

Lower Halstow and Newington CEP Federation and Newington CEP Schools Federation



Mathematics Policy

Reviewed:

Review date:

Mathematics is a creative and highly inter-connected 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 mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

(National Curriculum 2014)

Introduction

The national curriculum for mathematics aims to ensure that all pupils:

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 relationships and generalisations, and developing an argument, justification or proof using mathematical language

can **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.

(National Curriculum July 2014)

At the Lower Halstow and Newington CEP Federation and Newington CEP Schools Federation we aim to inspire all children to reach their full academic potential. In mathematics this means ensuring a curriculum that is fully inclusive of all children which:

- Develops children's knowledge and understanding of Mathematical concepts whilst enabling them to practice and hone skills and methods;
- Enables them to think critically and communicate their understanding;
- Gives them opportunities to apply learnt mathematical skills in different contexts across the curriculum.

- Provides opportunities to develop problem solving skills useful for maths and across the curriculum.

Aims

The teaching of mathematics at Lower Halstow and Newington CEP Federation School is geared towards enabling each pupil to develop their learning without labelling them by ability. We endeavour to not only develop the mathematics skills and understanding required for later life, but also an enthusiasm and fascination about maths itself.

We aim to increase pupil confidence in maths so they are able to express themselves and their ideas using the language of maths with assurance.

We recognise the importance of developing factual, procedural and conceptual knowledge.

We are continually aiming to raise the standards of achievement of everyone at Lower Halstow and Newington CEP Federation School. This is being developed through our introduction of the mastery approach to teaching mathematics and incorporating a concrete, pictorial and abstract approach. We are also committed to developing the children's conceptual and procedural understanding of the strategies being taught.

Our mastery approach aims to:

- Deliver a gradual accumulative approach where core concepts are embedded before moving on.
- Develop a 'can do' attitude where teachers believe that all children are capable of achieving in mathematics.
- Enable children to show what they can do not what they can't do.
- Ensure each classroom encourages mathematical talk and the teacher encourages dialogue through effective questioning.
- Ensure every classroom values the importance of active listening.
- Promote problem solving and reasoning in every mathematics lesson.
- Use a variety of concrete and pictorial representations to secure children's depth of conceptual understanding.
- Encourage organised pre-teaching and reactive interventions.

Assessment

We aim to provide feedback to children through marking so that they have specific advice about improvements to their work. Children are given time to read and review their work following marking. Children are encouraged to reflectively review their work at the end of each lesson. They are also encouraged to respond to teachers' comments; see separate Marking Policy for more information. Following the removal of levels, teachers have been developing the use of 'low stakes' assessment tools to assess learning. Such things as exit tickets, quizzes and 'correct mistakes' lessons have aided the formative assessment process.

Teachers also assess children against the Key Performance Indicators and Mastery Statements as identified through the Target Tracker Assessment Program.

- **Below Programme of study** No understanding/knowledge
- **Emerging** At early stage of development (support needed)
- **Expected** Growing ability and independence (minimal prompting needed)
- **Exceeding** Exhibits skill independently
- **Mastery** Exhibits skill spontaneously and with confidence in a range of concepts.

Resources

Resources for the delivery of the maths curriculum are stored both centrally and in classrooms. Everyday basic equipment is kept in classrooms and should be easily accessible in every maths lesson. Additional equipment and topic-specific items are stored in a central maths store.

Lower Halstow and Newington CEP Federation Primary School uses a variety of published materials to facilitate the teaching of mathematics but recognises the need for the teaching of maths to be 'scheme assisted not scheme driven'.

Materials are constantly updated, as new and relevant items become available. The maths subject leader orders new resources after consultation with the staff.

Equal Opportunities

Pupils of all ethnic groups, both genders and all abilities have equal access to the mathematics curriculum. Positive images of such groups are promoted throughout the school, both in the use of language and in the provision of resources.

Guidelines in the health and safety policy will apply with regard to use of ICT, all school based activities and out of school activities relating to mathematics.

Contribution in Mathematics to Teaching in Other Curriculum Areas

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening.

ICT

The effective use of ICT can enhance the teaching and learning of mathematics when used appropriately. When considering its use, we take into account the following points:

- ICT should enhance good mathematics teaching. It should be used in lessons only if it supports good practice in teaching mathematics.
- Any decision about using ICT in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons.
- ICT should be used if the teacher and/or the children can achieve something more effectively with it than without it.

Science

Mathematical understanding will be developed in all areas of the science curriculum including; making careful and accurate measurements of time, distance, capacity, mass and identifying differences within data from before and after investigations. The

children will also be given the opportunity to develop their data handling skills as they present their findings in a variety of ways.

Art, Design and Technology

Measurements are often needed in art, design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost.

History, Geography and Religious Education

In history and geography children will collect data by counting and measuring and making use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, position, direction, scale and ratio. The pattern of days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a time line, similar to the number line that they already know.

Physical Education and Music

Athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Personal, Social and Health Education (PSHE) and Citizenship

Mathematics contributes to the teaching of personal, social and health education and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's view