



# Cockfield Primary School

## Mathematics Policy

### Introduction

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 healthy and enthusiastic attitude towards Mathematics that will stay with them to encourage economic wellbeing.

The National Curriculum order for Mathematics describes what must be taught in each key stage. Cockfield Primary School follows the Mathematical programme of study 2014 which provides detailed guidance for the implementation of the National Curriculum for Mathematics. This ensures continuity and progression in the teaching of Mathematics. In the Foundation Stage, where Mathematics is defined as a specific area and divided into number and shape, space and measure, the children are engaged and challenged with age appropriate targets.

### Intent

For every child to develop a love for the challenges that the subject of Maths brings. We aim to use outdoor learning to enhance mathematical understanding and provide open-ended investigations to promote mathematical reasoning. We strive to ensure that children are provided with opportunities to explore Maths in a real-life context equipping them with the skills in calculation, reasoning and problem solving that they need in life beyond school.

### Implementation

Subject expertise allows the intentions of our mathematics curriculum to be executed successfully. CPD is important in maths and all staff are being encouraged to raise any issues they have within mathematics in order to ensure everyone is confident in what they teach. Good practice is always shared between staff and all CPD is used to inform teaching and learning across school.

Resources and equipment are audited and up to date, all staff have opportunity to submit orders to the SLT and these were fulfilled – our maths cupboard also holds many whole-school resources. Our resources allow us to better use models and images to support learning in each area. Children are familiar with these and able to access them independently where needed also supporting learning in different contexts.

Staff have several materials to refer to for short-term planning including White Rose Maths, Classroom Secrets, Mathletics, Enrich and NCETM Teaching for Mastery – these are used across KS1 and KS2 allowing children to be exposed to a variety of different types of learning and problems. Teachers also implement the schools agreed calculations policy for progression in written and mental calculations. Our year group Rising Stars tests help teachers to gather an understanding of their pupil's existing understanding of topics. Formative assessment is incredibly important at Cockfield Primary School where we focus on challenge questions, analysis of learning, extension work, mini plenaries and discussion with peers. There is coherent progression seen in planning within each unit and activities in EYFS develop knowledge and skills of key learning.

Mathematical vocabulary is continually referred to within lessons and is discussed with children who are encouraged to use it independently. Children are given opportunity to reason and solve problems regularly; learning is varied and allows for deep and secure understanding. Both greater depth and struggling learners are given small group intervention in order to ensure every child is reaching their full mathematical potential. Using the school's tracking system is reviewed termly and target children are selected for further support. Parents are informed of and encouraged to be involved in our school mathematics implementation through maths homework, Mathletics, parents' evenings and yearly reports. Teachers are also all available for parents to speak to both before and after school.

Teachers develop fluency through practicing key skills, repeating, reinforcing and revising which is all built in to formal planning across school. Children are given time to practice and perfect their calculation strategies including giving pupils opportunity to make appropriate decisions when estimating, calculating and evaluating the effectiveness of their chosen methods. Feedback including our whole school 'next steps' system is designed to ensure pupils are well informed and making visible progress.

Discussion is essential to our learning and time is planned into lessons for this, task types are varied to suit different pupils and their learning preferences whilst reasoning in writing remains

one of our key focuses. Investigative tasks are designed to allow pupils to follow lines of enquiry and develop their own ideas, justifying and proving their answers. Children work both collaboratively and independently solving problems, which require them to persevere and develop resilience.

### Impact

The impact of our mathematics curriculum is that children understand the relevance of what they are learning in relation to real world concepts. We have fostered an environment where Maths is fun and it is OK to be 'wrong' because the journey to finding an answer is most important. Our children have a growth mindset and they make measurable progression against their own targets. Our maths books are packed with a range of activities showing evidence of fluency, reasoning and problem solving. Our feedback and interventions are supporting children to strive to be the best mathematicians they can be ensuring a greater proportion of children are on track. Children 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. Children are developing skills in being articulate and are able to verbally, pictorially and in written form, reason well. Our school standards are high; we moderate our books both internally and externally and children are achieving well.

### Principles

The principles of Cockfield Primary School for Mathematics are:

- 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.
- the governing body of Cockfield Primary School discharges its statutory responsibility with regard to Mathematics.
- cross curricular links will be encouraged to make links with the real world and integrated where appropriate.
- planning of Mathematics ensures continuity and progression across all year groups and key stages.

AIMS:

### General

Although relating specifically to Mathematics our aims for the subject are also in line with the school's general aims.

We aim to provide the pupils with a Mathematics curriculum, which will produce individuals who are literate, 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 knowledge, skills and understanding to their full potential.

