NCDAT
New College Durham Academies Trust

# Castleside Primary School

CASTLESIDE
PRIMARY SCHOOL

# Mathematics Policy

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## INTRODUCTION

***"If I were again beginning my studies, I would follow the advice of Plato and start with mathematics.***"
**Galileo Galilei**

Mathematics helps us to make sense of the world around us through developing our ability to calculate, to reason and to solve problems. It enables us to understand and appreciate relationships and patterns in both number and space in our everyday lives.

## SCHOOL PURPOSE, POLICY AND THE NATIONAL CURRICULUM (2014)

Castleside Primary School's Mathematics Policy has been developed on the basis of the expectations of the 2014 National Curriculum for England.

The National Curriculum order for mathematics describes in detail what pupils must learn in each year group. Combined with the Castleside Primary School's Calculation Policy, this ensures continuity and progression and high expectations for attainment in mathematics.

## AIMS

At Castleside Primary School, 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.

In our school, we endeavour:

- to develop children who will meet the National Curriculum expectations in mathematics, taught by highly- enthusiastic qualified staff who will support children to develop mastery of concepts and inspire enthusiasm and interest in mathematics.
- to provide children with a high quality maths curriculum that is both challenging and enjoyable.
- support and encourage children to develop into independent learners with inquisitive minds, who have secure mathematical foundations and an interest in self-improvement.
- to provide children with the study of mathematics for a minimum of 5 hours per week in Key Stage 1 and 2.
- to provide opportunities for children from 2 to 11 years old to experience learning beyond the classroom, applying maths skills to curriculum vehicle work and engaging parents in home application of skills.
- to provide children with the opportunity to develop a deep understanding of the mathematics they are studying. They will increasingly use their prior knowledge to solve problems and develop the sophistication of mathematics.

- to provide children with a variety of mathematical opportunities which will enable them to make connections in learning, leading to greater depth learning. This will develop confident mathematicians who are not afraid to take risks.
- to support children to develop into high quality mathematicians by providing a foundation for understanding the world, developing the ability to reason mathematically and encouraging a sense of enjoyment and curiosity about mathematics.

## OBJECTIVES

The national curriculum identifies three main aims in the primary phase:

- 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, generalising, developing an argument, justifying or proving using mathematical language

- **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.

The national curriculum *states 'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.'* Therefore, it is organised into distinct domains. However, pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

**EYFS:**

**Numbers** - counting, ordering, one more/less, quantifying, counting on or back for addition and subtraction, doubling, halving, sharing

**Shape, Space and Measures** - size, mass, capacity, position, distance, time, recognise, create and describe patterns, use mathematical language to describe everyday objects and shapes.

**KS1 domains:**

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions

- Measures
- Geometry: properties of shape
- Geometry: position and direction
- Statistics (Year 2)

**KS2 domains:**

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions (including decimals and percentages)
- Ratio and proportion (Year 6)
- Measures
- Geometry: properties of shape
- Geometry: position and direction
- Statistics
- Algebra (Year 6)

## MATHEMATICS TEACHING AND LEARNING

### How mathematics is structured through the school

Class structure:
2 and 3 year olds
Nursery
Reception
Year 1/Year 2
Year3/Year 4
Year5/Year 6

### Our approach

**Planning:**
**EYFS**
Nursery follows the 'Maths Masters' approach to early mathematics.
Reception uses Mastering Number supplemented with White Rose for Shape, Space and Measure and follows the associated planning structure..
**KS1 and KS2**
Medium and long-term planning follows the structure of White Rose Hub Mathematics Schemes of Learning. In mixed-age classes, units are planned largely following the WRM planning sequence for mixed age. However, teacher discretion and expertise is used where necessary to address particular areas of need within a class, while ensuring that all objectives are covered by the end of the academic year.

There is no expectation for formal, written short-term planning and teachers' slides/presentations suffice

**Implementation:**

**EYFS**

Mathematics is a specific area within the EYFS statutory framework. Children will be given the opportunities and support to develop the following learning:

- the development of a strong grounding in number in order to develop the necessary building blocks to excel mathematically.
- the development of strong counting skills and a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.
- provision of frequent and varied opportunities to use and apply this understanding.
- opportunities to develop spatial reasoning across all areas of mathematics, including in shape, space and measures.
- support to develop positive attitudes to, and interest in, mathematics including looking for patterns and relationships, spotting connections, talk to adults and peers about what they notice, develop the attitude to take risks and not be afraid of making mistakes.

