St John and St James Mathematics

Jesus said, 'I have come that you will have life, life in all its fullness.'

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
"It is better to solve one problem five different ways than to solve five different problems the same way." George Polya.

During Foundation Stage

The main focus of Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using umbers, calculating simple addition and subtraction problems; and to describe shapes, spaces and measure.
Numbers: children count reliably with numbers from 1 to 20, place them in order and
say which number is one more or one less than a given number. Using quantities and
objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.
Shape, space and measures: children use everyday language to talk about size,
weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

During Key Stage 1

The main focus of mathematics teaching in Key Stage 1 is to ensure that children develop confidence and master mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources (for example, concrete objects and measuring tools).
At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching will involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

During Lower KS2 – Year 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and all four number operations. Concrete resources continue to be a feature of lessons supporting children to make and develop connections between what they have learned and more complicated mathematics such as simple fractions and decimal place value.
Pupils will also develop their mathematical reasoning so they can analyse shapes and their properties and confidently describe the relationships between them.
By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work.

During Upper KS2 – Years 5 and 6

In Upper KS2 pupils extend their understanding of the number system and place value to include larger integers. At this stage, pupils will develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly

Planning

In school, we use the White Rose EYFS Scheme of Work for Reception children and the Maths No Problem scheme from Year 1 to Year 6.

Maths No Problem is based on the principles of Singapore Maths. The programme is aligned to the National Curriculum and there is a scheme of work for each year group which provides an overview of the national curriculum topics covered term by term.

Differentiation is through depth of learning and for advanced learners, the textbooks contain non-routine questions for pupils to develop their higher order thinking skills.

Marking and feedback

Work should be marked according to the school marking policy by using

- Peer and self-assessment
- Oral feedback
- Written feedback

Teaching

In Reception children take part in short adult led sessions, group activities and games that support the development of early number strategies.

In Year 1 to Year 6 Maths is taught in mixed ability groups and focuses on teaching to mastery by allowing enough time on a topic for a child to understand it thoroughly before moving on, and using problem solving to develop a relational understanding of maths concepts.

Maths No Problem uses a Concrete, Pictorial, Abstract (CPA) approach which builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way. It involves moving from concrete materials, to pictorial representations to abstract symbols and problems.

Lessons are broken down into clear stages where pupils will work with the entire class, then with their partners before working on their own. The three parts to a lesson are:

- Anchor Task – the entire class spends time on one question (related to real life where appropriate) guided by the teacher. Children often work in groups using concrete materials to solve the problem. The teacher then leads a discussion to challenge and move learning forward.
- After a discussion about methodology led by the teacher, the children practise these new ideas guided by the teacher in what is termed the 'Guided Practice' stage of the lesson.
- Following Guided Practice, children complete the independent practice section of their workbook.

Assessment

Formative:

Daily assessment in the classroom to establish how well pupils are learning and how well they understand a concept on any given day.

Summative:

From Year 1 to Year 6 we use Maths No Problem Assessment Papers twice yearly to provide achievement data in different content domains.

We use this data to analyse results at an individual, class and school level, to inform planning and intervention.

In Year 2 and Year 6 children undergo statutory Mathematics tests in the Summer Term.

EYFS:

Teachers and key workers make observations regarding the pupils' development in this subject.

Resourcing and display

Children have access to high quality text books, workbooks and online materials as well as practical resources including base ten, counters and counting frames.

Working wall:

Each class has a working wall based on the topic they are studying. The display includes key vocabulary and information to support understanding and retention of knowledge.

Maths Events:

Children benefit from focused booster groups which run after school as well as additional one to one tuition through the National Tutoring Programme.

Parents are encouraged to attend workshops to provide advice and ideas for supporting their children's maths at home.

Monitoring

Monitoring is undertaken by the subject leader and SLT during the school year. This will include:

- learning walks during Mathematics lessons.
- scrutiny of Mathematics books and moderation
- discussions with pupils about their maths learning
- regular reviews by SLT and HEP
- KS1 and KS2 external Moderation with Local Authority Networks