Mathematics Policy

Mathematics is important in everyday life, many forms of employment, science and technology, medicine and the economy. Different cultures have contributed to the development and application of mathematics. Today, the subject transcends cultural boundaries and its importance is universally recognised.

Intent

At Ellison Primary academy, Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world. We aim to teach children how to make sense of the world around them by developing their ability to calculate, reason and solve problems. We support children in achieving economic well-being by equipping them with a range of computational skills and the ability to solve problems in a variety of contexts by delivering a well-planned curriculum.

Our Mathematics teaching aims to:

- enable pupils to develop the mathematic skills and understanding required for later life;
- help children to develop an enthusiasm for the subject;
- to develop confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to 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.
- to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- to enable children to apply mathematic knowledge and skills to everyday situations.

Implementation

Our school curriculum for Mathematics meets the requirements of the 2014 National Curriculum which provides detailed guidance on statutory requirements in order to ensure continuity and progression in the teaching of Mathematics.

Teachers at Ellison Primary Academy follow the objectives set out in the National Curriculum and use other resources such as White Rose Maths and NCETM resources to supplement their planning and aid pupil's learning.

All year groups follow the Ellison calculation policy when teaching formal written methods for addition, subtraction, multiplication and division. This ensures consistency and a clear progression of skills throughout the school. (*See separate calculation policy*)

Work undertaken in the EYFS is guided by the Development Matters document. The 2 strands of Mathematics taught in the EYFS are Number and Shape, Space and Measure.

Organisation

In EYFS children are able to learn and explore Mathematics primarily through play opportunities. Activities are planned carefully in order to enable children to meet the objectives set out in Development Matters. Learning will also be guided daily as part of a small group with an adult in the class.

Lessons are held on a daily basis throughout the rest of the school. In Key Stage 1 these lessons last for approximately 45 minutes and in Key Stage 2 for approximately 1 hour. These lessons are taught to whole-class mixed ability groups. We ensure that all children are able to access the curriculum, taking into account any additional needs or providing extra challenge for children that require it.

In Key stage 1 and 2 all children will receive a daily 'Arithmetic' session consisting of 15 minutes specific, targeted teaching of a range of arithmetic skills in addition to the daily maths lesson. During this session the children will practise recall of number facts linked to their year group. Staff will build upon skills using the Key Instant Recall Facts (KIRFS) progression document (*see separate document*). This ensures that children are ready to progress and are equipped to build upon prior knowledge. The activities are interactive and recorded on individual whiteboards.

In addition to this, children in Key Stage 1 and 2 will be taught a lesson focused specifically on arithmetic questions. Each half term children will be assessed to identify key areas to be taught and teachers will plan lessons based on the outcome of these assessments. The lessons will focus on the four operations and will also include an opportunity to revisit fractions and decimals in appropriate year groups. The intention of these lessons is that children will retrieve prior knowledge and develop these skills regularly alongside the rest of the mathematics curriculum and knowledge and skills will be fully embedded.

Teaching methods

At Ellison Primary Academy we use a variety of teaching styles as part of our quality first teaching. Our lessons implement elements of mastery teaching and we encourage children to discuss their ideas in detail, providing an opportunity to recap and re-activate prior learning through talk before introducing new learning. We encourage children to ask as well as answer mathematical questions. When answering questions, the children will be encouraged to explain their mathematical understanding in order to encourage a deeper understanding.

Our pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols. **Concrete** – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing. **Pictorial** – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems. **Abstract** – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence. All classrooms have access to concrete resources that can be used in the teaching of mathematics. Through our careful planning and teaching there will be opportunities in each unit for children to work through varied fluency, reasoning and problem solving questions.

At Ellison Primary Academy we are committed to ensuring that all children are able to access the Mathematics curriculum through suitable learning opportunities. We achieve this through a range of strategies as part of adaptive teaching, this may involve providing open ended problems or tasks and by ensuring that further challenges are available within the planned learning where children need to use deeper thinking skills.

If children require further support at any time there are a range of strategies that we may employ. Children are able to use learning prompts available on the Maths learning walls, which are relevant to the current learning. Teachers may provide targeted support to a small group during the lesson in order to strengthen understanding. Reasonable adjustments will be made for SEND children (including those with specific learning

difficulties). This may include use of coloured overlays, additional use of concrete apparatus and pictorial representations or the use of sentence stems when reasoning. In addition, teaching assistants may provide specific targeted intervention to children with additional needs e.g. Catch up Maths. Pre-teaching may also take place where children will work with a member of staff to reinforce prior learning and ensure full understanding before new objectives are taught.

Mathematics homework will be sent home weekly. Children in Key Stage 1 (and Key Stage 2 where appropriate) will have access to a Numbots account to use at home and school to aid with the learning of number bonds and beginning to add and subtract. In addition to this, children from Year 2 upwards will have access to a 'Times Table Rockstars' account. This will allow children to access a program at home and in school where they are able to practise recall of multiplication tables and challenge their friends and classmates.

Impact

Assessment for Learning is fundamental to raising standards and enabling children to reach their potential. Assessment in Mathematics takes place daily using a range of strategies such as marking and feedback of work and verbal discussions with children *(See separate feedback policy)*. Teachers make use of questioning in order to ascertain children's level of understanding and tailor their teaching to suit the needs of their pupils.

Teachers use assessment in order to inform future planning. Children in Key Stage 1 and 2 complete PUMA tests every term. These provide teachers with an overview of children's progress over time and give a standardised score for each child. This helps teachers to come to a decision about whether children are working towards, at or above age-related expectations.

In EYFS children are assessed regularly through observations against the objectives set out in Development Matters. This assessment guides the teacher's planning in order to help the children to make good progress.

Information about children's progress will be reported to parents and carers during termly parent's evenings and via the child's end of year report in July.

In order to ensure that our Mathematics teaching and learning is of the highest quality, monitoring of the standard of teaching and learning takes place regularly. This is carried out by the Mathematics subject leader and members of the school's leadership team. A link governor has also been appointed to provide challenge and maintain high standards at all times.

The impact of our Mathematics education curriculum at Ellison Primary Academy will be that children acquire the skills needed for everyday life. We expect that by the time children leave us in Year 6 they will: become fluent in the fundamentals of mathematics; reason mathematically by following a line of enquiry and solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.