**KS1 and KS2**

- Lessons follow the structure of: **recall of number facts/ chanting times tables; oral/mental starter; introduce/explore; structure and model; intelligent practice; polish and improve.**
- Work is carried out using a balance of individual, paired and group work.
- Teachers demonstrate, explain and illustrate mathematical ideas to fully involve pupils and maintain interest through adaptive teaching approaches and appropriately demanding tasks including challenges at all levels.
- Teachers use correct mathematical vocabulary and expect the children to use this also.
- Mathematical errors and misconceptions are dealt with in a supportive and timely manner, either within the lesson or with same-day intervention sessions where possible.
- The emphasis on pupils' learning begins with concrete representations, leading to pictorial representations, leading to abstract representations in the form of informal jottings and formal written algorithms.
- Children are provided with a variety of mathematical strategies and approaches with encouragement to develop their own mathematical approaches as well as learning standard methods.
- The children are expected to gain a wide experience with a variety of materials, including IT.
- A high priority will be placed on children becoming fluent in mathematical concepts before reasoning and explaining their strategies and opportunities to reason and problem solve will be included in each lesson.

- Opportunities are provided for each child to progress through fluency, reasoning and problem solving at their own pace and in line with their levels of confidence and ability in each lesson.
- Discrete Reasoning and Problem Solving lessons are planned and taught at least every half term with a specific problem-solving skill as the focus.
- Teaching assistants are trained in supporting children.

**Monitoring**

- Book scrutinies are carried out throughout the term by the Subject Lead and SLT throughout the term with feedback and/or guidance provided.
- Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the Mathematics Subject Lead, SLT and the class teacher.
- Pupil Progress meetings held with HT each term.

## ASSESSMENT AND RECORD KEEPING

Teachers are responsible for assessing and recording children's progress in mathematics.
Assessment for learning is an integral part of each lesson.
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Standards are checked both in-school and through external moderation opportunities. These include:

- children's work marked promptly and in accordance with the school marking policy and AfL policy.
- In KS1 and 2 summative assessments are carried out in Autumn, Spring and Summer with results recorded centrally to support Teacher Assessment
- completion of the Foundation Stage Profile on-entry and at the end of the school academic year
- statutory tests at the end of KS2
- WRM end of unit tests and end of term tests which are recorded by the teacher and used to inform Teacher Assessment Data recorded on Arbor. The results are shared with parents during Parental consultations and are included in the end of year reports.
- as a statutory requirement, end of year reports will include whether a child has reached end-of-year age-related expectations in mathematics as a core subject.
- listening to what children say and skilled questioning to ascertain their level of understanding.

## Equal Opportunities

Mathematics is taught within the guidelines of the school's equal opportunities policy.

## Inclusion and SEND

We recognise the right for all pupils to have access to maths learning which meets their needs and will ensure this takes place through carefully identifying an individual's needs. Staff liaise closely with the SEND coordinator to address the needs of all children, including those identified as having special educational needs. Further support might then be provided through placement on the appropriate stage of the school's special needs register as well as the development of achievable targets as identified on individual Personal Targets. Please reference the SEND Policy for additional information.

When planning and teaching the National Curriculum in Mathematics, teachers are required to:

- set suitable learning challenges
- respond to pupil's diverse needs
- overcome potential barriers to learning and assessment

The aim of Castleside Primary School is for all pupils to reach their full potential and to aim high. For pupils with particular learning and assessment requirements, teachers should support individuals and groups to enable them to participate fully in curriculum and assessment activities.

Teachers have a responsibility to:

- Take account of the type and extent of a pupil's special educational needs in planning and in assessment
- Provide support for communication, language and literacy needs
- Plan to develop pupils' understanding through the use of all available equipment, scaffolds and support
- Plan to enable children to take full part in learning, physical and practical activities.

## ROLES AND RESPONSIBILITIES

The role of the Mathematics Lead is to:

- Prepare and review policy documents, curriculum plans and schemes of work for the subject
- Ensure teachers provide effective learning opportunities for all pupils, to develop valuable and varied activities appropriate for all pupils at different stages of development and which ensures progression
- Provide colleagues with opportunities to develop their subject expertise and organise and monitor their professional development
- Collect, evaluate and inform staff of all resources
- Ensure assessment requirements are being met
- Provide annual action plans including priorities for whole-school development in mathematics
- Help to identify opportunities to integrate mathematics into other areas of the curriculum

The role of the class teacher is to:

- Plan a series of lessons to maximise the engagement and inclusion of all pupils.
- Adapt all lessons and teaching to include all learners at all levels.
- Plan series of lessons to ensure coverage and progression in mathematics
- Inform the subject leader of any resources needed to deliver the units before they arise in the curriculum.
- Inform the subject leader of any CPD requirements specific to mathematics

## EVALUATION

Evaluation of this policy will be ongoing and will be carried out through – team meetings, team planning meetings, observations of lessons from planning to teaching and learning, discussion.

Resources will be audited on a regular basis and proposals for new resources will be discussed with the Head Teacher, Senior Leaders and the Mathematics Lead.

New members of staff will have access to this policy and planning support for mathematics. It is the responsibility of the Mathematics Lead to ensure staff have necessary help and support.