



The Federation of Bedenham and Holbrook Primary Schools

Mathematics Policy

May 2018

Please read this in conjunction with the home learning policy, the equalities policy, the learning and teaching policy and the marking policy.

Why Teach Mathematics?

'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 (STEM), 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.'

(The 2014 Primary Maths National Curriculum)

Introduction

This policy outlines what we are aiming to achieve in respect of pupils' mathematical understanding and education. It also describes our agreed approach to the planning, delivery and assessment of the mathematics curriculum. The mathematics taught and the methods used reflect the recommendations outlined in the DfES guidance contained in these documents:

- The 2014 Primary Maths National Curriculum
- Curriculum Guidance for the Foundation Stage
- Framework for Teaching Mathematics from Reception to Year 6
- Renewed Framework for Literacy and Mathematics
- Early Years Foundation Stage Guidance.

It provides information and guidance for teachers, governors and other interested persons.

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.

To ensure the National Curriculum aims are met, we aim to ensure that all pupils:

1. Foster a positive attitude to maths as an interesting and attractive subject of the curriculum.
2. Develop both procedural and conceptual mathematical understanding through systematic direct teaching of appropriate learning objectives.
3. Develop an understanding of the connectivity of patterns and relationships within mathematics.
4. Develop mathematical knowledge and quick recall of basic number facts including multiplication tables and related division facts in line with the Primary National Curriculum.
5. Develop a deeper understanding of Mathematics through a process of enquiry and investigation.
6. Develop the confidence to reason mathematically.
7. Develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom and become aware of the uses of mathematics in the wider world.
8. Develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.

We are continually aiming to raise standards of achievement of the pupils in the Federation of Bedenham and Holbrook.

Teaching and Learning Styles

The Schools use a variety of teaching styles to best cater for the needs of all pupils in mathematical lessons.

Children have opportunities to:

- carry out activities related, wherever possible, to real life situations.
- tackle both open ended and closed tasks.
- select appropriate mathematical methods and resources to solve problems.
- question and reason.
- talk about their maths and deepen their learning and understanding through paired and group work.
- investigate patterns and problems both initiated by themselves and by the teacher.
- reinforce, consolidate and enrich their knowledge.
- interpret results and draw conclusions.
- regularly re-visit previously attained mathematics.
- reflect on their experiences in order to see how a new idea is related to ones already learnt.
- make links with other subjects.

The teaching of maths provides opportunities for:

- Group work
- Paired work
- Whole class teaching
- Individual work

Pupils engage in:

- The development of mental strategies
- Written methods
- The recalling of number facts to support mental and written methods

- Problem solving
- Cross-curricular practical investigations
- Mathematical reasoning using appropriate vocabulary

Differentiation

We endeavour to set work that is challenging and motivating for all children. In all classes, there are children of differing mathematical attainment. Differentiation is achieved through task design, task variation, individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through deeper questioning and more demanding problems which deepen their knowledge further.

Mathematics throughout the schools

Wherever possible we use the concrete, pictorial or abstract approach to learning in maths. Maths should be well resourced and varied according to ability.

Early Years.

Mathematics in Early Years is planned using 'Development Matters' and the standards associated with the Early Learning Goals. Mathematics is taught by providing an enabling environment where children can play and explore number, shape and measures through their own interests. The Early Years staff provide creative opportunities and resources for the children to access and then by questioning and observing children's knowledge and next step learning.

Key Stage 1

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 (e.g. 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 (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 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 (Year 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 to solve 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.

SMSC Statement.

We strongly support the schools' policy of SMSC development. The teaching of mathematics supports the spiritual, moral, social and cultural development in a number of ways: problem solving, transformations through multicultural themes (buildings, carpet designs,) activities emphasising other cultures (Bengali numbers, Rangoli patterns)

Cross Curricular Links

Mathematics is taught mainly as a separate subject but every effort is made to link maths with other areas of the curriculum. We try and identify the mathematical possibilities across the curriculum at the planning stage. We also draw children's attention to the links between maths and other curricular work so children see that maths is not an isolated subject.

Assessment and Record Keeping

Assessment has two main purposes:

assessment of learning [summative assessment]

assessment for learning [formative assessment]

We are continually assessing our pupils and recording their progress. We see assessment as an integral part of the teaching process and endeavour to make our assessments purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress. There is a need for the teaching of maths to be 'scheme assisted not scheme driven.'

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Reviewed: policy committee 30.04.18

Chair of Governors:



Heads of school:

