

## INTRODUCTION

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.

At Beech Grove Primary, we have a dedicated maths team made up of specialist teachers from every key stage and members of the senior leadership team. We meet regularly to discuss current issues in maths and work tirelessly to improve our children's outcomes and enjoyment of a subject we share a passion for.

## BEECH GROVE PRIMARY CURRICULUM AIMS

We aim 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

## CURRICULUM

### EYFS

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.

## **Key stage 1 - years 1 and 2**

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 4 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 - years 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 the 4 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 - years 5 and 6

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 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

### A TYPICAL MATHS LESSON

#### EYFS

During children's time in the Early Years Fountain Stage (EYFS) we ensure maths remains fun and engaging by...

- Keeping activities practical
- Linking activities to real life experiences where possible.
- As an EYFS unit we keep an array of maths activities available for the children to engage with independently in both our indoor and outdoor environments.

Alongside these activities we have guided practical maths sessions during the week to focus children's individual learning to ensuring progress and challenge.

## **KS1 AND KS2**

Our maths lessons are always engaging and where possible are linked to 'real life' or our children's interests. We often use our year group termly topic to inspire lessons in maths helping children to connect their learning.

A lesson often begins with a warm up activity such as:

- Tell me everything you know about the number...
- Which number/shape is the odd one out and why?
- Counting choir: counting forwards and backwards
- 5 a day: 5 quick calculations to consolidate number

Three times a week our children complete a 2 minute timed mental arithmetic task (rapid recall) to build fluency in number.

In KS1, a typical lesson involves a carousel of activities where children get the opportunity to work with their teacher and TA in a small group. They also work independently on a task to demonstrate their learning.

In KS2, children work in a variety of ways: in similar or mixed ability groups; in pairs or independently according to the learning objective and task.

If a child has been successful in a lesson, they are often given a challenge task to enable them to deepen their knowledge and understanding of their new learning. If a child has misunderstood the lesson's objective or needs some further consolidation, then they are targeted for an intervention later that day by the class teacher or TA to address any misconceptions.

Catherine Steel-Brewster

Year 5 and 6 team leader and Maths Coordinator