SUBJECT ON A PAGE

Maths

At Green Ridge, we believe that a 'mastery' approach to teaching mathematics sparks a curiosity and love of the subject. Our well-sequenced curriculum focuses on progressing the children's knowledge over time, allowing every learner to acquire a deep, long-term, secure and adaptable understanding of the subject. Daily fluency and problem-solving opportunities enhance mathematical thinking, coherence and reasoning skills that transfer throughout the curriculum and beyond.

Intent – what we aim to do

- To promote a love of Maths by developing the pupils' interest and enjoyment of the subject.
- To build on the children's mathematical automaticity and fluency.
- To develop children's mathematical reasoning and problem-solving skills.
- To develop children's understanding, and use of, mathematical vocabulary.
- To give children the opportunity to develop an awareness of the importance of Maths in everyday life.
- To provide children with a well-sequenced curriculum that builds on their knowledge over time.
- To enhance all children's confidence in their own mathematical abilities.

Implementation – how do we achieve our aims?

White Rose Maths teaches mathematics using a CPA approach to develop mathematical thinking, using concrete resources, pictorial representations and abstract problems. The scheme of learning delivers full coverage of the national curriculum through a mastery approach where children consolidate their knowledge and understanding of each topic, providing them with strong foundations on which to build. Adaptive teaching allows all children to develop a deep and connected understanding of mathematics that they can apply in a range of contexts. As well as a dedicated Maths lesson, daily fluency sessions enable the children to develop their mathematical automaticity and address misconceptions. This is built on further through the Mastering Number programme taught daily (YR-Y2).

Fluency

At Green Ridge, we understand that developing fluency within Maths reduces cognitive load and allows children to focus on new concepts. With this in mind, every morning children take part in a morning fluency session (years 1-6) where they answer a range of questions based on their given year group's foundational facts. This dedicated time allows children to revisit previous learning with a focus on the 4 operations (in Year 2-6) and a focus on counting, place value, addition and subtraction in Year 1. All morning fluency sessions link to children's previous learning and can be an opportunity to address areas for additional practice allowing them to become more fluent and consolidate their knowledge. To ensure that times tables are taught and retained, we have times tables starters each day in Maths as well as Years 2 - 6 regularly using TTRS to practice suitably challenging times tables. Year 1 pupils have access to Numbots to secure their fluency of addition and subtraction facts.

Problem-solving and Reasoning

Reasoning and problem-solving form an essential part of every Maths lesson. It is the reasoning and problem-solving skills that children need for later life, and it is these skills that allow them to apply the mathematical knowledge they have learned in the main teaching and fluency parts of the Maths lesson.

Reasoning in Maths is the process of applying logical thinking to a situation to derive the correct problem-solving strategy for a given question and using this method to develop and describe a solution. Put more simply, mathematical reasoning is the bridge between fluency and problem-solving. It allows pupils to use their mathematical fluency to accurately carry out problem-solving.

Problem-solving in Maths is finding a way to apply the knowledge and skills you have to answer unfamiliar types of problems. Once the children have demonstrated a strong foundational fluency, they answer specific reasoning question linked to one of the following skills (Describe, Explain, Prove, Create, Teach).

Implementation – (continued)

Planning/Sequencing

Our Maths curriculum focusses on developing the children's core knowledge, building on their known facts and mastering a range of key mental strategies and formal written methods. As well as adopting adaptive teaching strategies and teaching for mastery, every lesson is planned to incorporate a range of key mathematical elements, including: the use of concrete resources; mathematical/pictorial representations; speaking frames; images; varied fluency and reasoning problems; verbal and written reasoning.

Green Ridge uses White Rose to sequence its Maths curriculum, making some subtle changes to best meet the needs of our pupils, and we carefully consider sequencing to maximise retrieval practice and build on prior knowledge. Typically, the school will be simultaneously exploring a mathematical concept at any given time, however its complexity will progress in alignment with the Trust's key performance indicators and the government's prescribed objectives. For example, each year group begins the academic year with at least two weeks of Place Value learning but, whilst Year Two are recognising 'tens and ones', Year Five will be 'comparing and ordering numbers up to 1,000,000'.

White Rose chunks key concepts into small steps, reducing cognitive overload and enabling multiple opportunities to build on prior learning and discover mathematical connections as a unit progresses. Each Maths lesson begins with whiteboard starter questions and these targeted problems often focus on the knowledge the children should already have or the knowledge that they need to access the upcoming lesson. As per our 'spiral curriculum', the starter questions could also be from a previously taught unit. It is important that children see concepts again and again in different contexts, and in different years, to help them deepen their knowledge and truly develop their understanding.

Times Tables

Times tables are a crucial part of mathematics that build confidence and fluency. As content becomes harder, mastering these multiplication and division facts is imperative as it reduces children's cognitive loads and acts as a building block to learning new concepts. Therefore, every morning fluency session (Y3-6) finishes with a times tables activity; these include a range of games, songs, quizzes and tips/tricks. The above year groups have a focus times table per half-term, and this is sequenced across the school. The school uses 'TT Rockstars' as an engaging way to practice times tables.

