

MATHEMATICS POLICY

HATFIELD PEVEREL INFANT AND NURSERY SCHOOL



Inspiring a Love of Learning

APPROVED BY GOVERNORS: APRIL 2026

POLICY TO BE REVIEWED: APRIL 2027

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INTRODUCTION

This policy is a statement of the aims, principles and strategies for the teaching and learning of mathematics at Hatfield Peverel Infant and Nursery School. Mathematics is a core subject, and this policy has been written in accordance with statutory guidance. The 2014 National Curriculum for Mathematics aims to ensure that all children:

- become fluent in the fundamentals of mathematics.
- are able to reason mathematically.
- can solve problems by applying their mathematics.

“Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It 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.”

National Curriculum for Mathematics 2014

INTENT

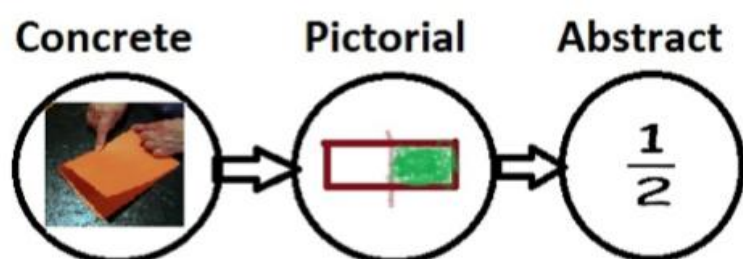
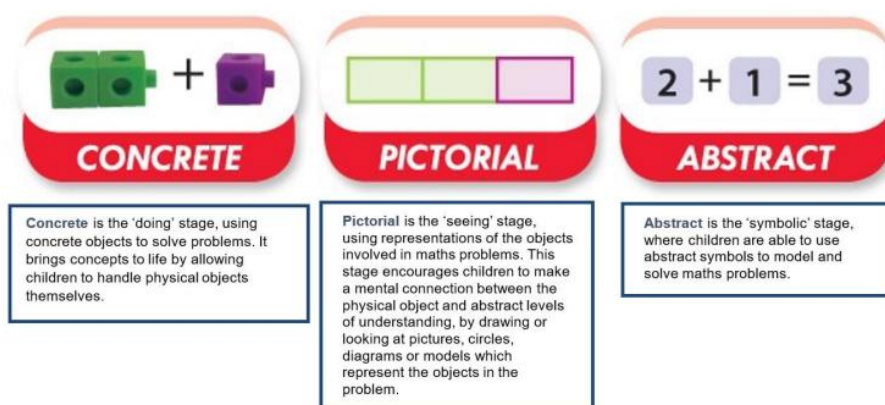
At Hatfield Peverel Infant and Nursery School we aim for all children to develop a deep, conceptual understanding of mathematics. We want children to be confident, fluent mathematicians who are able to transfer their knowledge and skills to explore and demonstrate their mathematical understanding in a variety of ways to reason and solve problems. We want all children to enjoy mathematics and to experience success in the subject. We aim to foster a passion and curiosity for mathematics, which will remain with children as they journey through life and learning.

We aim for all of our children to be strong mathematicians who:

- can recall and apply key mathematical knowledge rapidly and accurately, moving between a range of contexts, representations and making connections.
- can solve problems through a variety of representations and contexts by understanding and applying mathematical concepts, building skills to tackle new problems and apply these to real life situations.
- develop their abilities to reason by talking and writing to explain their understanding of maths, using mathematical language effectively to reason, justify and prove.

IMPLEMENTATION

The mathematics curriculum at Hatfield Peverel Infant and Nursery School has been planned to ensure children are given the opportunity to work practically, using a range of concrete resources, models and images to develop their understanding of mathematical concepts. We follow a ‘Concrete-Pictorial-Abstract’ approach to aid children’s understanding of abstract topics, where children are introduced to new mathematical concepts through the use of concrete resources.



The National Curriculum states that one of the core principles of the curriculum is that children “become fluent in the fundamentals of mathematics, including through varied and frequent practice.” At Hatfield Peverel Infant and Nursery School we understand that sufficient, good quality practice enables the development of *procedural fluency* (the ability to select the appropriate strategy and skills to correctly solve calculations and problems). We are reflective in our teaching, and will adapt lessons to the needs of our learners, including incorporating extra practice and scaffolding when required.

To ensure consistency and progression, as a school we follow the nationally recognised White Rose Mathematics scheme (Version 3.0) and those resources that align with it. The White Rose curriculum is cumulative, where once a topic is introduced and initially covered, it will be met again in different contexts. This ensures that a structured and sequenced curriculum integrates and builds upon previous learning.

