

# ESTCOTS PRIMARY SCHOOL



## Mathematics Policy

**WHY TEACH MATHEMATICS?**

Mathematics is a fundamental and key life skill that enables us to make sense of, and participate in, the world around us. It is an essential part of everyday life. As pupils begin to understand mathematics, number and the number system, they are able to see and appreciate relationships and pattern in numbers, shape and space in their everyday lives. Through developing numeracy skills in calculation and problem solving, children are more able to participate in the society that we live and begin to understand the impact of mathematics on people's lives across many cultures. A high-quality mathematics education provides a foundation to the understanding of the world.

**AIMS AND OBJECTIVES**

- to develop an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject
- to promote confidence and competence with mathematics and enhance a belief in all pupils that everyone can succeed in mathematics if they work hard enough
- to become fluent in the fundamentals of mathematics, increasing the ability of pupils to recall and apply knowledge rapidly and accurately
- make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems
- to be able to apply mathematical skills through cross-curricular activities and other subjects
- To develop a deeper understanding of mathematics by teaching using the CPA (Concrete, Pictorial, Abstract) approach throughout all mathematics teaching
- to develop the role of bar modelling as a way of visualising and then solving mathematical problems
- to investigate and explore maths through the use of practical resources and role play
- to promote an understanding of the importance of mathematics in everyday life and the world around us
- to provide a highly scaffolded learning framework of teaching and learning with problem solving at its heart
- to develop within our pupils perseverance and resilience in tackling difficult mathematical problems

**THE 2014 NATIONAL CURRICULUM**

All teaching of mathematics is linked to the age related expectation from the 2014 National Curriculum. Children are expected to be taught broadly at the same pace. However, rapid graspers of the curriculum will have their knowledge secured and broadened by being offered more challenging, deeper problems and investigations to work on. Children will not be accelerated to a different year group's curriculum. In some special circumstances, it may be necessary to slow the curriculum down or even repeat content from previous years for some pupils. Class teachers and the maths co-ordinator will make decisions about when this is appropriate.

Reception follow the EYFS objectives. These offer experiences that will help develop the skills and concepts of mathematics.

## **TEACHING METHODS AND APPROACHES**

At Estcots we use a published scheme for teaching called Inspire to deliver most lessons across the school. This method of teaching has been developed over several years (in several countries) and is based on the internationally renowned 'Singapore maths' style of teaching and is based on the mastery approach.

Lessons follow their classic CPA approach to teaching (Concrete, Pictorial, Abstract). Where possible, teaching begins with physical objects and real life equipment to aid the children's conceptual understanding of mathematics. This could include real life objects such as food, weighing equipment, paper representations or mathematical equipment such as numicon or cuisenaire rods. As children begin to understand a new concept, these concrete forms become represented in pictorial form (diagrams or pictures, including bar modelling). Finally, as understanding is embedded the abstract form (written calculations using numerals) is introduced alongside the other two stages. Children also have opportunities to use ICT to enhance their mathematical learning and in many year groups MyMaths is used to set online homework.

Although 'Inspire' maths covers most age related expectations from the 2014 National Curriculum it does not cover all aspects of the curriculum. Therefore, some lessons are planned for without using the Inspire material but will also follow the same CPA style of teaching.

Our principal aim is to develop children's knowledge, skills, understanding and independence in mathematics. During these lessons we encourage children to question, discuss and justify mathematical ideas.

All children are encouraged to be open to the idea that we are all learning together and that it is good to make mistakes as it is during these times that most learning takes place (in reviewing and understanding why the mistake was made).

Alongside Inspire, we also teach mental maths strategies and fluency through Big Maths. Big Maths is based upon the principle that there are 4 core skills that lie at the heart of numeracy. These core skills form the platform for virtually all other maths skills and are known as CLIC - Counting, Learn its, It's nothing new! and Calculations.

Counting – Counting is done in many ways including counting forwards and backwards in various steps; work on place value and reading and ordering numbers.

Learn Its – Learn Its are 72 number facts which are progressively learnt throughout your child's time at school. They are split across the different terms so that each class works on a few Learn Its at a time, to ensure they are fully embedded.

It's Nothing New – Children use a bank of facts and methods that they already have to solve problems and that each step of progress is very small; children will use and apply their skills and methods to a range of different situations and problems.

Calculation – This is often the main part of the maths lesson which focuses on teaching solid written and mental methods for addition, subtraction, multiplication and division. The children move through progress drives which introduce small, focused steps of progress throughout the year.

The use both schemes ensures progression across the school and a use of common language and methods that build on prior learning and ensure that children are secure in their knowledge. The two complement each other perfectly.

Class teachers deliver 4 x 1 hr main maths sessions per week and 3 x ½ hour 'Big Maths' mental strategy sessions per week. Sessions are delivered by the class teacher to the whole class with differentiations where needed.

We aim to deliver same day interventions with pupils who have not grasped a particular concept so that misconceptions are not allowed to grow and embed within pupils. Teaching assistants support throughout the school with this and within class during lesson times.

## **MOVING INTO WRITTEN METHODS**

We have developed our own calculation policy, in line with Inspire, which identifies the written methods that are taught progressively across the school. In all instances, mental methods are the first resource. Standard written methods are reliable and efficient procedures for calculating which, once mastered, can be used in many different contexts, but they are of no use to someone who applies them inaccurately and who cannot judge whether the answer is reasonable.

## **EQUAL OPPORTUNITIES**

As a staff we endeavour to maintain an awareness of, and to provide equal opportunities for all our pupils in mathematics. We aim to take into account cultural background, gender and Special Needs, both in our teaching attitudes and in the published materials we use with our pupils.

## **SPECIAL EDUCATIONAL NEEDS**

Wherever possible, SEND pupils will work alongside other pupils within the mathematics lesson. Where necessary, a child may work on mathematical content from a previous year's curriculum. This process should remain transient and based on the pupil's need according to the content and context of the learning on that day.

## **DISPLAY**

We recognise the important role display has in the teaching and learning of mathematics by having maths work displayed in every classroom and around the school. It is a key focus to ensure that all classrooms have an interactive maths display and that children are aware of where all resources are kept so that they can freely access them to support their work. We also actively encourage working walls that show that week's learning for the children to refer to.

## **MARKING**

Maths marking should be seen in the context of the school's Assessment Policy. Teachers will respond to all Maths work by either verbal feedback or through the use of a Star and Wish, highlighting successes linked to the objective and identify next steps or additional challenges where appropriate. Pupils are given opportunities to respond to this marking and do so with their purple pens. The use of self-marking work is encouraged as appropriate.

## **ASSESSMENT AND RECORDING**

We assess children's work in mathematics termly through the use of PUMA testing and moderation of work. We record this progress termly using Target Tracker. Progress is discussed in termly Pupil Progress Meetings. The children are made aware of their successes and their next steps.

More informal methods of assessment are carried out daily by class teachers who identify children who are not grasping particular concepts and put them forward for same day interventions, as well as more prolonged intervention groups to secure learning across all groups in the class.

## **PARENTAL INVOLVEMENT**

We have a Parent Calculation Policy which clearly demonstrates all of the written methods for the four operations that are used at Estcots. This is reviewed yearly and is available to download from our website and copies are available in the office. Meet The Phase sessions also refer to the policy and we hold annual Maths Information Sessions. In addition to this, newsletters contain maths challenges and information of the latest developments in Maths in the school.