

Maths Curriculum

Intent

Maths is taught daily in school, in all classes. We believe maths should be fun, exciting and challenging. We know maths can be tricky, but we work hard to build resilience and a love of maths in all classes. At the heart of maths is problem solving, and so applying maths to real-life contexts helps the children to understand what maths is and why we use it.

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.

Implementation

From Early Years to Year 6, we understand the importance of using manipulatives (or objects) to aid our maths understanding. All classes have a designated maths area and a maths Learning Wall. From an early age, we encourage children to make choices about what they will use to help them with their maths.

As children progress through the school, we encourage jottings as a useful maths tool. Although we have a calculation policy, which shows clear progression as children move up the school, we also encourage children to try their own workings, as there is often more than one way to solve a problem.

We do not use any commercial scheme, although use White Rose long and medium term planning to ensure good coverage and progression. This is a scheme which encourages 'low-ceiling high-threshold' learning, meaning that teachers can give children the opportunity to work together on problems, rather than 'set' for different ability group. This gives learners more chance to push themselves and try 'trickier work' sometimes. We also use 'challenge by choice', which means that children are making their own choices about their learning. We assess children's maths in Key Stages 1 and 2 using 'I can ...' statements, and in Early Years through active learning and hands-on activities, using Tapestry.

We try to make learning fun by planning in activities such as outdoor learning, cooking and shopping, as there is a wealth of maths around us.

All children take home weekly maths Home Learning, which will might be a practical activity or reinforcing something newly-learned in school. We use a variety of different incentives, to encourage children to feel proud of completing their Home Learning.

From time to time, children may benefit from additional booster classes, which we call Early Birds. These take place just before or at the start of the school day, and are specifically planned to move groups of children on quickly, in a small group. We also organise a weekly math booster class for children in Year 6, which is a smaller, less formal environment than the often busy classroom. For both these intervention groups, we offer children a chance to move on and become more confident with their maths, in addition to their daily maths lesson.

EYFS

In Early Years, Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure.

Pupils are taught to

Number

- 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
- add and subtract two single-digit numbers and count on or back to find the answer using quantities and objects
- solve problems, including doubling, halving and sharing

Shape, space and measure

- use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems
- recognise, create and describe patterns
- explore characteristics of everyday objects and shapes
- use mathematical language to describe them

Key Stage 1

The National Curriculum (2014) states that:

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve 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 should also 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.

Lower Key Stage 2

The National Curriculum (2014) states that:

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

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.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The National Curriculum (2014) states that:

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should 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. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. 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 four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Impact

As teachers, we are aware of the need to assess accurately so, from time to time, will use end-of-term tests or short weekly assessments, eg practising times tables in Key Stage 2. We also use IT opportunities such as online games or songs to encourage children's maths learning. As a leader, the maths subject lead will use book looks, learning walks and pupil perception questionnaires, as well as conduct planned team-teaching, alongside colleagues, as part of our ongoing CPD.