Dovecot Primary School

Mathematics Policy

Date of review	
Reviewed by	
Signed	
Next review date	

DOVECOT PRIMARY SCHOOL

VISION STATEMENT

Learning together, growing together

Curriculum Intent Statement

At Dovecot Primary School the curriculum is designed to recognise children's prior learning, provide first-hand learning experiences, allow the children to develop interpersonal skills, build resilience and become creative, critical thinkers.

Every child is recognised as a unique individual. We celebrate and welcome differences within our school community. The ability to learn is underpinned by the teaching of basic skills, knowledge, concepts and values. We provide enhancement opportunities to engage learning and believe that childhood should be a happy, investigative and enquiring time where there are no limits to curiosity and there is a thirst for new experiences and knowledge.

Children leave our school with a sense of belonging to a tightly knit community where they have the confidence and skills to make decisions, self-evaluate, make connections and become lifelong learners.

Our core values:

- Excellence in all areas of school life.
- A broad and challenging curriculum.
- Engaged and motivated children.
- High standards of behaviour and expectations.
- A love of lifelong learning.
- Strong and positive relationships within the community.

"Education's starting point should not be about us. It should be about them, their needs, their aspirations and goals."

(Dr Maggie Atkinson, Children's Commissioner for England September 2013)

Intent

We believe that Mathematics should always be a creative and interactive subject in which all students get to discover new concepts and connections and make sense of the world around them. Mathematics 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.

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.
- **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.

'Children 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.' (National Curriculum)

At Dovecot Primary, our intention is to help children:

- enjoy Maths through practical activities, exploration and discussion
- understand the importance of mathematics in everyday life
- become confident and competent with numbers and the number system
- become fluent in the fundamentals of mathematics, developing automaticity with number bonds and times tables
- develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- develop a range of mental strategies for efficient calculation

- reason mathematically by following a line of enquiry
- spot relationships across domains, make generalisations and express an opinion using mathematical language
- apply their mathematical knowledge in other areas of the curriculum
- solve problems by applying their mathematics to a variety of routine and non-routine problems, including breaking down problems into a series of simpler steps.

We believe that all children are capable of achieving high standards in Mathematics: there is no such thing as 'not a Maths person'. As a result, children should progress through the curriculum content at the same pace, allowing time to consolidate and challenge as is appropriate for each child. Teaching should be adapted to meet the needs of all learners, including through the consistent use of concrete resources and calculation mats to scaffold learning.

Ultimately, our goal is always to help children to grow as mathematicians, to take pride in their ownerships of number facts, mathematical concepts and strategies and to find pleasure in their ability to apply what they have learned in a rich variety of contexts.

Implementation

Maths is a core subject and is taught every day in each classroom. To ensure consistency and a smooth progression for our students we follow the DfE approved White Rose scheme. We carefully adapt and tailor this scheme to the needs of our children, ensuring that we accurately assess their starting points and give them the support they need to succeed. We supplement the strengths of this scheme in a number of key ways that form our unique Dovecot approach.

The White Rose scheme places a strong emphasis on the progression from concrete to pictorial to abstract. Our children benefit immensely from working with concrete and pictorial representations that allow them to deepen their understanding of key mathematical concepts such as place value, calculation and fractions. As a result, we start each new topic with a dedicated lesson in which pupils explore foundational concepts using carefully selected concrete resources. These manipulatives will then support them as they encounter new learning. This helps to provide a rich, hands-on experience of key concepts as well as supporting learners in developing greater independence and confidence. Our calculation policy offers clear guidance as to which manipulatives are best used at each stage in the curriculum, ensuring a cohesive approach throughout the school.

Each lesson begins with the White Rose Flahsback 4 activity. This activity is part of a whole school focus on providing opportunities to remember and recall prior learning. These activities both function as an effective pre-teach of concepts that will be vital for the upcoming lesson and an invaluable way of embedding previously acquired knowledge and keeping all domains of Mathematics alive throughout the school year.

The White Rose scheme also offers a rich diet of opportunities for reasoning and problem solving in each and every lesson. This allows pupils to apply what they know and remember in a variety of real-world scenarios, and to understand the utility of Maths in our everyday lives. This also helps our children to build resilience through their problem solving, even when an answer is not immediately or readily apparent. We further supplement this by

ending each unit with a dedicated problem-solving lesson, drawing high-quality resources such as Testbase and ISeeReasoning, to further challenge and extend pupils' learning.

We believe Maths should be a talking subject, and we prioritise the role of oracy by placing a strong emphasis on learning partners and scaffolding the use of appropriate mathematical vocabulary. The White Rose scheme provides a wide range of opportunities for pupils to share their thinking with each other, to work collaboratively to investigate open-ended problems, and to challenge each other. We further supplement this with high-quality resources from producers like Steve Wyborney, Berkely Everret and Brian Bushart that are designed to get children really excited to talk about Maths.

In addition, our cohesive approach to Basic Skills is designed to ensure that pupils own key number facts and key mathematical relationships. Throughout our school, we use a consistent set of rapid routines every day to embed number bonds, times table facts and place value understanding. Supporting to 'own' these number facts builds their confidence, fluency and automaticity in calculation. Children are then guided to cumulatively develop a library of major mental strategies for calculation through regular 'Problem Strings'. In these sessions, teachers guide pupils to notice key mathematical relationships and represent their thinking through the use of number lines, open arrays and ratio tables. This approach builds confidence and fluency with a particular strategy (for example 'get to a friendly number') before moving students on to more sophisticated strategies when they are ready.

Impact

We use a variety of formative and summative assessments to assess the impact of our curriculum.

Teachers' continuous Assessment for Learning is absolutely key. By providing opportunities for pupils to display their understanding through manipulatives, pictorial representations, verbally and through their written work, staff are able to gauge where pupils need additional scaffolding or are ready for a challenge. Live marking allows staff to catch misconceptions as they occur.

Regular formative assessment is built in at the end of each unit in the White Rose scheme. This allows for a clear assessment of where topics may need to be revisited or changes in approach implemented. Standardised assessment using NFER and SATs materials at the end of each term provide a clear picture of each pupil's progress and allow the Subject Lead to identify the impact that our curriculum is having.

The impact of our curriculum is then further assessed through monitoring cycles. Learning walks performed by the Subject Lead and Senior Leaders determine how effectively Maths lessons are delivering our curriculum intent, including how learning is adapted for all of our children and supported by effective use of learning walls. Pupil voice is key to ascertaining what our children know and recall at a distance, and ensuring that they take joy in the study of Mathematics. Our approach is deeply collaborative, and supportive team teaching provides key opportunities for a cohesive approach across the school.