



# Packmoor Ormiston Academy

## **MATHEMATICS POLICY**

### **The importance of maths in the curriculum**

We teach Mathematics to allow all children to have access to the world's only truly universal language. Its practical and problem-solving nature encourages children to make sense of the world in which they live. The special power of mathematics lies in its capacity not just to describe and explain but also to predict – to suggest possible answers to problems. It is not only taught because it is useful but it should also be a source of delight and wonder. As a school we want to enable children to see that mathematics provides a way of viewing and making sense of the world. It can be used to analyse and communicate ideas and information effectively and to tackle a range of practical tasks and real life problems.

At Packmoor Ormiston Academy, Maths is a creative subject to provide children with a love of learning to equip them with essential life skills. We provide children the opportunity to become fluent in the fundamentals of mathematics and equip them to apply their knowledge to solve problems. Through promoting enjoyment, curiosity and passion we provide an understanding of the world and the inspiration to use maths in future life situations. Packmoor Ormiston Academy will inspire children to use maths in science, technology and engineering in both school and future careers.

### **Aims and Objectives**

Mathematics must be an experience from which pupils derive pleasure, enjoyment and a positive attitude towards mathematics. Mathematics should provide a source of delight and wonder offering pupil's intellectual stimulation.

Our aims in teaching Mathematics are that the children will:

- Enjoy the subject and study it with a sense of confidence and achievement.
- Achieve a high standard in mathematics and gain a secure foundation of knowledge, skills and concepts
- Be confident with fluency, reasoning and problem solving
- Develop a thorough knowledge and understanding of numbers and the number system
- Use and apply these skills with confidence and understanding in real life problems and within mathematics itself
- Develop persistence through sustained work over a period of time
- Develop an ability to think logically and to use mathematical language with confidence and understanding
- Have an appreciation of mathematical pattern and relationships
- Have a positive attitude towards mathematics as an interesting and creative subject.
- Gain experience of working independently, investigating their own ideas and developing their own mental and written methods.

## **Strategy for implementation**

Mathematics is a National Curriculum core subject. Within the new National Curriculum (2014) the subject is divided into the following areas:

- Number – number and place value
- Number – addition, subtraction, multiplication and division
- Number – fractions, decimals and percentages
- Algebra (UKS2)
- Ratio and proportion (UKS2)
- Measurement
- Geometry – properties of shapes
- Geometry – position and direction
- Statistics

Opportunities for using and applying mathematics exist throughout all the strands.

## **Teaching and learning**

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics, allowing children to become fluent in the fundamentals of mathematics. We do this through a daily lesson which contains whole class teaching, group work and independent learning. The use and application of mathematical principles underpins the whole of mathematical teaching and learning. Opportunities are given for pupils to apply their knowledge to a wide range of real life situations. They need to be able to choose appropriate equipment and methods for the task and to communicate and justify their findings in a manner appropriate to their age and ability, showing increasing concern for clarity and accuracy of meaning. The children will record their work in appropriate ways for a variety of purposes.

### **At the Foundation Stage:**

Teaching and learning promotes social skills and develops the mathematical understanding of young children through stories, songs, rhymes, finger games, board games, sand and water, construction on a large and small scale, imaginative play, outdoor play, cooking, shopping, 2d and 3-D creative work with a range of materials and by observing numbers and patterns in the environment and in daily routines. Practical equipment is used to support the teaching and learning of number calculation.

### **Key Stages One and Two:**

Mathematics lessons may have a structure of:

- An oral and mental starter for 10-15 minutes
- The main activity for about 30 minutes in KS1 and 40 minutes in KS2
- Arithmetic skills

This structure can be adapted to reflect the needs of the class. The teacher will give demonstrations and explanations, with an emphasis on the use of appropriate mathematical language. Mental calculation is a key feature, with children being taught a range of strategies to work out answers as well as learning the quick recall of simple mathematical facts. Teaching is interactive, supported by practical equipment when appropriate and may also involve:

- Whole class and group discussions
- Practice to consolidate specific skills
- Problem solving and investigational activities in order to learn how to break down a problem
- Practical activities

- Mathematical games and puzzles

## **Resources**

Maths resources are stored within each key stage area and labeled for easy access. Various maths games and activities are also stored within the key stage 1 area for use with lower and potential attainers to practise various skills. The use of models and images to support children's learning is a key factor to children understanding various mathematical areas. All classrooms have interactive whiteboards in which games and interactive programs can be used on. Mathematical equipment such as calculators are available in all classrooms where necessary.

## **Mathematics curriculum planning**

Mathematics is a core subject in the National Curriculum and we use the National Curriculum as the basis for implementing the statutory requirements of the programme of study for mathematics. We use the White Rose Maths overview to support the implementation of the maths curriculum.

Long-term planning gives an overview of the coverage of maths topics across a school year.

Medium-term forecast plans give details of the main teaching objectives for each term and define what we teach with reference to the area of mathematics. They ensure an appropriate balance and distribution of work across each term. These plans are kept by both the class teachers and the subject leader.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and subject leader can discuss these on an informal basis. Maths planning is monitored by the subject leader through the 360 monitoring process. Maths planning is either completed on a planning grid or in the format of a weekly flipchart and uploaded to the planning section of SharePoint.

