

# St Peter's Church of England (VC) Primary School

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## Policy for Mathematics

September 2021

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Revised:

September 2021

To be reviewed

September 2022

At St Peter's, we aim to inspire all children to reach their full academic potential. In Mathematics, this means ensuring a curriculum that is fully inclusive of all children, which allows learners to: refine skills and methods; think critically; reason and problem solve; and provides opportunities for them to communicate their understanding. Children are provided with chances to use their mathematical skills in a variety of contexts across the curriculum.

Mathematics is a powerful, universal language used to explain, predict and represent events as well as to tackle everyday problems; Mathematics is of central importance to our modern society. It is an essential part of everyone's daily lives and critical to science, technology, finance and engineering. Mathematics is necessary for any employment and independent life beyond education.

## **Aims**

The aims of Mathematics teaching at St Peter's are aligned with the goals of the National Curriculum: **fluency**, **reasoning** and **problem solving** - both in the mathematics lesson and across the curriculum. We recognise that pupils need to learn basic number facts and acquire **fluency in procedures**, alongside **developing conceptual understanding** to enable them to solve increasingly complex problems in life, and later in the workplace. With this in mind, the aims of this Mathematics Policy are:

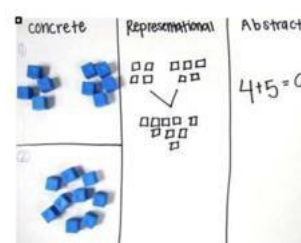
- To provide opportunities for children to explore concrete and pictorial representations before moving onto abstract concepts.
- To provide a rich environment that promotes learning mistakes.
- To equip children to solve problems by applying prior knowledge.
- To promote enthusiasm and enjoyment for learning through exciting teaching and learning opportunities.
- To develop logical thinking, reasoning and problem-solving skills through natural curiosity and investigative approaches.
- To develop a thorough knowledge and understanding of numbers and the number system.
- To encourage a range of strategies to solve problems by linking ideas together.
- To provide opportunities for deeper learning through a mastery approach including reasoning, problem solving and varied fluency etc.
- To understand the importance of mathematical skills in everyday life.
- To maintain high expectations for all learners within mathematics.
- To ensure full coverage of the National Curriculum in mathematics in all year groups.

## A Mastery Approach

A mastery approach to the teaching of Mathematics has been adopted, to enable high expectations of all our pupils. Staff at St Peter's endeavour to make the Mathematics curriculum accessible to all pupils, moving them through the programme of study at broadly the same pace. This is to be achieved by quality first teaching and support structures throughout small steps in learning of each lesson. All children need a deep understanding of the Mathematics that they are learning; this will ensure that future learning is built upon firm foundations - hence a consistent mastery approach throughout every year group. Within this approach, children develop their fluency in Mathematics without rote learning. Research suggests that pupils develop a deep, long term and adaptable understanding of Mathematics through mastery approaches.

## Concrete - Pictorial - Abstract

St Peter's are using CPA approaches within Maths teaching; this is recognised as a highly effective approach that supports the understanding of Mathematical concepts. Further information on our approaches can be found in our calculation policies.



Using concrete resources during the initial learning in a unit allows opportunities for informal play/exploration to occur. Within the pictorial stage pupils will need to draw representations (e.g. dienes, numicon or place value counters); this is to reinforce the concept being taught. The abstract stage often runs alongside the concrete and pictorial stage as children will need to read mathematical statements and use the concrete resources or pictorial representations to show their understanding. Having the abstract alongside also allows for children to make their own links and clearly see where and why digits are being manipulated.

## Growth Mindset

The Mastery Approach in Mathematics also includes adopting a 'growth mindset' which is essential for learners to be successful. Children at St Peter's are encouraged to believe they are all capable of learning and succeeding in Mathematics, given sufficient time, good teaching, appropriate resources and effort, but most importantly - learning from mistakes and using these as an opportunity to learn.

### Growth Mindset features:

- Everyone can learn Mathematics to the highest levels.

- Mistakes are valuable as a learning opportunity.
- Questions and explanations are important.
- Mathematics is about creativity, pattern spotting and sense making.
- Communication and making connections are vital components of Mathematics.
- In Mathematics lessons, the focus is more on depth of understanding than speed.

## Planning

Weekly lesson plans following the 'White Rose Maths' scheme of work. These are saved in a planning file on the school system, along with required resources. The daily lesson plans include the teacher and teaching assistant's focus within each part of a lesson to ensure effective differentiation for learners. These plans also encompass the learning resources for that given lesson so a clear vision of learning is visible. Teachers, in each year group, have been provided with resources to support planning Mathematics at greater depths, including textbooks, workbooks, online resources, practical resources, games and software.

