Buxworth Primary School

Mathematics Policy

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 mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.' (National Curriculum 2014)

As can be seen from the above introduction, mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind, this policy promotes the basic and wider understanding of mathematics and hopes to instil an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning.

With 'Project 25' being one of the main driving forces of our school curriculum, we aim to provide the children with the skills they need for life.

This policy should be read in conjunction with the following school policies:

- Calculation Policy
- Assessment Policy
- Marking Policy
- SEND Policy
- Equality Policy

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems.
- Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance. The EYFS Framework in relation to mathematics aims for our pupils to:

- develop and improve their skills in counting
- understand and use numbers
- calculate simple addition and subtraction problems
- describe shapes, spaces, and measures

The purpose of mathematics in our school is to develop:

- positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
- competence and confidence in using and applying mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately
- initiative and motivation to work both independently and in cooperation with others
- confident communication of maths where pupils ask and answer questions, openly share work and learn from mistakes
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and investigation

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning.

Breadth of study

Careful planning and preparation ensure that throughout the school children engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- working with computers as a mathematical tool

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Teachers planning and organisation

In Reception and KS1, teachers follow the NCETM 'Mastering Number' programme. Mastering Number aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.

From Year 1 to Year 6, teachers use 'Oak National Academy' (who work in partnership with the NCETM), as a framework based upon the Teaching for Mastery approach. Within a lesson there are periods of whole class teaching and independent practice, and it is identified on our plans who the teacher or TA may need to support and by what means e.g. number lines, small group work. Our lessons are designed to support children to develop connections from one lesson to the next, as well as to build upon their knowledge from their previous experiences.

Oak National Academy (ONA)

The ONA curriculum provides teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving which are all key aims of the National Curriculum. ONA supports the CPA approach to teaching and learning (Concrete, Pictorial and Abstract) and has number at its heart. It ensures teachers stay in the required key stage and support the ideal of depth before breadth. It supports pupils working together as a whole group and provides plenty of time to build reasoning and problem-solving elements into the curriculum.

Their curriculum provides adaptable, coherently sequenced units to allow pupils to develop a deep, sustained understanding of mathematics at Key Stages 1 and 2. Evidence informed approaches including variation, and the development of core sets of models and representations build pupil knowledge and conceptual understanding. Lessons are designed to be flexible, accessible and to acknowledge the diversity in our schools. Central to the design of their curriculum is coherence in the development of key threads in mathematics. These threads reflect the structure of the National Curriculum, allowing teachers to track the development of key knowledge and skills.

Reasoning and problem solving are integral. Their curriculum promotes the use of vocabulary allowing pupils to articulate their thinking and strengthen both their procedural knowledge and conceptual understanding. Use of talk allows pupils to explore mathematical connections and use key vocabulary accurately when presenting their reasoning.

The ONA curriculum follows these set of principles:

- Pairing procedural knowledge with conceptual understanding.
- Aligning with the Concrete Pictorial Abstract approach to mathematics teaching and learning.
- Use an agreed set of models and representations which bridge mathematical concepts.
- Use of variation theory in practice tasks and modelling.

Resources and Displays

Each classroom will have a maths station with materials to support the delivery of Maths; such items might include: base 10, ten frames, number lines, multiplication tables, 100 squares, 2D and 3D shapes, multilink cubes, dice and other smaller items. Larger materials such as scales, trundle wheels and measuring cylinders will be held centrally.
Children should be encouraged to independently access the maths station and use the resources that are available to them and which they feel would be beneficial to help them when completing Maths work.
Each classroom should have a display dedicated to Maths; this could be in the form of a working wall; strategy board or problem-solving area and pupil voice should be evident.

Inclusion

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Mathematics or development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability.

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