



Mathematics at St Peter's C of E Infant School.

Mathematics is a creative and highly inter-connected 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.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- ❖ Become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- ❖ Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- ❖ Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Intent

We know that our children need strong academic foundations in all core subjects to enable access to further education / training / the job market when they are older.

Our children are encouraged to develop skills which focus on essential building blocks for the world ahead: Teamwork & Leadership; Listening & Presenting; Aiming High & Staying Positive; Problem Solving & Creativity.

Our pupils will (age appropriate):

- ❖ have a well-developed sense of the size of a number and where it fits into the number system
- ❖ know by heart number facts such as number bonds, multiplication tables, doubles and halves
- ❖ use what they know by heart to figure out numbers mentally
- ❖ calculate accurately and efficiently, both mentally and in writing and paper, drawing on a range of calculation strategies
- ❖ make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- ❖ explain their methods and reasoning, using correct mathematical terms
- ❖ judge whether their answers are reasonable and have strategies for checking them where necessary

- ❖ suggest suitable units for measuring and make sensible estimates of measurements
 - ❖ explain and make predictions from the numbers in graphs, diagrams, charts and tables
 - ❖ develop spatial awareness and an understanding of the properties of 2d and 3d shapes
- Our teaching must develop mastery through promoting:
- ❖ Fluency (confident competency in skills and grasp of methods)
 - ❖ Reasoning (spotting patterns; applying what has been previously understood to new situation; logical thinking)
 - ❖ Variation - the ability to identify key elements of concepts when contexts change
 - ❖ Representation - the ability to visualise in diagrams or with objects to support mathematical thinking
 - ❖ Problem-solving (application in contexts, tackling sophisticated problems by breaking down small steps and not just in word problems but in practical challenges, spatial arrangements etc)

Implementation:

At St Peter's we use the National Curriculum for Mathematics (2014) as the basis of our KS1 mathematics programme. To ensure the teaching focuses on the concepts required to achieve the stated NC expectations, we use Pearson's 'Abacus' as a basis for all teacher planning and assessment. It has an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of our approach.

Pupils are provided with a variety of opportunities to develop and extend their

Mathematical skills, including:

- ❖ Paired work
- ❖ Whole class teaching
- ❖ Individual work
- ❖ Guided group work

Pupils engage in:

- ❖ Development of mental strategies
- ❖ written methods
- ❖ Practical work
- ❖ Investigational work
- ❖ Problem solving
- ❖ Mathematical discussion
- ❖ Consolidation of basic skills and number facts
- ❖ Maths games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations.

It is important the children are given opportunities to apply and use Mathematics in real contexts. Maths is applied in, for example, measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in Science, history and geography.

Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games. Teachers plan problem solving and investigational activities regularly to ensure that pupils develop the skills of mathematical thinking and enquiry, through, for example, our focus on STEAM.

ICT is used in various ways to support teaching and to motivate children's learning and includes, use of iPads, computers, visualisers etc. ICT is a powerful tool for the illustration of visual concepts. ICT will be used in a daily maths lesson when it is judged to be the most efficient and effective way of meeting the lesson objectives.

The School has access to 'NRICH', and other online resources which challenge children with their knowledge and skills. Challenge can be against themselves or other 'players'.

In the Early Years Foundation Stage, mathematics is taught through the use of Pearson 'Power Maths' linked specifically to the new Early Years curriculum. Abacus and Power Maths both have a mastery approach to all mathematical concepts

Teachers will work with the whole class, groups and individuals to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps (including where appropriate, homework).

EYFS maths is also taught during continuous provision with carefully scaffolded and meaningful interactions with the children during their learning/play moments. At St Peter's children benefit from a purposefully outdoor area that is set in mathematical ways and embeds maths into children's routines. Practitioners will deepen the children's understanding and ability to reason mathematically through high quality questioning, and by introducing new vocabulary and specific skills. During continuous provision we also offer suggestion statements and challenges which encourage children to articulate their thinking.

IMPACT

Children leave EYFS with approximately 87-90% of children secure in the Early Learning Goals for both Number and Shape Space and Measures and with the necessary foundations to support the move into KS1. This result is above national outcomes for EYFS.

KS1 outcomes at both expected and greater depth standards are above national results.

Ongoing formative assessment throughout lessons, and summative results from termly tests, alongside evidence from learning walks, pupil interviews and book scrutinies demonstrates that our pupils are securing maths content and using and applying mathematical knowledge, concepts and procedures – this all ensures readiness for the next stage of their learning.