

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.” (The National Curriculum for Mathematics 2014)

At Grangefield Primary School, we believe that maths is a tool for everyday life, a solid foundation for them to build upon as they grow. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

Using the Programmes of Study from the National Curriculum for Mathematics we aim to develop:

- An enjoyment and curiosity of mathematics and for children to feel confident, successful and have their effort and achievement celebrated. This promotes our good to be me curriculum driver.
- Children’s abilities to use and apply mathematics to solve problems in both the classroom and real life contexts
- Children’s logical thinking, reasoning and ability to problem solve as transferable life skills
- A confidence to communicate ideas in both written forms and orally
- The children’s ability to recall mental facts accurately and quickly and using effective written calculation methods
- Children are encouraged to take on challenges, persevere to reach a goal and be confident to make mistakes and learn from them in line with our school driver of Growth Mindset
- An understanding that number is an international language that supports communication within our local community and across the world – a global child.

EYFS

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes.

By the End of KS1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will

aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

By the End of LKS2

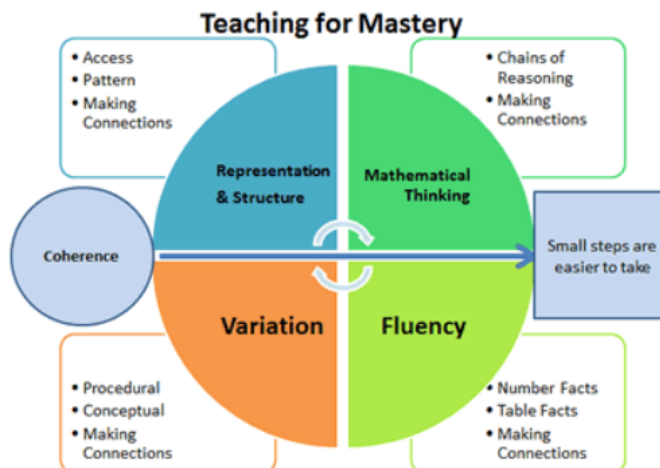
The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

By the End of UKS2

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Implementation

We use bespoke teaching slides created by the teachers which follow the long term planning and small steps suggested by White Rose maths to support and inform a mastery approach to maths from EYFS to Year 6 (see below). This is referred to as maths for a deeper understanding.



Each class teacher is responsible for the maths in their class in consultation with and with guidance from the mathematics subject team. There are 4 mathematics lessons of 45 minutes each week. In addition to the maths lessons, teachers provide children with regular opportunities to engage with times table and number bonds work to help develop fluency and accuracy. There is a 15 minute 'Keep Up' session each day to allow for same day intervention or a pre-teaching intervention, the class teacher will provide this same day intervention for those children who need additional support to grasp a particular mathematical concept. We assess continually using a range of formative assessment processes and summative assessments at the end of each unit and during assessment weeks. Through these methods, teachers can adapt their planning and teaching methods to support all children to achieve.

During lessons, children engage in:

- Independent and collaborative ways of working which encourage children to share ideas and solve problems together
- Using of a range of manipulatives to support understanding, ideas and explanation.
- The use of a wide range of mathematical vocabulary which is modelled and used in the classroom environment
- The development of mental strategies
- Written methods
- Practical work
- Investigational work
- Problem-solving
- Consolidation of basic skills
- Active lessons
- Mathematical tasks linked to real life

In addition, across the year, children are given the opportunity to participate in maths days, use of Times Tables Rock Stars (TTRS) and purposeful projects which allow children to apply their learning (£5 challenge, Freezy Friday, setting up a bakery)

Furthermore, we provide opportunities for children to gain an understanding how maths is used in the wider world through links with local banks and supermarkets (Money sense). Children also have the chance to participate in competitions and challenge days with other schools in our cluster and the local secondary school. There are also cross curricular experiences such as K'Nex challenges and Science weeks which provide the children with the possibility to showcase their mathematical skills and understanding. As a maths team we work alongside a range of stakeholders to ensure the best possible outcomes for our children; these include:

- local maths hubs (GLOW)
- parents and carers are engaged through maths evenings and sharing of the maths curriculum
- school governors who support the maths teams and offer valuable advice and feedback



Impact

Impact is measured through a variety of approaches. Alongside data assessments which measure attainment and progress, leaders will monitor across the year and evaluate whether:

- Our children have a positive mindset when approaching new concepts and are happy to work independently and ask for support if required.
- Children, on the whole, make positive progress against age related expectations, having a conceptual understanding as well as procedural and use correct mathematical vocabulary to express ideas and reason.
- Maths is seen as enjoyable, interesting and worthwhile by all the children at Grangefield which is assessed through the use of staff, pupil and parent voice.
- Children can explain their learning and share their ideas with other children and adults.

