Maths Subject Statement

Showing our love through kindness, determination and curiosity; strengthening ourselves and our community.

Intent

Long Wittenham is a Maths Mastery School. We strive to develop a deep love and understanding of maths in all our children. As such, our curriculum equips children with a solid foundation for lifelong mathematical curiosity and understanding. It fosters a sense of joy and excitement as they discover patterns and make meaningful connections. From Early Years to Year 6, the curriculum ensures coherence, particularly through the models and representations that help children deepen their conceptual understanding and effectively communicate their ideas. Every child is challenged, with opportunities for greater depth provided for quick learners and tailored support for those who need it. Our curriculum aligns with the National Curriculum's goals, emphasising a balanced development of fluency, reasoning, and problem-solving skills.

Our underlying principals are:

- Mathematics teaching for mastery assumes everyone can learn and enjoy maths.
- Mathematical learning behaviours are developed such that pupils focus and engage fully as learners who reason and seek to make connections.
- Curriculum design ensures a coherent and detailed sequence of essential content to support progression over time.
- Lesson design links to prior learning and is delivered in carefully sequenced steps to build understanding.
- Practice is a vital part of the learning but must be designed to reinforce procedural fluency and conceptual understanding.
- Procedural fluency and conceptual understanding are developed in tandem using the CPA-V approach outlined below.

Implementation

Our approach

In our school, we use the Concrete, Pictorial, Abstract – Vocabulary (CPA-V) approach. This method uses physical manipulatives and visual representations to build the children's understanding of abstract mathematical concepts and gives them the vocabulary to explain their thinking and reasoning. Vocabulary builds as children progress through the school in the form of specific words and as stem sentences.

Children are introduced to the concepts through the use of **concrete** resources (e.g. place value counters, Base 10 etc). When they are comfortable solving problems with physical aids, they are given problems with pictures – usually **pictorial representations** of the concrete objects they were using and are encouraged to draw these representations themselves to support problem solving. Eventually, children are asked to solve problems where they only have the **abstract** (e.g. numbers or symbols). Throughout teaching, children are taught the **vocabulary** needed to discuss and explain their learning. This not only

embeds mathematical concepts, processes and reasoning but also develops high-level mathematical oracy.

The CPA-V approach is used across the school but may vary due to the age or needs of the children. In EYFS and KS1, the concrete manipulatives are used to introduce all new concepts and may be required throughout teaching of a specific unit however, the aim is to build independence and understanding through pictorial then abstract activities as children's understanding becomes secure. In planning at KS2, teachers identify the concrete manipulatives and pictorial representations that will support learning which may be for the whole class at the start of a unit but only be needed by some pupils as the unit develops.

Children are encouraged to see the concrete manipulatives and pictorial representations as a tool for deepening their understanding and a method for proving their thinking

Our lesson design

In a typical lesson, the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration and discussion, enabling pupils to think, reason and apply their knowledge to solve problems.

Our lessons are structured into three distinct parts

1. **Starter:**

We start the lesson with retrieval of pre-requisite knowledge/skills required for the upcoming lesson**.**

2. **Teaching and assessing:**

We use the I do/we do/you do process

I do: teacher explains and models – children listen/observe. Learning is supported through dual-coding with verbal and visual stimuli (e.g. slides, visualizer, resources, use of flip-chart etc.)

We do: children work with partners/groups or as a whole class to practice a concept/process using the CPA-V approach. Teachers support high quality discussion and address misconceptions using this part of the lesson for assessing understanding and where support may be needed.

You do: Children work independently to apply learning to a question or series of problems aimed at developing fluency, problem-solving and reasoning skills through purposeful practice. This could be through independent provision or investigation as well as traditional 'workbook' questions. Teachers may use this time for assessment and feedback **or** for working with targeted individuals or groups.

*This process may be applied once or several times during a lesson***.**

3. **Reflection Plenary**

This is used to enable children to reflect on their own learning (may include self-marking) and to consider what their next steps might be.

Our curriculum

We base our curriculum on the White Rose scheme (Mixed Age 24/25) and the NCETM Mastering Number programme (KS1 & KS2) to support teaching and learning. The bulk of our Reception class number work is based on Mastering Number (KS1) with additional provision to ensure children are able to practice and consolidate. The wider maths curriculum (e.g. shape, measures, time) is taught using White Rose. The rest of the school (Y1-6) use White Rose for teaching across the curriculum but complement number fact fluency with Mastering Number.

Using a scheme ensures that children taught with consistent vocabulary, models and representations and approaches. White Rose

We work alongside the Maths Mastery Lead and Primary Maths Lead within the Ridgeway Education Trust to plan, implement, assess and review our curriculum.

Impact

Teachers use assessment as an integral part of the teaching and learning process and, as such, assessment in maths in ongoing and informs planning and teaching on a daily basis.

Regular reviews of teaching, learning and progress are made through classroom observations, learning walks, book reviews, data analysis from summative assessments and child interviews. There is a culture of open and active discussion amongst teaching and support staff in staff meetings and informally. Our knowledge of children's learning is informed by:

- The children's responses in lessons – their engagement with activities and the depth of their response to challenging questions.
- The development of children's recorded responses.
- Evidence of children's growing knowledge that informs their strategies and reasoning, and their ability to justify these both orally and in written form as they get older.
- Pupil Voice.
- Formal assessments three times a year against year group objectives.