Our curriculum follows the White Rose ‘Small Steps to Progression,’ where the main learning objectives from the National Curriculum are broken down into teaching blocks (units) across each term. Mathematical topics are taught in blocks, to enable the achievement of ‘mastery’ over time. These teaching blocks are broken down into smaller steps, to help children understand concepts better. Each lesson phase provides the means for children to achieve greater depth, with children who are quick to grasp new content, being offered rich and sophisticated problems, within the lesson as appropriate. Time is also built in for assessment and re-capping previous learning. Teachers use assessment to evaluate and identify gaps and misconceptions. Staff are reflective and adaptive in their approach to their teaching.

Throughout the school, the children additionally follow the NCETM Mastering Number Programme to strengthen understanding of number and number fact fluency, with daily sessions delivered in all Reception and Key Stage 1 classes.

Teaching for mastery means pupils acquire a deep, long-term, secure and adaptable understanding of the subject. Achieving mastery, means that children have acquired a solid

enough understanding of the mathematics that has been taught, to then enable them to move on to more advanced learning with confidence.

EARLY YEARS FOUNDATION STAGE

‘Mathematics plays a key role in a child’s development. Very young children are naturally curious, noticing differences in quantity and the shape of objects and use early, mathematical concepts when they play.’

Becky Francis, Chief Executive EEF (Education Endowment Foundation) 2020.

At Hatfield Peverel Infant and Nursery School we understand that mathematics at an early age sets the foundations for later learning in the subject and helps to foster a positive attitude, a natural curiosity and confidence in the subject.

NURSERY

Mathematics in our school nursery helps to give our youngest children transferable skills that they can use in everyday life. These include problem solving, reasoning, explaining and justifying. Our Nursery learning environment supports children’s growing mathematical understanding and provides carefully planned experiences that focus specifically on our Nursery curriculum. The children have access to a wide range of practical resources, including real-life items that they can use to explore and develop their growing mathematical understanding.

Maths in our school nursery focuses on the development of perceptual and (for our older pupils) conceptual subitising, cardinality and counting skill, as well as early composition of numbers. Children explore simple patterns with shapes, everyday objects, amounts and numbers and simple measures. Children are also taught mathematics through play, practical activities, stories, songs and games. Activities may be indoors, or use the outdoor environment, enabling children to explore maths in the real world. We also provide opportunities and support children to embed taught concepts and solve problems within the provision, through daily routines and through the environment. Adults seek out pupils who need additional support and provide this through play. The rich environment and provision provide pupils with a wide range of opportunities for mathematical development, enabling children to revisit each key area of early maths regularly. Children are encouraged to further their mathematical understanding at home, where key learning for the week is shared through the online education learning platform Tapestry.

RECEPTION

We know that Reception aged pupils learn best when learning is fun, hands-on and practical. At Hatfield Peverel Infant and Nursery School we follow the White Rose Mathematics scheme (Version 3.0), which covers the statutory framework from the National Curriculum and EYFS Programme of Study, and aligns with non-statutory guidance. The Reception year is broken down into blocks, and every block is divided into a series of small steps. The children explore counting, money, shape, patterns, objects, sequence and other core foundations of numeracy development. Teachers teach mathematics in a fun and engaging way, using a playful and natural approach to explore concepts. Learning is carefully planned and can be whole class carpet sessions, group activities led by adults and independent learning opportunities. Like in our Nursery, both the indoor and outdoor learning environments are used, and a wide range of quality resources are put to good use. Similarly, mathematics is taught through play, practical activities, stories, songs and games. Our knowledgeable and skilled staff identify children’s strengths and next steps. Any

misconceptions are picked up and addressed through extra practice, support and scaffolding of tasks. Similar to Nursery, children are encouraged to further their mathematical understanding at home, where key learning for the week is shared through the online education learning platform Tapestry.

In Reception, children are introduced the daily NCETM Mastering Number programme, which aims to secure firm foundations in the development of good number sense for children.

YEAR ONE

As children at Hatfield Peverel Infant and Nursery School begin Key Stage 1, the curriculum builds upon the firm foundations established in EYFS. We continue to follow White Rose Maths (Version 3.0) and its small steps and resources that align with it. Children continue to use practical resources, with a hands-on approach to learning. At this stage, children will have their own maths book and will learn how to record some of their learning with growing independence. Lessons will contain an element of whole-class and group-based learning. The amount of whole-class teaching gradually increases throughout Year 1. Teachers make ongoing assessments of children and adapt teaching accordingly. Children who are identified as needing extra support are identified. Some summative assessments take place at the end of teaching blocks, which teachers use to inform next steps. And at the end of each term, arithmetic and reasoning skills are assessed. Home learning activity ideas to support mathematics in school are provided.