### Specific

Our pupils should:

- have a sense of the size of a number and where it fits into the number system
- know by heart multiplication and division facts up to  $12 \times 12$  by the end of Year 4.
- know by heart number facts such as number bonds, doubles and halves
- use what they know by heart to figure out numbers mentally
- calculate accurately and efficiently, both mentally and written, drawing on a range of calculation strategies
- make sense of number problems, including real life problems, and recognise the operations needed to solve them
- discuss and 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 in appropriate curriculum areas
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes

### Provision

Pupils are provided with a variety of opportunities to develop and extend their mathematical skills in and across each phase of education.

Lessons follow the agreed format with a mental/oral starter, a main teaching activity and a plenary session. The teaching of Mathematics at Cockfield Primary School provides opportunities for:

- group learning
- adult guided groups
- paired learning
- whole class teaching
- individual learning

Pupils engage in:

- the development of mental strategies
- written methods
- practical tasks
- investigational learning
- problem solving
- mathematical discussion
- consolidation of basic skills and number facts
- the appropriate use of ICT to support learning

At Cockfield Primary School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. When these skills have been clearly achieved, then the stages of development in written methods are implemented as defined in the school's calculation policy. We use vocabulary from the relevant year group when planning to help determine the appropriate terminology to use in our teaching. Children are expected to use this terminology in their verbal and written explanations.

Mathematics contributes to many subjects and it is important children are given opportunities to apply and use Mathematics across the curriculum and in real contexts when possible. For example, children enjoy taking part in class enterprises.

We endeavour at all times to set tasks that have high expectations for all, are challenging, motivating and encourages pupils to talk about what they have been doing as well as responding to written questions to develop their understanding as outlined in the school's marking policy.

Early Years

See EYFS curriculum guidance for Mathematics.

### Key Stage 1

See the Mathematics programme of study 2014: Key Stage One objectives.

### Key Stage 2

See the Mathematics programme of study 2014: Key Stage Two objectives.

## Assessment

Assessment is regarded as an integral part of teaching and learning and is a continuous process which is monitored by the Senior Leadership Team. It is the responsibility of the class teacher to assess all pupils in their class.

In our school we are continually assessing our pupils and recording their progress. We see assessment for and of learning as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress.

Information for assessment will be gathered in various ways: by talking to the children, observing them, marking their learning, etc. Teachers will use these assessments to plan further lessons. The children will be formally assessed three times a year to record progress and this progress will be assessed during Pupil Progress Meetings between the class teacher and Headteacher.

See school assessment policy for specific detail.

## Responsibilities

Each class teacher is responsible for planning within the National Curriculum Guidelines, using The National Curriculum framework document and the Durham County National Curriculum 2014: Progression Guidance document to provide the children with activities, which are developmental and provide differentiation and assessment opportunities.

The subject leader along with the head teacher and deputy head teacher will monitor continuity, progression and attainment throughout the school, the ordering and maintenance of equipment and resources. The subject leader will develop appropriate programmes of study and offer staff guidance.

The head teacher has responsibility to ensure the delivery of the National Curriculum in accordance with the guidelines.

The Governors are responsible for ensuring the mathematics policy meets the needs of all the children and is delivered according to the National Statutory requirements within the parameters of the school budget.

### Role of the subject leader

The Mathematics subject leader is responsible for co-ordinating Mathematics through the school. This includes:

- ensuring continuity and progression from year group to year group
- advising on in-service training to staff where appropriate. This will be in line with the needs identified in the School Development Plan and within the confines of the school budget
- advising and supporting colleagues in the implementation and assessment of Mathematics throughout the school
- assisting with requisition and maintenance of resources required for the teaching of Mathematics. Again, this will be within the confines of the school budget
- to monitor teacher's planning and children's outcomes to ensure high standards of provision

### Role of the Class Teacher

Class teachers are to ensure progression in the acquisition of mathematical skills with due regard to current curriculum.

- to develop and update skills, knowledge and understanding of Mathematics
- to identify inset needs in Mathematics and take advantage of training opportunities
- to keep appropriate on-going assessments
- to plan effectively for Mathematics liaising with subject leader when necessary.
- to inform parents of pupils' progress, achievements and attainment

### Resources

A stimulating learning environment is created through the provision of appropriate resources and displays for the teaching of mathematics. Each classroom has a mathematics display to support pupils learning.

## Equal Opportunities

All children have equal access to the curriculum and appropriate access arrangements are made when required. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

## Parental/Carer involvement

At Cockfield Primary School we encourage parents and carers to be involved by:

- inviting them into school twice yearly to discuss the progress of their child
- circulating information via newsletters when significant changes have been/are made to the Mathematics curriculum
- holding SATS meetings for parents/carers focusing on the Mathematics curriculum in year 2 and year 6

## Liaisons

To ensure continuity and progression, records, SAT results, teacher assessments and examples of work are passed to the relevant comprehensive schools.

## Conclusion

The policy and guidelines are subject to continuous monitoring, evaluation and reviews.