



Kidmore End CE Primary School Maths Curriculum Statement

Intent

The intention of teaching for mastery is to give all pupils (including those with SEND) access to equitable classrooms; classrooms where pupils can all participate and be influential, and classrooms where pupils are encouraged and supported to develop a deep connected and sustained understanding of the mathematics being explored.

We aim for pupils in Kidmore End CE Primary School to display positive approaches to maths and develop attitudes that embrace challenge. We are constantly striving to improve outcomes for all our pupils and achieve the aims of the National Curriculum: Fluency – Reasoning – Problem Solving. As a school we are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We intend to build knowledge, skills and understanding by revisiting at regular intervals and providing pupils with the opportunity to refresh and rehearse them through practice, consolidating and deepening at every age and stage.

A discursive approach

We are passionate that children should be encouraged to be active and equitable participants in maths lessons. Our intention is for pupils to feel valued as part of a maths community. Pupils feel comfortable to share their thinking take part even when they feel unsure. Children are encouraged to question one another; agree and disagree by justifying their decisions and work together collaboratively.

Problem solving

Mathematical problem solving is integral to learning at Kidmore End CE Primary School. Pupils are encouraged to identify, understand and apply relevant mathematical principles and make connections between different ideas. We ensure that problem solving takes place in every lesson in some form. Mathematical concepts are explored in a variety of representations and problem-solving contexts to give pupils a richer and deeper learning experience. Pupils combine different concepts to solve complex problems, and apply knowledge to real-life contexts.

Reasoning

We believe the way pupils speak and write about mathematics transforms their learning. Our mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. Pupils explain the mathematics in full sentences. They should be able to say not just what the answer is, but how they know it is right. This is key to building mathematical language and reasoning skills. Pupils are increasingly using conjecture, generalisations and proof to frame their mathematical understandings.

Fluency

We intend for pupils to recall and apply mathematical knowledge both rapidly and accurately. We explicitly teach children to be fluent in facts and procedures as well as enable them to move confidently between contexts and representations, recognise relationships and make connections in mathematics. This should help pupils develop a deep conceptual understanding of the subject. We use frequent, carefully designed, intelligent practice to help them to achieve a high level of fluency.

Ethos and Growth Mindset

Instilling all our pupils with a 'growth mindset' during maths lessons is a key priority for our school and we have actively promoted this with the children. In maths lessons children are expected to relish challenges; embrace their mistakes as part of the learning process; value the importance of effort; respond carefully to feedback and take inspiration from others. We believe in challenge and have a high expectation of pupil's response to challenge. We are also helping our children to develop their metacognition, ensuring key concepts are embedded in their long term memory by connecting new knowledge (working memory) with their existing knowledge (long term memory).

Depth of learning

We have ensured that teachers are aware of and cater for the need for depth of learning as an essential part of maths. Lessons build on mathematical concepts across a time period and teachers make links across mathematical topics and are continuing to develop variation in their teaching to maximise clarity and depth of learning. We maintain on-going formative assessment that recognises depth and breadth of understanding.

Connective Model

The connective model permeates all maths that takes place at Kidmore End CE Primary School. Teachers plan to use different, appropriate representations, by both adults and pupils, for making sense of the mathematics (exposing structure) and demonstrating understanding. The links made in maths lessons are explicit and focus on concrete (real world) examples, visual representation, language and manipulatives coming together to solve problems in context. All maths lessons contain a combination of these elements – skilfully planned by the teachers. We believe children develop deep understanding through using these elements together to develop into a fluent and proficient mathematician.

Implementation

To ensure our intent works in our day to day classrooms we understand that our implementation needs to be:

- Flexible
- Creative
- Robust
- Resilient
- Collaborative

“Good quality teaching takes into account all children in the class and plans small enough steps for the vast majority of children to achieve success with scaffolding and support, and for others to be challenged in the same concept to a greater depth of reasoning.” (EEF)

Planning

At Kidmore End CE Primary School we follow White Rose Maths curriculum overviews to deliver our maths curriculum and to ensure all units are covered. The areas of learning are outlined on our Curriculum map. We also use the NCETM professional development and mastery spines to support and enrich the White Rose curriculum and are currently moving towards a sole use of NCETM for planning in the future.

All pupils will be working on the same focus with different support provided to enable all pupils to access the mathematics independently. Teaching is responsive and adaptable, with clear progression in steps between lessons that is driven from the children's learning. Through reflective teaching the vast majority of each cohort will be moving through the content at the broadly the same pace.

A coherent sequence: Reflection, re-cap and worked examples

As a school, we have developed our understanding and use of a variety of pedagogical approaches that focus on how children learn. We believe that these approaches enhance and develop our mastery approach. We are using the 10 principles of Instruction (Rosenshine) to underpin our planning; specifically carefully planning opportunities for retrieval through the use of carefully scaffolded questioning. We understand that with retrieval practice, regularly visiting areas already learnt before, helps to connect new ideas to ones that are already known.

