

Maths

Curriculum Intent

'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, 2014)

At Green Ridge, we understand that a deep understanding of Mathematics will contribute to a child's wellbeing and success within their lives. It is the foundation to many other subjects, allowing children to progress through their observation and reasoning skills. A quality curriculum that develops the children's understanding of Mathematical skills and concepts will allow them to develop their reasoning and logical thinking – skills which we use on a day to day basis. We want to ensure that children understand that Maths is not just about counting and quick sums but also using problem solving to overcome challenges.

We believe that pupils should leave primary school having a deep understanding of all **elements of Maths** including:

- Place value
- Addition, subtraction, multiplication and division
- Fractions
- Geometry
- Percentages
- Algebra
- Problem solving
- Reasoning
- Time
- Measurement
- Statistics

Our curriculum is based on the children developing their understanding of Maths over time. This means that the children will have opportunities to revisit previous learning to help support them within their understanding of new concepts. We ensure that the children have a depth of understanding through a **CPA** (Concrete, pictorial and abstract) approach. This means that the children will have a solid foundation of understanding as they have been introduced to concepts through a variety of ways, further developing their understanding of representation.

Maths offers pupils a range of other learning skills, far beyond the Maths curriculum, which are broad and support many other areas of learning, such as:

Maths is a **science**

Children develop their observation skills and ability to recognise patterns through their maths lessons. These skills are paramount within the development of the science curriculum and lead the children to work more effectively within their working scientifically skills. Besides this, the teaching of statistics within maths helps the children to record and compare data.

Maths is **music**

It is rhythmically based on the subdivisions of time into fractions which must be done instantaneously. Pupils can develop their maths and pattern-recognition skills with the help of musical education; playing music offers repetition in a fun format.

Maths is a **foreign language**

The origins of maths span from across the globe, with our current use of numbers originating from Arabic. This influence is deeply set within the language of maths, including words which have been taken from Arabic including algebra, which means 'reunion of broken parts'. In addition to this, many words also have their origins within Latin. As such, our current use of maths is an amalgamation and development of great mathematicians through the ages, with language links throughout.

Maths is **history**

As previously mentioned, the origins of our use of maths comes from all over the world and has been developed throughout the ages. We give the children an opportunity to explore this when they are taught about Roman numerals. This teaching shows the children that different systems for representing number exist and will also give them an opportunity to consider why we use our current system

Maths is a **physical education**

Lessons may be rooted within the classroom but there will also be opportunities for the children to use their mathematical skills in the field, such as when measuring.

Maths is **art**

Some of the foundations within Maths are linked to patterns. These patterns have been used to create sublime pieces of artwork. The understanding of shape also helps support the children's understanding of the world and is a key component to creating accurate sketch work.

In addition to this, maths supports many wider educational skills and dispositions which we wish to teach and instil within the children at Green Ridge:

- It develops the children **fluency** within the subject, meaning they can access learning quickly varied and frequent practice with increasingly complex problems over time
- We aim to develop the children's **conceptual understanding** and the ability to recall and apply knowledge rapidly and accurately
- Children will be able to **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

In summary...

Maths is a **multi-disciplinary subject**, which not only provides skills for maths, but also supports many other learning and wider life skills which other subjects cannot do in the same way. In order to prepare children for the next stage of their mathematical education in Key Stage 3, at Green Ridge, we want the children to leave us with:

- A wide and growing mathematical vocabulary
- The ability to explain concepts to others
- A developed fluency within the four operations
- The ability to represent mathematical problems in a range of different ways
- A deep knowledge supported through the use of concrete and pictorial resources
- A confidence in their own ability to use maths within their lives
- The skills to rationalise and problem solve