Children will continue to follow the daily NCETM Mastering Number programme and strengthen their understanding of number fluency with number facts.

YEAR TWO

During their final year at Hatfield Peverel Infant and Nursery School, children continue to gain confidence and independence in mathematics. The curriculum follows White Rose (Version 3.0) small steps and resources that align with it. Teaching is most often whole-class, with opportunities for group work included. Lessons are a mixture of practical and recorded, with children now more able to use the abstract symbolic stage to represent their learning. As children develop efficient written methods, they rely less on manipulatives, although these are always available to support learning, when needed. Children apply procedural fluency to find the best strategy to solve increasingly complex problems, including those with more than one step. In Year 2, pupils are increasingly able to explain their reasoning using specific mathematical language. Pupils use key mathematical knowledge learnt, look for patterns and apply prior learning. As in previous year, teachers continually assess children through ongoing formative assessment and White Rose summative assessments at the end of blocks (where appropriate) and through termly arithmetic and reasoning tests. Home learning activity ideas to support mathematics in school are provided.

Daily NCETM Mastering Number sessions continue, with the aim that children will leave Key Stage 1 with fluency in calculation and a confidence and flexibility with number to support mathematical success in Key Stage 2.

SEND AND MATHEMATICS

Effective quality first teaching is the key to enabling all children to participate and develop their mathematical knowledge and skills. Scaffolds within lessons are a vital component to ensure that all learners receive a balance of support and challenge. At Hatfield Peverel Infant and Nursery School, children with SEND will be closely supported in accordance with

their One Plans and EHCPs, where appropriate. Although we adopt a 'mastery' approach to mathematics at our school, we recognise that a small number of our pupils may require an adapted, alternative curriculum. If a child's needs are best met by following an alternative plan, including coverage of the content from previous years, the class teacher and support staff will work in collaboration with the SENCo to make specific arrangements for this provision. This will be communicated to parents and carers during SEND reviews.

NATIONAL CURRICULUM AND DfE 'READY TO PROGRESS'

Specific information showing how the White Rose Maths (version 3.0) curriculum small steps link to the DfE 'Ready to Progress' document can be found in the document *National Curriculum and 'Ready to Progress' Mapping* available on our website.

ASSESSMENT

At Hatfield Peverel Infant and Nursery School we recognise the importance of assessing pupils in mathematics and using those assessments effectively to inform next steps, address misconceptions and to challenge. Teachers use formative assessments as part of everyday teaching and this can include:

- Questioning and talk – pupils explain their learning e.g. 'How do you know?' 'What is the same/different?'
- CPA (Concrete-Pictorial-Abstract) – observe how pupils use manipulatives, draw representations and use formal recording e.g., mathematical symbols
- Book Looks – reviews of maths books and digital uploads (Tapestry), particularly work completed independently
- White Rose Maths (Version 3.0) end of block short assessment tests can be also be used if further teacher assessment evidence is needed.

After each term's teaching, pupils complete the White Rose (Version 3.0) assessment test (e.g. Autumn, Spring and Summer). In Key Stage 1, pupils take that term's Arithmetic paper and the Reasoning and Problem Solving paper. These tests represent the maths curriculum taught at our school. For those pupils working below age related expectations, a teacher may decide it is appropriate for them to complete a paper at a level more suitable for them. In EYFS Reception, shorter termly maths assessments covering taught content are also undertaken termly. At the end of the Summer term, children within Nursery who are due to start school in September, complete a short assessment of key mathematical knowledge. At the start of each academic year, pupils repeat the summer tests from the previous year group to check learning retained after the summer break and to identify gaps. In addition to ongoing assessment for learning, teachers analyse termly test results in year group moderation and use this information to inform future maths teaching.

More specific information around how we assess pupils can be found in our *Feedback, Marking and Assessment Policy* and our table of assessments.

IMPACT

Our approach to the teaching and learning of maths, results in a fun and engaging curriculum that embeds understanding and knowledge through hands on, practical activities and develops efficient written methods. Our maths curriculum prepares all children, including disadvantaged and SEND, to acquire the knowledge they need to succeed in life. We strive for every child to achieve their full potential in mathematics, develop a love of

number, shape, measures, data and problem solving and be ready for their next stage in learning and to inspire their aspirations for the future.

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