

**INTENT**

What are our ambitions for Maths?

The basic skills of mathematics are vital for the life opportunities of our children. Our aim is for all children to think mathematically, enabling them to reason, solve problems and assess risk in a range of contexts.

At High Green Primary School, our Mathematics Curriculum has been developed to ensure every child can achieve excellence in mathematics.

Children can experience a sense of awe and wonder as they solve a problem for the first time, discover different solutions and make links between different areas of mathematics.

It provides pupils with a deep understanding of the subject through a concrete, pictorial and abstract approach.

This ensures pupils fully understand what they are learning.

The Key features of our curriculum are:

- High expectations for every child
- Fewer topics, greater depth
- Number sense and place value come first
- Focus on mathematical thinking and language
- Resources to support
- Problem solving is central
- Calculate with confidence– understand why it works

Our Curriculum places emphasis on the cumulative mastery of essential knowledge and skills in mathematics. It embeds a deeper understanding of maths by utilising a concrete, pictorial, abstract approach so that pupils understand what they are doing rather than just learning to repeat routines without grasping what is happening.

**In EYFS**

Mathematics is one of the seven areas of the Early Years Foundation stage and is used to develop a child's confidence and ability with number but also to encourage their understanding of shapes, space and measures. In High Green Primary we strive for all the children to be:

- confident manipulators of mathematical manipulatives.
- passionate mathematicians
- and curious about number, shape space and measure

**In Key Stage 1**

In Key Stage 1 there are three main strands with the addition of Statistics in Year 2. At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. In High Green Primary the principal focus of mathematics teaching is to ensure children develop confidence and mental fluency with whole numbers, counting and place value. We strive for all children to:

- use and understand a wide range of appropriate mathematical language to discuss their mathematical thinking and reasoning.
- explore and deepen their mathematical understanding
- become fluent in the fundamentals of mathematics
- develop conceptual understanding
- have the confidence in their abilities to apply mathematical skills throughout their day to day learning
- access the mathematics curriculum and share an enjoyment for the subject through practical experiences

**In Key Stage 2**

In Key Stage 2 there are four main strands with the addition of Ratio and Proportion in Year 6. At this stage we aim for children to be able to organise, communicate and manipulate information. In High Green Primary we strive for all children to:

- become critical thinkers and be able to reason mathematically

- become fluent in mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- effectively communicate their understanding of maths using precise mathematical language.
- develop links between mathematics and other curriculum areas
- take ownership of their learning through being able to choose methods for recording their work, choose resources to support their learning and to take pride in their mathematical achievements.
- foster the qualities of perseverance, creativity and flexibility
- have a zest and dedication for mathematics in the wider world

### **How does Maths support our four core principles?**

#### **HOLISTIC**

Mathematics is a vital part of a well-rounded education. This includes the opportunity for children to be able to explore and understand mathematical concepts and the impact these have on daily life. Maths supports children to develop their critical thinking skills, complex problems solving skills, and their reasoning skills.

#### **EMPOWERMENT**

Mathematics throughout the school enables children to take responsibility for their own learning and ensure they become independent learners and make good progress throughout the curriculum. Children have many opportunities throughout taught session through choosing Mild, Spicy or Hot activities that are relevant to their learning ability. Children also choose a GOAL that they work towards during the term to enable they make progress in their chosen area. In Maths many strategies and methods are taught so children can empower themselves to support their own understanding and learning.

#### **FAMILY AND COMMUNITY**

At High Green we encourage parent involvement through sharing children's work via Seesaw. This enables parents and or carers to interact with their child's learning and can then use this as discussion at home. In Key Stage 2 the use of the Mathletics program enables children to interact mathematically with the global community.

#### **RELATIONSHIPS**

Collaborative problem solving activities are a part of High Green's ethos to ensure children have the opportunity to share their own ideas and listen to the ideas of others. Peer support forms a crucial role in building children's confidence and taking ownership of their own learning.

### **IMPLEMENTATION**

In High Green Primary the mathematics curriculum is bold, provides breadth and balance, is flexible and motivates all pupils, all in all it encourages success at all levels.

Concepts are taught progressively to ensure children revisit the skills and develop their substantive and disciplinary knowledge through concrete, pictorial and abstract activities.

#### **In EYFS**

In EYFS we use the White Rose Maths Scheme. This has been designed to give teachers support in delivering short adult-led sessions, group activities and games that support the development of early number strategies. Alongside this, the children are given opportunities to follow their own interests through play, supported by staff who have a good understanding of how to move children forward in their learning and foster a lifelong love of maths.

#### **In Key Stage 1**

In key stage 1 we use the White Rose Scheme which is adapted to suit the needs of the children in each cohort. The core values and commitments of this scheme provide children of all learning types the opportunity to master an understanding of maths. Questioning and exploration allow children to develop confidence in Maths which enables them to enjoy and achieve to their highest potential.

This inclusive approach provides a range of practical and written activities to support and add depth to children's learning.

This approach stems from high-performing nations such as Singapore who regularly rank at the top of the world in maths. A strong emphasis is put on problem solving and reasoning which results in understanding the concepts in greater depth. The Primary Stars scheme focuses on the mastery approach and focuses on children needing to have a solid enough understanding of the concepts and procedures before they can move on to more advanced material. This can be achieved by using a CPA (concrete, pictorial, abstract) approach to maths giving all children the opportunity to work towards mastery.

Through this approach all children are given the opportunity to acquire a deepened understanding of the subject.

### **In Key Stage 2**

In Key Stage 2 we also use the White Rose Scheme which is adapted to suit the needs of the children in each cohort.