Mathematics in EYFS is a practical, activity-based subject both indoors and outdoors. In EYFS, Mathematics is planned by teachers, with a range of continuous provision opportunities provided for children to access independently outside of discrete adult-led sessions where they can explore and deepen their understanding of mathematical concepts

## Mathematics Lessons

There are key aspects of Mathematics teaching in every classroom at St Peter's:

- Positive attitudes towards Mathematics and a sense of excitement.
- Mathematical skills being practised and applied across the curriculum.
- A mathematically rich environment that supports learning.
- Adults skillfully questioning children to reveal misconceptions, which are addressed.
- Questions are followed up by explanations from the children to allow them to use a wide range of mathematical vocabulary to support their reasoning.
- The children use a range of STEM to scaffold their verbal reasoning.
- Children are challenged through varied, rich and complex problems/representations.
- Scaffolding is provided for children when required.
- Regular assessments identify children who require support; this is acted upon by teachers.

Children are generally taught in single year group classes where possible, in line with the mastery approach. Lessons are structured with assessment opportunities throughout; these may be referred to as mini-plenaries. This provides opportunities to evaluate what has been learnt, review success criteria and address misconceptions. It should also provide opportunity for peer/self-assessment so children understand what they attained and where to go next. There are no specific time limits for the different parts of a lesson or a pre-determined format; however, quality Mathematics lessons should include:

- High demands of pupil involvement and engagement with their learning.
- Highly focused lesson design with skill based objectives.
- High levels of interaction for all pupils.
- Appropriate use of teacher questioning, modelling and explaining.
- An expectation that pupils will accept responsibility for their own learning and work independently.
- Regular use of encouragement to engage and motivate pupils.
- An emphasis on learning through dialogue, with regular opportunities for pupils to talk both individually and in groups.

### **Mathematics Working Wall**

It is expected that all classrooms will have a Mathematics Working Wall. This is an interactive display board to show the process of Mathematics and the learning journey within the current unit of work. This board is regularly changed to reflect the teaching and learning activities happening in the classroom. This display should include materials to support children (e.g. models and success criteria) when accessing their independent tasks. Mathematics working walls are clearly visible and provide the children with key vocabulary, number lines and charts, number facts and prompts that are appropriate for the unit of work.

### **Mathematics Assessment**

Children's Mathematics books and assessments provide evidence of progress and attainment. Learning is recorded in as many ways as possible to provide the children with a range of experiences e.g. photographs, pupil reflections, observations, collaborative learning strategies, evaluations and unit reviews. Teacher assessments are based upon the practical, written and oral work completed by the children.

There are a number of different styles of assessment in our mathematics curriculum:

- Formative - on a daily and weekly basis, teachers monitor progress and learning to ensure the children are understanding their new learning before moving on. This informs future planning, providing challenge and support where necessary.
- Termly assessments - teachers use their knowledge of each child and evidence gained to make individual judgments for each child's Mathematical ability. As part of this, children complete Cornerstones assessments.
- KS1 SATS - at the end of year 2, teachers are required to submit assessment levels in Mathematics to the local authority on each child.
- KS2 SATS - at the end of year 6, children complete 3 Mathematical test papers (1 arithmetic paper and 2 further papers based upon the child's ability to reason), that assess the children's understanding of the Key Stage 2 curriculum. The class teachers also submit

their judgment of the children's attainment termly with the support of summative assessments.

### **Cross-curricular Learning**

Although Mathematics is taught as a discrete subject, staff are encouraged to exploit any cross-curricular links and provide opportunities for children to demonstrate their knowledge of concepts or skills in other subjects.

### **Homework/ Parental Involvement**

St Peter's uses 'MyMaths' to support Home Learning. Children are set regular tasks to complete in line with the learning taking place in class. We encourage parents to actively talk to and let their children show them their mathematical ability. Telling the time and times table knowledge is also encouraged to be frequently revisited at home. The children all have access to Time Tables Rockstars (TTRS) and Numbots (EYFS/KS1) to support their times table learning both in school and at home.

### **Leadership and Management of Mathematics**

The Maths Coordinator works in conjunction with the S.L.T. The role of the subject leader involves:

- modelling good practice;
- being responsible for the upgrading and ordering of resources and arranging for their storage;
- keeping informed about developments and new initiatives to support the teaching of Maths and ensure staff are informed;
- auditing needs and organise staff training;
- training staff in teaching and learning of maths;
- monitoring data and progress on a regular basis and feeding back to the SLT;
- supporting teachers in planning and using resources;
- updating the school policy when necessary.

### **Governing body**

Each term, the governing body is informed of the achievements and progress in Mathematics throughout the school. The Mathematics Subject leader is responsible for keeping the governing body up to date with new initiatives and developments.