



Excalibur Primary School

Maths

Intent, Impact and Implementation

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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

DfE Mathematics Programme of Study 2013

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

1. 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.
2. Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
3. 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. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.



Intent

At Excalibur Primary School, we believe mathematics is an important part of children's development throughout school. We intend to provide a mathematics curriculum which caters for the needs of all individuals and provides our children with a foundation for understanding number, reasoning, thinking logically and problem solving with resilience so that they are fully prepared for the future. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving.

Our aim is to deliver a curriculum which:

- Allows children to be a part of high quality, creative and engaging lessons that are both challenging and enjoyable, and that gives them a range of opportunities to explore mathematics following a mastery curriculum approach.
- Sets high expectations for all learners.
- Promotes self-confidence in maths and nurtures a resilient approach when faced with mathematical challenges so that our children are confident mathematicians who are not afraid to take risks.
- Develops independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.
- Enables our children to become fluent in the fundamentals of mathematics and can recall and apply knowledge rapidly and accurately.
- Recognises that mathematics underpins much of our daily lives.
- Engages all children.
- Develops a secure and deep understanding of maths in our children which they can apply in different contexts.
- Creates a vocabulary rich environment where talk for maths is key to learning and children are confident in mathematical explanations.
- Makes rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- Provides opportunities for children to apply their mathematical knowledge in other subject areas.
- Is in line with the expectations in the National Curriculum 2014.

By adopting a Mastery approach, it is also intended that all children, regardless of their starting point, will maximise their academic achievement and leave Excalibur Primary School with an appreciation and enthusiasm for Maths, resulting in a lifelong positive relationship with number.

Implementation

Teaching and Learning

Every class from EYFS to Y6 follows the White Rose scheme of learning which is based on the National Curriculum. Lessons may be personalised to address the individual needs and requirements for a class but coverage is maintained and progress over time is evident. Using prior knowledge as a starting point for all future planning and teaching, we plan lessons that



ensure all pupils to make at least good progress. There is an emphasis on the engagement of our children; our maths lessons are designed which involve a high level of modelling and questioning.

We implement our approach through high quality teaching, delivering appropriately challenging work for all learners. Maths lessons at Excalibur Primary School use a range of approaches which include concrete, pictorial and abstract representations, providing our children with the necessary scaffolding to access learning at all levels.

In order to further develop the children's fluency, reasoning and problem-solving, we use Deepening Understanding, which correlates to the White Rose lessons and further develops children's understanding of a concept and the links between maths topics. We also use a range of planning resources including those provided by the NCETM, NRICH and Classroom Secrets to enrich our children's maths diet. By using a variety of planning resources, we provide a bespoke teaching and learning experience which meets the needs of all of our children. To ensure our children have the opportunity to practise and embed their fluency in maths core skills, we dedicated a weekly session in these areas.

We have Early Morning Activities in each class whereby children are set a maths task to ensure general maths knowledge and fluency are maintained and developed; these may take many forms, for example: arithmetic, specific times-tables or several questions about a mixture of maths topics.

In order to advance individual children's maths skills in school and at home, we utilise Times Tables Rock Stars for multiplication practise, application and consolidation and Top Marks for practising mental maths strategies.

Maths homework to consolidate learning is set weekly through MyMaths. There are also workbooks available on our website that cover all concepts taught across all year groups to support parents with home learning.

Where appropriate, maths is taught across the curriculum, ensuring the skills taught in maths sessions are applied in other subject areas.

Assessment informs the teaching and learning process. Through a balance of formative and summative assessments, we continuously monitor pupils' progress against expected attainment for their age.

Feedback is given to our children in line with our Marking and Feedback policy. Formative assessment within every lesson supports teachers in the identification of children who require additional support to achieve the required outcome and those who are ready for a greater stretch and challenge.

Summative assessments are completed at the end of each term using NFER resources; their results inform discussions in termly Pupil Progress Meetings. Following each assessment, class teachers undergo question level analysis which informs future teaching. Children who



are experiencing difficulties in maths are given extra support through intervention sessions and in-class support.

Impact

At Excalibur Primary School, we understand that a mathematical concept or skill has been mastered when a child can demonstrate it in a variety of ways, using mathematical language to explain their ideas and can independently apply the concept to new problems in unfamiliar situations.

Our children:

- Talk enthusiastically about their learning in maths and can articulate the context in which maths is being taught and relate this to real life situations.
- Show confidence in maths and believe that they will achieve.
- Know how and why maths is used in the world in which they live.
- Demonstrate quick recall of facts and procedures, including the recollection of times-tables.
- Have flexibility and fluidity to move between different contexts and representations of mathematics.
- Use mathematical vocabulary confidently, have the skills to use a range of methods to solve problems independently and show resilience when solving problems.
- Have the ability to recognise relationships and make connections in mathematics.
- Show a high level of pride in the presentation and understanding of work

The end of KS2 data for the academic year 2018/19 shows that attainment in maths at Excalibur Primary School exceeded both local and national averages. In Year 2, 87% of our children achieved EXP or above and 27% achieved Greater Depth in maths. In Year 6, 90% of our children achieved EXP or above and 37% achieved Greater Depth in maths.