MATHEMATICS POLICY

Lakenheath Community Primary School

Version Number	4
Date of Policy	March 2022
Review Date	November 2022
Head Teacher's Signature	
Chair of Governors' Signature	

Document Change History

Version	Date	Change Details
1	January 2009	New Policy
2	November 2019	New format, review of policy
3	November 2020	Policy review, no change necessary.
4	March 2022	Complete re-write of policy.

1. Introduction

At Lakenheath Community Primary School, we are committed to providing our children with a curriculum that has a clear intention and impacts positively upon their needs.

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.*

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. Our curriculum ensure children apply mastery skills. We follow the White Rose maths scheme, with Deepening Understanding used to extend fluency, reasoning and problem solving. 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 mastery 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.

2. Intent

When teaching mathematics at Lakenheath, we intend to provide a curriculum which caters for the needs of all individuals and sets them up with the necessary skills and knowledge for them to become successful in their future adventures. We aim to prepare them for a successful working life. We incorporate sustained levels of challenge through varied and high quality activities with a focus on fluency, reasoning and problem solving.

Mastery: Pupils are required to explore maths in depth, using mathematical vocabulary to reason and explain their workings. A wide range of mathematical resources are used and pupils are taught to show their workings in a concrete, pictorial and abstract form wherever suitable. They are taught to explain their choice of methods and develop their mathematical reasoning skills. We encourage resilience, adaptability and acceptance that struggle is often a necessary step in learning. Our curriculum allows children to better make sense of the world around them relating the pattern between mathematics and everyday life.

Underpinned By:

- *High Expectations and Mastery: All children are expected to succeed and make progress from their starting points.*
- *Modelling: Teachers teach the skills needed to succeed in mathematics providing examples of good practice and having high expectations.*
- *A Vocabulary Rich Environment: We intend to create a vocabulary rich environment, where talk for maths is a key learning tool for all pupils. Pre teaching key vocabulary is a driver for pupil understanding and develops the confidence of pupils to explain mathematically.*
- *Pattern and Connection Identification: All children will have opportunities to identify patterns or connections in their maths; they can use this to predict and reason and to also develop their own patterns or links in maths and other subjects.*

- *The Teaching of Fluency: We intend for all pupils 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.*
- *The teaching of Reasoning: We intend for all pupils to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.*
- *The Teaching of Problem Solving: We intend for all pupils to 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.*
- *MASTERY: All children secure long-term, deep and adaptable understanding of maths which they can apply in different contexts.*

3. Implementation

- *White Rose & Deepening Understanding: 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. 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.*
- *Assessment: Through our teaching we continuously monitor pupils' progress against expected attainment for their age, making formative assessment notes where appropriate and using these to inform our teaching. Summative assessments are completed at the end of each half term; their results form discussions in Pupil Progress Meetings and update our summative school tracker. The main purpose of all assessment is to always ensure that we are providing excellent provision for every child.*
- *Online Maths Tools: In order to advance individual children's maths skills in school and at home, we utilise Times Tables Rock Stars in KS2 for multiplication practise, application and consolidation. We utilise Numbots in KS1 so that the children move from counting to calculating through recall and fluency of mental addition and subtraction.*
- *Concrete Pictorial Abstract (CPA): We implement our approach through high quality teaching delivering appropriately challenging work for all individuals. To support us, we have a range of mathematical resources in classrooms including Numicon, Base10 and counters (concrete equipment). When children have grasped a concept using concrete equipment, images and diagrams are used (pictorial) prior to moving to abstract questions. Abstract maths relies on the children understanding a concept thoroughly and being able to use their knowledge and understanding to answer and solve maths without equipment or images.*
- *Continuing Professional Development (CPD): We continuously strive to better ourselves and frequently share ideas and things that have been particularly effective. We take part in White Rose Maths training opportunities.*
- *Cross Curricular: Maths is taught across the curriculum ensuring that skills taught in these lessons are applied in other subjects.*
- *Whole school events: We celebrate National Maths Day and have whole school maths themed days. We also plan whole school competitions such as TTRS/Numbots launch day. These bring the whole school together to concentrate on one theme.*

4. Impact

- *Pupil Voice: Through discussion and feedback, children talk enthusiastically about their maths lessons and speak about how they love learning about maths. They can articulate the context in which maths is being taught and relate this to real life purposes. Children show confidence and believe they can learn about a new maths area and apply the knowledge and skills they already have.*

- *Evidence in knowledge: Pupils know how and why maths is used in the outside world and in the workplace. They know about different ways that maths can be used to support their future potential. Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations. Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times table.*
- *Evidence in skills: Pupils use acquired vocabulary in maths lessons. They have the skills to use methods independently and show resilience when tackling problems. The flexibility and fluidity to move between different contexts and representations of maths. Children show a high level of pride in the presentation and understanding of the work. The chance to develop the ability to recognise relationships and make connections in maths lessons. Teachers plan a range of opportunities to use maths inside and outside school.*
- *Outcomes: At the end of each year we expect the children to have achieved Age Related Expectations (ARE) for their year group. Some children will have progressed further and achieved greater depth (GD). Children who have gaps in their knowledge receive appropriate support and intervention. With Mastery, all children secure long-term, deep and adaptable understanding of maths which they can apply in different contexts.*