

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. Crucially, a sound knowledge of mathematics is vital for young people seeking employment, and securing a qualification in mathematics is a fundamental requirement for the majority of employers. 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.



In line with the National Curriculum Objectives for Mathematics, our intent is 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. Central to our approach are the 5 Big Ideas which underpin mastery in mathematics.



In line with our School-wide focus of Oracy, we also expect and encourage children to use mathematical language to describe, discuss, examine, explain, justify and synthesize



At Three Peaks Primary Academy, children study mathematics daily following the White Rose Maths Scheme of Learning. White Rose is a blocked scheme, which allows for depth and breadth of learning within each strand of mathematics.

Key features of our Mastery Approach

• **Concrete, Pictorial and Abstract Learning**: Children engage with a wide and varied range of concrete manipulatives, pictorial representations and abstract methodologies within each session. Cohesive use of CPA is a fundamental part of mastery in mathematics for all learners, not just those pupils with SEND. Concrete and pictorial references scaffold and strengthen understanding and are widely used as a teaching and learning tool from Foundation Stage to Year 6.



- Fluency, Reasoning and Problem Solving: Every learning session includes the opportunity to develop fluency skills, construct chains of reasoning using relevant knowledge alongside relevant terminology and solve increasingly complex problems in a systematic and coherent way.
- **Mathematical Vocabulary**: Sessions include explicit reference to vital mathematical vocabulary and the use of stem sentences to support and encourage all children to communicate their ideas with mathematical precision and clarity. These sentence structures often express key conceptual ideas or generalities and provide a framework to embed conceptual knowledge and build understanding.
- Interleaved Learning: WRM is a blocked learning scheme and as a consequence certain strands of maths are not covered until later in the term. To ensure frequent timely introduction and revisiting of concepts, we plan and deliver interleaved learning sessions as part of our Daily Maths Meetings. Our maths meetings follow a consistent structure in EYFS and KS1 with a focus on fluent skills, and in KS2, with a themed approach to each session.
- **Fluent Recall**: We are committed to ensuring that pupils secure their knowledge of Times Tables and Related Divisional Facts by the end of Year 4. Our pupils engage in regular low stakes testing through Times Tables Rock Stars to practice fluent recall.



<u>EYFS</u>

At Three Peaks Primary Academy, we understand the importance of early experiences of maths. This approach places a significant emphasis on developing a strong grounding in number – understanding that this is a necessary building block for children to excel in the subject.

The two key ELG's for mathematics are:

- 1. Number: Number composition, subitising, recall of bonds to 5 and 10 and doubling
- 2. 2. Numerical Pattern: Verbally count beyond 20, Compare quantities, explore and represent patterns.

Practitioners provide creative and engaging opportunities for children to ignite their curiosity and enthusiasm for the subject, while focusing on the three prime areas of: Communication and Language, Physical Development and PSED.

Activities and experiences are frequent and varied, and allow children to build on and apply understanding of Numbers to 10. Concrete manipulatives are a key focus within sessions, as is the use of pictorial representations including Tens Frames and Part/Whole Models.

Children are actively encouraged to use mathematical terminology within their understanding, with a focus on developing positive attitudes and interest in the subject.



Curriculum Impact

At Three Peaks Primary, the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. We aim for each child to be confident in each yearly objective and develop their ability to use this knowledge to develop a greater depth understanding to solve varied fluency problems as well as problem solving and reasoning questions. 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 are challenged through rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material consolidate their understanding, including through additional practice, before moving on. Where necessary, earlier material should consolidate their understanding, including their understanding, including through additional practice, before moving on.

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. We understand that catch-up does not work, and as a consequence our interventions are focused on Pre -Teaching and Same Day Interventions. As a school, we invest in targeted therapies and interventions to secure and develop knowledge and teach gaps using PiXL. Following forensic diagnostics, teachers and Learning Support Assistants access suitable therapies for whole class and small group teaching to ensure that all children reach their full potential.
- Low Stakes Quizzing and Fluent Recall: We use a range of low stakes testing throughout the teaching cycle to assess attainment and progress. From Year 2 to Year 6, children complete regular tests in Arithmetic and Times Tables.

Summative Assessments:

Children complete End of Block assessments for each phase of learning. Results are used to further inform planning and allow for tailored interventions groups to take place to ensure the objectives are secured.



Impact will be assessed through :

Pupil Book Study

Senior leaders and subject leaders regularly undertake book studies to monitor the effectiveness of teaching and learning. This includes sessions with small groups of pupils using questioning to check and ensure information and knowledge is acquired and understood with increasing confidence. Feedback is given to teaching staff to inform future planning.

QUALITY ASSURE books through studying:



Ongoing Teacher Assessment

Teachers assess pupils throughout each session . Pupils who are identified as needing support will be supported either during post teaching interventions or in the following session as appropriate. Pupils working at above expected standard will also be identified and challenged appropriately to extend their learning. Evidence of this support or challenge and necessary feedback will be clear in books.