Practice questions are presented in a logical sequence and problems are represented in different ways (variation), requiring different approaches. This encourages the children to think more creatively about how to reach a solution.

**Reflect** – the class comes together, allowing the children to review, reason and reflect on their learning. Open-ended questions, e.g. spot the mistake, allow teachers to check how deeply children have understood the day's concept and enable them to plan for additional intervention accordingly.

## **Resources**

Practical resources to support learning are stored both in individual classrooms where they are easily accessible to all children and additional resources are stored in cupboards accessible to each class. Each classroom has a maths 'working wall' showing examples of the topic currently being covered and has a permanent display of mathematical symbols, numbers, times tables and vocabulary appropriate to the age range.

## **Special Educational Needs (SEN)**

Children with SEN are taught within the daily Mathematics lesson and are encouraged to take part when and where possible through adaptive teaching. When additional support staff are available to support groups or individual children, they work collaboratively with the class teacher. The teacher and support staff liaise in detail before and after each session. Within the daily mathematics lesson, teachers not only provide activities to support children who find mathematics difficult but also activities that provide appropriate challenges for children who are high achievers in Mathematics. Practical manipulatives are used to support a child's understanding of new learning and to consolidate prior knowledge.

Those who need extra support in retaining new knowledge or building skills work in small groups for Speedy Interventions on the same day to address any misconceptions or consolidate new concepts.

## **Impact**

### **Assessment**

Formative assessment in Maths is ongoing and used by teachers to dictate the pace that pupils progress through each step of the short term planning, ensuring all pupils have the opportunity to explore the objective through fluency, reasoning and problem solving activities. The structure of the teaching sequence, ensures that children know how to be successful in their independent work. Guided practice, which takes place within the 'Think Together' part of the lesson, provides further preparation for children to be able to apply the skills, knowledge and strategies taught during the 'Discover and Share' phase. Common misconceptions are addressed within the teaching sequence and key understanding within each 'small step' is reviewed and checked by the teacher and the children before progression to further depth.

This enables teachers to pace lessons appropriately, address misconceptions and to provide immediate intervention. Speedy Interventions take place with small groups of children after the lesson, usually that afternoon if staffing allows, to consolidate any new learning from that day and address any misconceptions that hinder children from being ready to progress. As part of the Power Maths sequence, End of Unit assessments are completed by the pupils to enable teachers to track progress effectively and provide further intervention.

Termly assessments are conducted using the PUMA Maths testing materials. Teacher judgements are recorded termly using OTrack.

School Parent's Evening and annual reports are used to further inform parents of their child's progress.

Statutory Assessment Tests (SATs) are used for children in Year 2 and 6, plus children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term. The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics.

### **Monitoring and Evaluating**

The Maths Subject Leader follows an annual action plan. The Mathematics Subject Leader monitors standards of teaching and carries out regular book looks of children's work. Support is given, if necessary, to ensure all staff are adhering to this agreed policy. Findings from any monitoring is discussed initially with the Senior Leadership Team and is also shared with teaching staff as appropriate.