



MATHEMATICS POLICY

INTRODUCTION

The policy is underpinned by all four of the Academy's core values:

serve learn love challenge

It should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Curriculum Policy
- Assessment Policy
- Inclusion Policy

RATIONALE

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways.

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum order for mathematics describes in detail what pupils must learn in each year group. Combined with our Academy Calculation Policy, this ensures continuity and progression and high expectations for attainment in mathematics.

It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At Rothwell C of E Primary Academy we use the new National Curriculum for Mathematics (2014) as the basis of our mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of Rothwell C of E Primary Academy approach to this subject.

KEY PRINCIPALS

- policy and provision are evaluated and reviewed regularly
- resources of time, people and equipment are planned, budgeted for and detailed when appropriate in the School Development Plan
- supported by the Academy's Subject Leader for Mathematics, teachers engage in joint professional development through Lesson Study to optimise the quality of teaching in mathematics
- staff are encouraged to use IRIS to support reflective practice in mathematics
- the governing body discharge their statutory responsibility with regard to mathematics
- planning of mathematics ensures continuity and progression across all year groups and key stages

AIMS

We aim to provide the pupils with a mathematics curriculum and high quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full.

Our pupils should:

- have a well-developed sense of the size of a number and where it fits into the number system
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use what they know by heart to figure out numbers mentally
- calculate accurately and efficiently, both mentally and in writing and paper, drawing on a range of calculation strategies
- make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- explain their methods and reasoning, using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary
- suggest suitable units for measuring and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables
- develop spatial awareness and an understanding of the properties of 2d and 3d shapes

MATHEMATICS PROVISION

Pupils are provided with a variety of opportunities to develop and extend their Mathematical skills, including:

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

Pupils engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem solving
- mathematical discussion
- consolidation of basic skills and number facts
- maths games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations. Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their Numeracy Skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography. We endeavor at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning.

Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games. Teachers plan problem solving and investigational activities every week to ensure that pupils develop the skills of mathematical thinking and enquiry

To provide adequate time for developing mathematics, maths is taught daily and discretely. Maths lessons may vary in length but will usually last for about 45 minutes in Key Stage 1 and 45 - 60 minutes in Key Stage 2.

A TYPICAL LESSON

A typical lesson in Year 1 to 6 will often have the following components:

◆ **oral and mental work across the range of mathematics.**

This will involve work to rehearse, sharpen and develop mental and oral skills.

◆ **main teaching session**

This will include both teaching input and pupil activities and a balance between whole class, guided grouped and independent work, (groups, pairs and individual work) effectively differentiated and offering appropriate challenge. Sometimes the focus for this session is new learning, at other times pupils may be practising, to master the application of a concept they have learned earlier. The focus of this session may vary for different children depending on their learning needs.

◆ **plenary**

This will involve work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps.

Within lessons and over sequences of lessons teachers plan a coherent teaching and learning programme based on the model:

Revisit -> Review -> Teach -> Practise -> Apply

At times there may be opportunities to develop skills and understanding of mathematics through additional activities, some of which may take place at home.

Teachers plan learning that is differentiated to meet the needs of all pupils, whether they have a specific learning difficulty in maths or whether they are particularly able. When scrutinising work in maths books, the Subject Leader for Mathematics expects to see work from any one lesson on a similar theme, differentiated for high attaining, middle attaining and low attaining pupils – possibly with individual work for an SEN pupil at one end of the achievement spectrum, to individual work for a gifted pupil at the other.

EARLY YEARS FOUNDATION STAGE (EYFS)

We follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils explore the ‘story’ of numbers to ten and the development of models and images for numbers as a solid foundation for further progress. Teachers use a concrete – pictorial – abstract approach to conceptual development.

ASSESSMENT

Formative Assessment

Teachers integrate the use of formative assessment strategies such as effective questioning, clear learning intentions, the use of success criteria and effective feedback and response in their teaching. Children in key stage 2 regularly use purple pens to respond to marking, correcting and making next steps in learning.

Summative Assessment

The academy’s tracking system is updated half termly based on a range of teacher assessment and standardised testing which may include NFER, GL assessment and previous SAT resources. National Curriculum tests are used at the end of KS1 and 2; teachers use past and sample papers to inform their assessments as they prepare pupils for these assessments.

Resources

A bank of essential mathematics resources including Numicon, counters and Dienes rods are kept in each classroom. There is presently no central store for maths resources or teacher’s reference books.

Information and Communication Technology

ICT is used in various ways to support teaching and motivate children’s learning. Each classroom has a laptop connected to an interactive whiteboard and a ‘visualiser’. All teachers are encouraged to use ICT to enhance teaching and learning in mathematics where appropriate. The school has an ICT suite which has enough PCs for one per child. The school subscribes to ‘Mathletics’ to facilitate further practice of key skills online and at home.