The Quercus Federation

Maths Policy

Hurst Green Church of England Primary School and Nursery

This policy was adopted on November 2020 by

Victoria Stelfox maths leader

This policy is due for review on November 2022

Signed (Chair of Governors) Signed (Head of School) Date:

Intent

At Hurst Green Church of England Primary School, we believe that an outstanding mathematics curriculum provides the foundation on which pupils can develop their critical understanding so that they can explore methodically, reason logically and make connections across all areas of the curriculum.
We apply a 'Teaching for Mastery' approach. This pedagogy supports pupils to develop an acquiring, deep, long-term, secure and adaptable understanding of Maths. Teaching for Mastery is a research and evidence-based approach that is recommended by the Department for Education (DfE) and the National College for Excellence in the Teaching of Mathematics (NCETM).

Aims

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, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **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 (DfE 2013)

Implementation

New concepts are taught and embedded from early years through to year 6. Children are modelled practices through a CPA (Concrete Pictorial Abstract) that develops skills, builds fluency, facilitates problem solving and challenges pupils to prove their thinking.

- **Concrete** - using concrete/physical objects to solve problems and bring concepts to life. Hands on mathematics aids understanding and builds a secure foundation to build on.
- **Pictorial** - pupils create connections between physical objects and abstract understanding by using pictures, diagrams and bar models to represent concepts.
  Abstract - the symbolic stage where children are able to use abstract symbols to demonstrate their conceptual understanding and solve mathematical problem

Acquisition of knowledge and understanding for pupils are explored and structured through the class via these three concepts and provide a Spiral Curriculum (Bruner 1960) where by children build on their mathematical knowledge by revisiting and deepening understanding.

Teachers provide opportunities for all our pupils to explore the basic building blocks of number though exploration and play. This evolves using concrete resources such as Numicon, Diennes, cubes and place value counters, so that pupils can build mental representations of mathematical concepts. As pupils meet more mathematical ideas, they build new and stronger internal schema, which allows them to make new connections and gain further understanding as they grow through the school years.

Children develop verbal and abstract reasoning through a technique using stem sentence. These sentence structures express key conceptual ideas eg: It can't be that because… I can prove it by…

This enables the pupils to provide a sentence stem to communicate their ideas with mathematical precision and clarity.

Impact

Children are assessed daily against our maths milestones in order to track their progress and to plan for individual gaps. Additionally, White Rose termly and end of topic assessments are completed in each year group.

Children are taught the curriculum as a whole class teaching approach through White Rose and Nctem maths. Where there are mixed year classes, children will be taught the learning objectives of their year group, in line with the national curriculum. Learning is progressed, developed and assessed through five challenges.

- Consolidation (Applying concrete and pictorial understanding)
- Fluency (Abstract- written methods)
- Reasoning
- Problem Solving
- Greater Depth

This inclusive curriculum supports both high and low attaining pupils. EVERY child has the opportunity to grow their mathematical attainment.