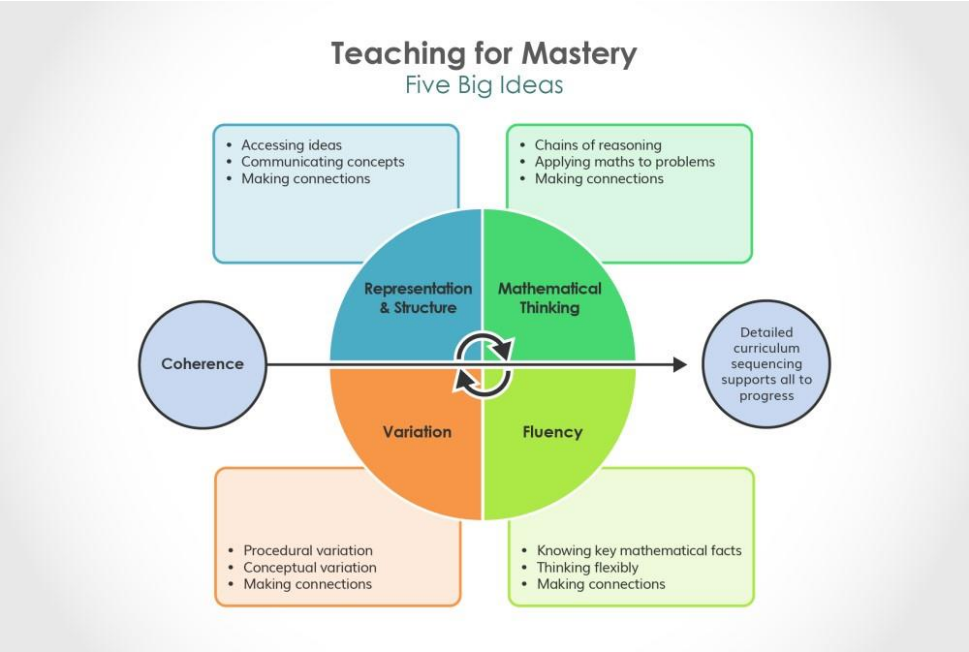
MATHEMATICS POLICY

Park Hill Primary School

At Park Hill Primary School, we provide high-quality teaching and learning opportunities that develop all areas of the mathematics curriculum: **fluency, reasoning and problem solving**. Our commitment to inclusion and equal opportunities is reflected in the range of strategies we use to ensure that all pupils are engaged, supported and appropriately challenged in mathematics.

Mathematics is a creative and highly interconnected discipline. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and many forms of employment. At Park Hill, we believe that a high-quality mathematics education 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.

Our approach to mathematics is informed by the **Teaching for Mastery** approach developed through the National Centre for Excellence in the Teaching of Mathematics (NCETM). We work in partnership with our local **Maths Hub** to develop and strengthen our teaching for mastery practice. This approach is underpinned by the **Five Big Ideas of Teaching for Mastery: coherence, representation and structure, mathematical thinking, fluency and variation**.



Teaching for mastery recognises that all pupils can achieve in mathematics. We aim to ensure that pupils develop a deep and secure understanding of mathematical concepts rather than simply learning procedures. Lessons are carefully sequenced so that new learning builds on prior knowledge, with opportunities for pupils to make connections, reason mathematically, develop fluency and apply their understanding to increasingly sophisticated problems.

INTENT

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.

At Park Hill, our mathematics curriculum is designed to develop **deep conceptual understanding, mathematical fluency, reasoning and problem-solving skills**. We recognise that these aspects of mathematics are interconnected and should not be taught in isolation.

Our curriculum and teaching are underpinned by the **Five Big Ideas of Teaching for Mastery**:

- **Coherence** – lessons and sequences of learning are carefully structured so that new knowledge builds on prior learning and pupils develop a connected understanding of mathematics.
- **Representation and Structure** – carefully chosen representations, including concrete resources, pictorial representations and mathematical structures, are used to expose mathematical ideas and support pupils in making connections.
- **Mathematical Thinking** – pupils are encouraged to make connections, notice patterns, make conjectures, explain their thinking and reason mathematically.
- **Fluency** – pupils develop efficiency, accuracy and flexibility through meaningful practice, enabling them to recall key facts and procedures and apply them confidently.
- **Variation** – carefully designed examples and tasks expose the essential features of mathematical concepts, helping pupils to recognise what changes and what remains the same.

We aim to develop pupils who:

- Have a positive attitude towards mathematics and recognise that everyone can learn and succeed in mathematics.
- Develop secure and deep mathematical understanding through systematic and carefully sequenced teaching.
- Develop fluency and automaticity with key mathematical facts and procedures.
- Can reason mathematically, explain their thinking and use appropriate mathematical vocabulary.
- Can solve problems and apply mathematics to a wide range of contexts.
- Make connections between different areas of mathematics and understand mathematics as an interconnected subject.
- Develop confidence, resilience, curiosity and independence as mathematicians.
- Recognise the relevance and importance of mathematics in everyday life and across the wider curriculum.

The expectation is that the majority of pupils will move through the curriculum at broadly the same pace. However, decisions about when to progress are based on the security of pupils' understanding and their readiness to move forward. Pupils who grasp concepts rapidly are challenged through rich and sophisticated problems and opportunities to deepen their understanding rather than simply being accelerated through new content. Pupils who require additional support are given opportunities to consolidate their understanding through carefully planned teaching, representation, practice and intervention.