White Rose Maths is an organisation that provides maths resources and Schemes of Learning for pupils of all ages, from early years to secondary school. The Schemes of Learning (SOL) outline yearly frameworks that break down what children need to learn during each week of each term to master the learning objectives laid out by the National Curriculum. And resources that are aligned with the White Rose Maths frameworks are designed to be enjoyable, engaging and varied, to help pupils develop a love of learning and work towards mastery with differentiated resources. But what defines White Rose Maths more than their resources and frameworks is their approach to teaching maths. At the heart of their resources and frameworks is the motto "Everyone Can Do Maths: Everyone Can!" — a slogan that we wholeheartedly agree with! The White Rose Maths curriculum is designed to provide students with a solid foundation in mathematics. Students will gain a deep understanding of mathematics and enjoy solving mathematical problems with this course. The primary curriculum puts a significant emphasis on mathematical skills, curriculum content has to be well sequenced in order to promote a depth of understanding. The White Rose resources are well suited to curriculum integration. The program comes with a plethora of problem-solving questions and randomly generated questions that are designed to really stretch pupil's abilities.

This program is not just about teaching maths; it is about developing mathematical thinking skills. The aim of the program is to ensure that students are able to think mathematically and solve problems with confidence.

At High Green Primary our aim is for young mathematicians to become:

- Confident and able to recall and apply mathematical knowledge in different contexts
- Able to explain their methods and thinking processes and apply skills in context
- Fluent in different areas of maths
- Efficient in applying problem-solving and reasoning skills
- Independent thinkers
- Making number work fun Maths
- Aware of the Maths/ concepts/ process they are doing"

We have adopted the White Rose Maths approach to teaching to make sure all children have the same opportunities to learn and the support they need to fully grasp concepts.

The philosophy behind White Rose Maths also focuses on making maths fun for children and helping them to find enjoyment in number problems. Because when children are engaged in learning and enjoying maths, that's when lessons really sink in and deep learning happens. (Disciplinary Knowledge).

Teachers use White Rose Maths SOL to plan lessons, choose suitable resources and help children take small steps to progression. The Schemes of Learning make sure topics are introduced to children in a logical order and revisited throughout the year to encourage deep learning and ensure children have the foundational knowledge they need, before moving on to more advanced maths concepts and tackling more challenging number problems.

Children's mathematical experiences that ensure knowledge is embedded include:

- Whole class teaching to learn new concepts.
- Working in groups co-operatively to develop teamwork and communication skills.
- Paired work including mixed ability and ability pairs.
- Practical, investigative, oral, written and problem-solving activities.
- Development of mental strategies.

### **Arithmetic**

At High Green we have also put a lot of emphasis on developing children's mental calculation skills, so for this reason all children across Key Stage 1 and 2 take part in a weekly arithmetic session. This is to ensure children are confident in calculations such as addition, subtraction, multiplication and division. In Upper Key Stage 2 children also practise fraction calculations later in the Spring term to help embed taught skills in maths sessions.

### **SEND**

In High Green Primary we believe all children should have the same opportunities regardless of their background or ability. Due to this all lessons are fully inclusive to enable all children have the same opportunities. However,

some sessions may be taught through interventions with specifically targeted children or groups after a formative assessment to ensure all gaps are closed.

## IMPACT

### **How does Maths support SMSC?**

#### **Spiritual development in Mathematics**

The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

#### **Moral development in Mathematics**

The moral development of children is an important thread running through the mathematics curriculum. Children are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems.

#### **Social development in Mathematics**

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Children are always encouraged to explain concepts to each other and support each other in their learning. In this manner, children realise their own strengths and feel a sense of achievement which often boosts confidence. Over time they become more independent and resilient learners.

#### **Cultural development in Mathematics**

Mathematics is a universal language with a myriad of cultural inputs throughout the ages. Various approaches to mathematics from around the world are used and this provides an opportunity to discuss their origins. This includes different multiplication methods from Egypt, the legacy of the ancient Greek Language in maths and algebra from the Middle East. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

### **How does Maths support personal development?**

Mathematics equips all children with a toolbox to be successful in life. In maths we provide knowledge and understanding of financial matters, time, the ability to solve quantifiable problems and utilize critical thinking skills to enhance the abilities to think and make decisions. Analysing, evaluating, reasoning and communicating knowledge and skills provides a pathway to new discoveries. Using real life problems ensures that children see the validity of their maths knowledge.

### **How does Maths enhance the development and love of reading?**

The use of reading questions and real life problems enables children in High Green to use their reading skills in a maths context. Creativity developed and a love for reading enables children to access problem solving questions that require thinking outside the box.

### **How does Maths support a deeper understanding of life in Britain, including diversity and democracy?**

Mathematics allows children to share their critical thinking skills in making decisions such as: choosing their secondary school, choosing an activity, deciding what game to play ie Minecraft (spending money via game). It also helps children with evaluating information. Children are made aware of the origins of mathematics.

### **How is Maths assessed?**

All children are assessed in maths in half-termly- this is an accumulation of all the concepts that have been taught that half term to identify what skills children have retained and where the gaps are. We use the white Rose Assessment to identify any gaps that need to be filled from the previous unit taught before moving on- this could also be revisited later on in the learning sequence when units are revisited.

### **How is Maths monitored and shared with key stakeholders?**

Maths is monitored throughout the year with subject teams. The teams will undergo a deep dive of the curriculum area and identify the strengths and weaknesses- this is done yearly in the Spring term. This is shared with Governors and staff. There is also an end of term pit stop this monitoring ensure that the statutory objectives have been covered across the year groups.