Small step learning and mastery pedagogy

Pedagogy at Kidmore End CE Primary school focuses on breaking down learning into small steps and utilising teaching for mastery techniques such as: Carefully chosen examples and representations to draw out the structure and essence of the concept (conceptual variation), discussion in the form of mixed ability pairs, talk partners and whole class discussion, mini plenaries – small steps providing sufficient scaffold for all pupils to access, precision in the use of mathematical language to further develop understanding and reasoning as well as working on rather than working through mathematical questions. Current research on retrieval practice and cognitive load theory are at the forefront of our planning process in these areas.

Questioning and AFL

Teachers will use questioning throughout maths lessons to elicit children's understanding and promote and challenge children to deepen understanding of concepts. Questions should be precise and develop mathematical thinking as well as develop the use of subject – specific vocabulary. Teachers will build opportunity for AFL into lessons and will use regular opportunities for discussion and use strategies to check and deepen a pupil's understanding. Teachers will allow for AFL in a variety of ways. They will use written work, manipulatives and visuals for representation as well as a whole range of other techniques and resources.

Modelling, Discussion and Dialogue

Talk in mathematics is encouraged in all lessons. As teachers we encourage children to: Articulate their thinking, take responsibility for asking questions of others to clarify understanding, agree and disagree, justifying their thinking and responding in full sentences with the intention that everyone understands them.

Pupils behaving as mathematicians

Pupils are encouraged to make decisions both independently and collaboratively, working flexibly to answer questions, reflecting on the efficiency and simplicity of their chosen methods. A 'have a go' ethos underpins our maths sessions, encouraging children to have a go even when unsure and embracing the purposeful struggle.

Challenges for Depth of Learning

Challenge focuses on breadth and depth of understanding and expects the children to apply their knowledge in challenging scenarios. Greater depth tasks are carefully planned for every lesson, within these tasks are asked to reason and problem solve. Evidence of high attaining pupils being challenged will be evidenced in books.

Responsive Teaching and Feedback

In maths all work is expected to be marked. By studying the EEF document 'A Marked Improvement' the use of targets are used to make marking as specific and actionable as possible in order to increase pupil progress. Where necessary teachers will intervene immediately to enable pupils to make progress in their learning. Any intervention/ response from the teacher will be annotated in the child's book and will consolidate their thinking or encourage them to make progress.

SEND Pupils

Where children are working significantly below the expected age related requirements of the curriculum scaffolding and targeted work takes place on a daily basis. These activities are planned by the teacher in discussion and collaboration with the SENDCO, parents and the TA working within the class. At Kidmore End CE Primary School, we believe that it is important that all learners are taught within the classroom with their peers, where interventions are needed teachers and teaching assistants follow a bespoke evidence informed intervention. We also pre-teach children who are at risk of falling behind in certain areas, this develops curiosity and interest as well as gives these children confidence and practice in retrieval before they learn new materials.

Each child with specific SEND difficulties will have targets that are agreed and monitored every half term to ensure progression.

Collaborative and Reflective CPD

We are fortunate at Kidmore End CE Primary school to be part of Oxfordshire Maths Hub and ODST cluster of schools. This gives us an opportunity to reflect and collaborate on all curriculum drivers as well as keeping up to date with current CPD.

Impact

Pupil Voice

The most effective way to find out what pupils understand about their mathematics will be to talk to them.

Pupils really understand a mathematical concept, idea or technique if they can:

- Describe it in their own words;
- Represent it in a variety of ways (e.g. using concrete materials, pictures and symbols)
- Explain it to someone else;
- Make up their own examples (and non-examples) of it;
- See mathematical connections between it and other facts or ideas;
- Recognise it in new situations and contexts;
- Make use of it in various ways, including in new situations

Through conversations with pupils we are also able to understand how they learn, if they are able to connect prior learning to the learning they are undertaking as well as investigating whether they understand why they are learning the key concepts and whether they know how they can be used in their future learning.

Progression

Effective monitoring and evaluation as well as informed and adaptable planning ensure progress is evident in all books for all learners. Progress can be seen week on week as a teaching sequence is delivered as well as over a whole unit, termly and over the course of the academic year. Timely 'book looks', cross federation moderation and learning walks review progress in relation to the progression of skills for each year group and guarantee consistency and high expectations are maintained.

Learning Environment

The learning environment seeks to challenge, inspire and aid all learners at Kidmore End CE Primary School. The working walls in each class showcase the curriculum being taught and the planned sequence of learning for the unit. The work on display celebrates the achievements of the learners and the progress they are making.

Recording in Books

The purpose of children recording in books is to allow teachers to measure whether pupils have understood the concept being taught and the level of depth to which they have understood it as well as allowing our children to deepen their understanding of the content by working individually, independently and at greater depth. Our books show a child's journey through their learning.

Planning

Planning follows the Curriculum Map and is in line with the National Curriculum Programme of Study for each year group. We use the DfE/ NCETM Ready – To – Progress Criteria to help teachers make effective use of the National Curriculum to develop pupils' mastery of mathematics. Coverage as well as depth of learning are key drivers for planning. All planning is adaptable and reviewed in line with the daily Assessment for Learning (AfL). Annotations and AfL monitor the progress for all learners in relation to the learning objectives.