

Hatch Warren Junior School Maths Curriculum

Our vision for maths:

At Hatch Warren Junior School, we believe mathematics equips pupils with a unique set of powerful tools to understand the world and how it operates. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways.

Mathematics is essential to everyday life, critical in science, technology, engineering, finance and in most forms of employment. With this in mind, we endeavour to ensure that children develop an enthusiastic attitude towards mathematics that will stay with them for life.

We want all children at Hatch Warren Junior School to see themselves as confident and independent mathematicians and to:

- Develop a thorough and broad understanding of all areas of maths through frequent practice with increasingly complex problems over time
- Develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- Be able to reason mathematically, developing an argument, justification or proof using mathematical language
- Solve problems by applying their maths knowledge in a variety of contexts, including breaking down problems into a series of smaller steps
- Develop resilience when approaching problem-solving and use different strategies when seeking solutions
- Make rich connections across mathematical ideas to develop fluency, reasoning and competence in solving increasingly sophisticated problems.

Intent:

The National Curriculum for maths 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.

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. 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 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.

Implementation:

In order to deliver these aims we are transitioning to a mastery approach to the teaching of mathematics. This is based on the long-term goal of explorations, clarification, practise and application. At each stage of learning the teacher's aim to support pupils in developing a deep conceptual understanding of maths related topics and the ability to build on this over their learning journey time.

Throughout the school, we drive progress through carefully planned lessons, individually tailored to each teaching group following a Concrete-Pictorial-Abstract (CPA) approach. A variety of resources facilitate this learning – alongside the White Rose Scheme, teachers use NCETM resources, Third Space Learning, I See Reasoning, Nrich and HIAS Schemes of learning among others, in order to provide a broad range of fluency, problem solving and reasoning experiences. These experiences are woven into the teaching and tasks throughout the units, so that pupils can fully understand and explain what they have learnt.

Children's understanding will be consolidated or extended through the use of guided tasks before they are ready to complete independent practice which requires them to move towards more abstract ways of working. Children who grasp concepts quickly are given opportunities to deepen their understanding and apply their learning through enriching tasks. Misconceptions are addressed in the lessons where possible through a combination of written and oral feedback. Books are marked regularly so that formative assessment monitors progress and any weaknesses addressed before moving on.

Children will be taught and given opportunities to use and apply a wide variety of mental calculations. They will be encouraged to use the most appropriate strategy for the numbers involved as well as exploring multiple methods and approaches to solving problems. The calculation policy outlines the progression in written methods of calculation that the children will learn in school.

There is a strong emphasis on learning times tables and related division facts. This is achieved by using a program called TTRockstars. Children complete paper-based times activities in class but can also access the online program both at school and at home. Teachers set weekly homework, which is designed to enrich the maths experience beyond the classroom. Homework tasks could include work on times tables (though TTRockstars) or an activity based on a concept taught in class.

Impact:

- ❖ **Formative Assessment:** Teachers carry out formative assessment through AfL in each session and feedback is given to children verbally, through self/peer assessment and through marking. Teachers then use this assessment to influence their planning. Children are rapidly identified as needing further challenge or additional support, and we ensure that this is provided in a timely manner.
- ❖ **Timely Interventions:** Teachers believe that all children can achieve in maths, and focus on whole class teaching. Where prerequisites are not secure, timely interventions will be carried out. Our interventions are generally focused on Pre-Teaching and Same Day Interventions.
- ❖ **Diagnostic Quizzing and Fluent Recall:** We use a range of low stakes diagnostic questioning throughout the teaching cycle to assess attainment and progress. From Year 2 to Year 6, children complete regular tests in Times Tables.
- ❖ **Summative Assessments:** Summative, termly maths assessments evidence how children have independently applied the maths' skills taught. Teachers use this data to track and monitor progress towards National Curriculum objectives as well as the progress of targeted intervention groups.
- ❖ **Subject Monitoring:** We regularly monitor the quality and impact of our mathematics curriculum. Moderation meetings are held and throughout the year, the Senior Leadership Team carry out learning walks, observations, book looks, planning sessions and pupil progress meetings so that we can monitor the quality of teaching throughout the school. The outcome of these reviews is reflected in actions set

out in the School Improvement Plan and Maths Action Plan, and whole school targets are shared with staff.

Helping at home:

We encourage parents to support their children in developing many of their maths skills, particularly their fluency and mental calculation ability. This can be achieved through:

- Practicing multiplication tables
- Exploring telling the time on watches and clock
- Weighing and measuring
- Playing money focused games (shops)
- Playing board games (Snakes and Ladders, Monopoly)
- Looking for and naming shapes
- Discussing the days of the week and the months of the year
- Measuring and weighing using rulers and scales