TEACHING AND LEARNING

Our principle aim is to develop pupils' knowledge, skills and understanding in mathematics. We provide **daily mathematics teaching**, supplemented by additional opportunities to develop fluency and automaticity where appropriate.

Our teaching reflects the principles of Teaching for Mastery. Lessons are carefully sequenced and build upon prior learning. Teachers use a range of representations, questioning and examples to develop conceptual understanding and encourage pupils to make connections between mathematical ideas.

Pupils are given regular opportunities to:

- Explore mathematical concepts using concrete, pictorial and abstract representations.

- Develop fluency through purposeful and varied practice.
- Explain and justify their mathematical thinking.
- Make connections between different mathematical concepts and representations.
- Identify patterns and relationships and make conjectures.
- Work collaboratively and communicate their mathematical thinking using precise mathematical vocabulary.
- Reflect upon and evaluate their methods and solutions.

We recognise that pupils may require different levels of support to access the same mathematical concept. In line with the principles of mastery, we aim to keep pupils together on the same core learning wherever possible, using appropriate scaffolding, representations, questioning, resources, additional adult support and carefully designed tasks to address individual needs.

FLUENCY AND AUTOMATICITY

Developing fluency is an essential part of our mathematics provision. Pupils need to develop secure knowledge of key mathematical facts and relationships so that they can retrieve them efficiently and use them to support more complex mathematical thinking.

In **EYFS**, **Mastering Number** forms the main approach to mathematics teaching. It provides a structured programme designed to develop children's understanding of number, subitising, counting, composition and early calculation, supporting the development of strong foundations in number sense.

In **Key Stage 1**, Mastering Number is also used through regular **maths meetings** alongside the main mathematics lessons. These sessions provide focused opportunities to develop **automaticity and fluency with key number facts and relationships**. By developing secure recall of essential knowledge, pupils are better able to devote their working memory and cognitive resources to reasoning and problem solving, thereby reducing unnecessary cognitive load.

CURRICULUM PLANNING

Mathematics is a core subject in the National Curriculum. At Park Hill Primary School, our curriculum is supported by **White Rose Maths**, which provides a coherent sequence of learning across Key Stage 1 and Key Stage 2. White Rose materials are used alongside the school's Teaching for Mastery approach and are adapted by teachers to meet the needs of our pupils.

In **EYFS**, Mastering Number forms the main structure for mathematics teaching, with learning opportunities carefully planned to develop secure foundations in number and mathematical thinking.

Across **Key Stage 1 and Key Stage 2**, White Rose Maths provides the overarching sequence and progression of mathematical content. Teachers use professional judgement to adapt and supplement the resources to ensure that teaching reflects the principles of mastery and the needs of individual pupils.

Our work with the **Maths Hub** supports ongoing professional development and the development of Teaching for Mastery across the school. The **NCETM Five Big Ideas** provide a framework for teachers when planning and delivering mathematics, ensuring that lessons focus on developing connected, conceptual and secure mathematical understanding rather than simply covering content.

Planning therefore considers:

- Prior learning and prerequisite knowledge.
- The progression of mathematical concepts and skills.
- The connections between different areas of mathematics.
- Appropriate representations and mathematical structures.
- Opportunities for mathematical thinking and reasoning.
- Meaningful opportunities to develop fluency and automaticity.
- Variation in examples and tasks to expose mathematical structure.

- Opportunities for pupils to apply their learning through problem solving.
- Appropriate scaffolding and challenge so that all pupils can access the mathematics.

SPOKEN LANGUAGE

The National Curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum. The quality and variety of language that pupils hear and use are key factors in developing mathematical vocabulary and presenting mathematical justification, argument and proof.

At Park Hill, mathematical talk is an important part of learning. Teachers model precise mathematical language and provide pupils with opportunities to explain, justify, compare and discuss mathematical ideas. Pupils are encouraged to answer in full sentences and use appropriate mathematical vocabulary when explaining their thinking.

Through discussion and questioning, pupils are encouraged to listen to and consider different methods and approaches, identify similarities and differences, and explain why a particular method or representation works.

ASSESSMENT AND RECORDING

At Park Hill Primary School, we recognise that formative assessment lies at the heart of promoting learning and raising standards of attainment. Effective assessment enables teachers to identify pupils' current understanding, address misconceptions and adapt teaching accordingly.

Assessment is integrated into daily mathematics teaching. Teachers use questioning, discussion, observation, pupils' work and responses to tasks to identify what pupils understand and where further teaching or consolidation is required.

Our assessment procedures include:

- **In-the-moment formative assessment** throughout lessons, including questioning, observation, discussion and checking pupils' understanding.
- Using knowledge of pupils and ongoing assessment information to guide planning and teaching.
- Adjusting teaching and planning in response to pupils' understanding and misconceptions.
- Identifying gaps in prerequisite knowledge and addressing these through appropriate teaching and intervention.
- Using statutory and optional assessment information to support longer-term curriculum planning and identify areas for development.
- End-of-block assessments to assess pupils' retention and understanding of key knowledge and concepts. Where appropriate, this is followed by targeted 'close the gap' teaching.
- Using assessment information to inform intervention and additional practice, particularly where pupils require further opportunities to develop fluency and automaticity.
- The EYFS Profile to record pupils' progress and attainment in Reception.

Assessment is used to inform teaching rather than simply to record attainment. Our aim is to ensure that pupils develop **secure and connected mathematical understanding** before progressing to increasingly complex concepts.