As part of the mathematics planning, daily 'arithmetic' lessons are planned for in each class. The objectives for these lessons are taken from the national curriculum and the half termly arithmetic assessments are used to inform future lessons.

## **Assessment**

At Packmoor Ormiston Academy assessment is an integral part of the teaching and learning process. Assessment is used to inform planning for effective maths lessons to take place. Assessment of children's work is on-going to ensure that understanding is being achieved and that progress is being made.

Feedback is given to the children as soon as possible, and marking work will be guided by the school's **Marking Policy**.

- This aims to encourage and to give guidance for future work.
- Ticks and written comments are clear, with errors indicated.
- Some marking will be immediate, depending on the activity.
- Displays of mathematical work reinforce mathematical concepts, assist in learning and celebrate achievement.
- Oral feedback is given to enhance understanding.
- Close the gap marking is consistent throughout all year groups.

**Formative assessment** enables the teacher to identify a child's understanding and progress, to inform their immediate teaching and to plan for their coming lessons. This can take the form of:

- discussing mathematics in the context of a practical task;
- short tests given in oral or written form;
- observation;
- individual discussions with children to evaluate progress.

We use the Pixl assessments every term across the school to monitor progress.

**Summative assessments** consist of;

- Foundation Stage Profile
- Key Stage One SATs
- Pixl assessments Y2 to Y5 every term (Y1 from Spring term)
- Key Stage Two SATs
- Data submitted termly for Pixl
- Y6 Pixl assessments and past SATs
- QLA data

In Maths we use assessment to:

- Check mathematical understanding,
- Identify misconception,
- Set targets for future success,
- Raise self-esteem,
- Provide motivation.

## **Monitoring**

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The mathematics subject leader gives the Principal a termly summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. This is then reported to governors during the termly governor's reports. A named member of the school's governing body is briefed to oversee the teaching of maths. This governor meets with the subject leader to review progress.

## **Inclusion**

### **Children with SEN and /or learning difficulties or disabilities**

Where possible, through the use of appropriate support and differentiation, children with SEN will be working towards the same learning objectives as their peers. From time to time, those working well below the year group expectation of the whole class may be working towards related objectives chosen from an earlier year. Those children with special needs may have specific targets relating to mathematics, where appropriate. They may be given additional support or extra teaching in small groups to help them achieve these targets. The lower attaining pupils should have access to a wide range of practical resources to help develop mathematical thinking and understanding.

### **Children who are gifted and talented**

Children who are working well above the expected standard of the class will be given a range of experiences designed to broaden or deepen their learning while working on the same learning objectives as their peers. This may be done by providing more demanding questions and

investigations, often with a more open-ended approach. Support from local high school may also be in place.

### **Equal Opportunities**

All children have an equal opportunity regardless of gender, race or ability, to progress and succeed in their mathematical learning and understanding. We pay particular attention to ensuring there is no gender bias in materials or in access to resources, including ICT. Teachers should pay attention to the equal distribution of their questions across all groups. Any displays and references to mathematics in society should show positive role models of gender, race, ethnicity and disabilities.

### **ICT**

The use of ICT is an integral part of mathematics teaching and learning. The teaching of mathematics is supported by a range of ICT software and activities. This provides tools for assessment, planning and teaching and learning. Staff make use of online resources, software and hardware to enhance their teaching and learning. A wide range of ICT software is available for pupils to use to reinforce concepts, to provide investigational activities and to demonstrate new concepts. Teachers also use the NNS Interactive Teaching Programs (ITPs) to enhance their teaching.

### **Maths across the curriculum**

Although the mathematics curriculum is organised as a discrete subject, there are many potential cross-curricular activities, linked closely to the topic for that half term and the science unit being taught. Making links between areas of learning deepens children's understanding by providing opportunities to reinforce and enhance learning.

Learning is enhanced by:

- Giving further opportunities to practise taught skills through purposeful use in other curriculum areas;
- Providing real experiences, context and meaning for the development of core mathematical skills;
- Assisting memory through providing opportunities for children to use skills in a different context;
- Providing opportunities for the application of knowledge in new contexts, to involve children in higher order thinking skills, such as reasoning and problem solving;
- Providing opportunities for learners to recognise and develop key aspects of learning, e.g. looking for patterns and relationships, problem solving and reasoning;
- Building concepts by providing children with opportunities to meet the same or related information in different ways, adding to the richness of their experience.

### **Reporting to parents**

Reporting to parents is carried out through the twice-yearly parent / teacher consultation meetings and termly through the written report. They are provided with information on children's areas of strength and / or weakness and on their rate of progress in mathematics. Any specific areas of difficulty or clarification can be discussed with the parents on an informal basis.

### **Policy monitoring and review**

The Maths subject leader is responsible for the monitoring and implementation of this policy. The subject leader reports on the effectiveness of the policy to the headteacher and the governing body.

Subject leader: Claire Hill

Policy updated: September 2023

Review date : September 2024