



## St John's Church of England Academy

### MATHEMATICS POLICY

**Date of Policy**                      **July 2018**

#### **Purpose**

This policy outlines the teaching, organisation and management of mathematics taught and learnt at St John's Church of England Academy. The policy is based on the 2014 expectations and aims of the 2014 Curriculum for Mathematics and the Early Years 'Development Matters' EYFS document. This ensures continuity, consistency and progression in the learning and teaching of mathematics.

The policy has been drawn up by the mathematics leader, shared and discussed with all staff and has the full agreement of the Governing Body.

#### **Aims of Teaching Mathematics**

We aim to develop:

- a positive attitude towards mathematics and an awareness of the fascination of mathematics
- fluency in the fundamentals of mathematics so to develop conceptual understanding and the ability to recall and apply knowledge accurately
- breadth and depth in children's understanding allowing them to master key objectives in mathematics
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- initiative and an ability to work both independently and in cooperation with others
- an ability to communicate and reason mathematically
- an ability to use and apply mathematics across the curriculum and in real life when solving a variety of complex problems
- an understanding of mathematics through a process of enquiry and experiment

#### **Planning**

At St John's lessons are planned in the belief that ability within Mathematics is not fixed and that every child has the ability to master key mathematical concepts. With this belief in mind, sequences of lessons are planned daily to develop children's deep understanding of skills before applying these when challenged through rich and sophisticated problems.

The National Curriculum forms the basis of our long term planning: setting out the expectations in each year group. Across the school, teachers use the medium term plans developed by the GLOW Maths Hub to inform their daily/weekly planning. Short term unit plans are prepared for daily teaching and annotated on a daily basis to reflect the emerging needs of each individual child.

Cold tasks (pre-requisite tasks) are planned for and used routinely by teachers before planning a new unit of work. This ensures that all subsequent work is pitched appropriately to the differing needs of individual children.

Tasks are selected and organised carefully in line with the school's mastery approach to learning, using the three phrases: Try it, Use it, Prove it.

Try it	Fluency tasks
Use it	Reasoning tasks helping children secure their understanding
Prove it	Problem solving tasks that prove children are meeting ARE.

These are available throughout the maths lesson and teachers direct children as to when they can move on to the next stage in their learning. Teachers create tasks for their classes, ensuring they match the pupil's starting points and interests. Bought in schemes are used (such as Maths – No Problem!, Collins Maths, White Rose Hub) however these should only act as a guide. Worksheets **must** be used sparingly.

### **Teaching**

The teaching of mathematics has discrete links to the Singapore maths approach. Across the school it is expected that children develop their understanding of mathematical concepts through teachers adopting a CPA (concrete, pictorial, abstract) approach to lessons.

All new maths concepts are introduced with concrete resources for children to feel and manipulate. As their conceptual understanding develops, they move towards the pictorial and abstract stages. Children are not accelerated through these stages until they have shown their secure understanding, gauged by the teacher through skilful assessment.

The role of the teacher in mathematics lessons is to:

- Demonstrate a clear model – this is to remain on display throughout the lesson for children to access and refer to and illustrates the steps to success.
- Create steps to success (STS) with the children.
- Allow time for discussion and paired work.
- Continually assess children's understanding using various questioning techniques
- Provide support or further scaffolding when needed
- Present challenge and to develop understanding through expert questioning.

Visualisation is a core mathematical skill. Teachers provide many opportunities for children to explain their understanding by writing or drawing what they understand. Teachers use this to uncover misconceptions, assess and then challenge children.

In addition to this, teachers use 'immediate application' to embed concepts. Each lesson is delivered through a variety of vehicles of materials/images and ensure children are applying their mathematical knowledge instantly.

Developing a keen number sense is a vital part of our maths curriculum. Children are always asked to explain how they know an answer, if they can show it a different way/an easier way to build upon their conceptual understanding.

To ensure no child is left behind, an additional Maths On Track (MOT) session is delivered every afternoon to allow children to revisit taught objectives and provide opportunities to practice key mathematical skills. Within these, teachers may use the sessions to provide same day intervention based on the children's progress in the morning lesson.

### **Mental skills**

The modelling of mental strategies and time to practise key mental skills is pivotal to becoming a fluent and skilled mathematician. To further develop mental skills, particularly their knowledge of number bonds and multiplication/division facts, children are explicitly taught number bonds and multiplication facts each week, generally on a Friday. They are subsequently tested with the results being sent home so parents and carers can support their practise.

### **Displays**

Throughout the school, working walls are used to capture and support children's mathematical understanding. Working walls are covered in laminated squared paper, allowing children to see written methods for calculations, while absorbing the mathematical language used in a particular area of the subject. In all classrooms, the following features will be seen on the maths working walls:

- The learning objectives

- Key vocabulary
- Modelling of the current maths learning
- STS where appropriate
- An intended outcome (challenge) related to the maths topic.
- Pupil voice and references to mistakes

### **Assessment**

Teachers make regular assessments of each pupil's progress through daily marking, discussion, termly assessments, summative assessments, regular updating of Target Tracker and end of Key Stage formal assessments.

Target Tracker is a structured approach to tracking and periodically assessing pupils' progress against the age related expectations of the 2014 curriculum. Staff use diagnostic information about pupils' strengths and weaknesses and this informs planning for the next steps in learning. Progress is tracked from EYFS to the end of Year 6.

Parents are given written feedback on their child's progress in Mathematics at the end of each academic year and at Parent Teacher meetings.

### **Maths in EYFS**

Teachers follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils explore the 'story' of numbers to twenty and the development of models and images for numbers as a solid foundation for further progress. Teachers use the 'Singapore Maths' concrete – pictorial – abstract approach to conceptual development.

### **Resources**

It is expected that throughout their time at St John's, children experience using a wide range of resources to develop their mathematical understanding, particularly numicon, dienes and place value counters. These resources are always at hand in the class and the children should be trained to have the initiative to use them when they feel they need to.

### **Links with Other Policies**

- Accessibility
- Curriculum
- E-Safety
- Equality and Diversity
- Inclusion for Disability and Special Educational Needs
- Marking and Feedback
- Monitoring and Evaluation
- More Able and Talented
- Pupils with English as an Additional Language
- Teaching and Learning