Retrieval Practice

The White Rose scheme promotes a spiral curriculum, meaning content is frequently revisited. It carefully maps out 'Get Ready' questions which inform whiteboard starter activities in every classroom. These often focus on the key knowledge the children should know in order to access the content for the upcoming lesson. Daily times tables practice, and morning fluency, also benefits our pupils as they are repeatedly rehearsing their known facts and mastering a range of formal written methods for the four operations to develop their number fluency.

Adaptive Teaching

Instead of differentiation, Green Ridge adopts an adaptive teaching approach where every child can work towards the same learning intention. Our adaptive teaching strategies stem from the 'EEF 5-A-Day' initiative which include: explicit instruction; cognitive and metacognitive strategies; scaffolding; flexible grouping; and using technology. It is important to note that scaffolding comes in many forms – sensory, interactive and graphic - with our ultimate aim to gradually reduce/remove them as a child's learning progresses.

Implementation – (continued)

Maths in EYFS

In Reception, we promote maths through engaging, hands-on experiences woven into daily routines and play. Each morning, children count how many days they've been at school, name the days of the week and months of the year, and discuss the daily timetable, helping them understand number, time, and sequence. We deliver four discrete maths sessions each week, focusing on number recognition, counting, shape, space, and problem-solving. Maths is also explored informally during "Snack and Chat," where children use mathematical language to describe quantities and compare sizes. Our environment is rich in mathematical prompts: resources are labelled with numbers, outdoor equipment features Numicon and number labels, and lanyards help children associate numbers with specific areas. Children also have access to mud, water, sand, and stones, where they explore capacity and measurement in the natural world. These visual and sensory experiences encourage independent exploration and reinforce key concepts. Our approach builds confidence, curiosity, and enjoyment in maths, laying a strong foundation for future learning.

There are two 'early learning goals' that link directly to Maths: Number and Numerical Patterns. For 'Number', children will deepen their understanding of numbers to 10; subitise (recognise quantities when counting) up to 5; automatically recall number bonds to 5; and recognise some number bonds to 10, including doubling facts.

Arithmetic

Arithmetic is a fundamental aspect of mathematics that focuses on the four operations. Across KS1 and KS2, children revisit their known strategies for formal written methods every morning during a discrete fluency session. These progress from pictorial representations at the start of KS1, to dividing fractions by integers in Year 6.

UKS2 also have two discrete Arithmetic sessions per week, lasting 25 minutes, to build their mathematical automaticity and develop their confidence, subsequently reducing their cognitive load when solving reasoning-based problems.

Vocabulary

Vocabulary is at the heart of our Maths curriculum and key terms are introduced at specific times. Each year group's long-term plan has been deliberately constructed in alignment with the White Rose programme of study. This means that teachers can support the children in retrieving previously-learned vocabulary and deepen their understanding of a topic by explaining it with new, age-appropriate terms.

Some vocabulary may be introduced earlier than our sequencing document suggests, however that is because it is used in everyday vernacular and will still be introduced explicitly at the appropriate time.

The taught vocabulary is categorised under the following units: number and place value; addition and subtraction; multiplication and division; fractions, decimals and percentages; ratio and proportion; algebra; statistics; measurement; geometry – the latter two are further subcategorised. An example of how vocabulary progresses could be found within our 'geometry – properties of shape' unit where the children will learn 'flat' and 'straight' in EYFS, 'symmetry' in Year 2 and 'diameter' in Year 6.

Enrichment

Many of our everyday learning provides the children with enrichment opportunities. This may be using an iPad to develop their times tables fluency or using QR codes to find daily problem-solving mastery problems, earning specific Maths certificates in our weekly celebration assemblies, or developing their resilience, confidence and independence when answering 'deepen and stretch' questions.

Each term, a TTRS club is also offered as an extra-curricular activity. STEM Week is celebrated across school and incorporates various mathematical elements.

Implementation – (continued)

Structure of a lesson

Next Steps/Revisit – the aim of this is to revisit and correct any misconceptions from the previous day and consolidate their previous learning.
Vocabulary - dual coding is using to target specific vocabulary. Sentence stems are also used to encourage the use of new and previously introduced vocabulary.
Teacher input (I do, We Do) - teaching the children a new skill, strategy or knowledge point. Pupil involvement will be achieved through questioning and use of CPA resources.
Independent practice (You Do)- following on from the teacher's input (or interweaved throughout), the children then need time to rehearse and practise the skills which have been taught.
Independent learning – the children will be given a range of independent tasks to complete in books, which consist of Fluency and reasoning tasks
Teacher input/ independent practice (I do, You Do) – further teaching for problem solving tasks


Next steps/review


Vocabulary


Teaching input (I Do, We Do)


Independent practice (You Do)


Fluency


Reasoning strip


Teaching input (I Do, You Do)

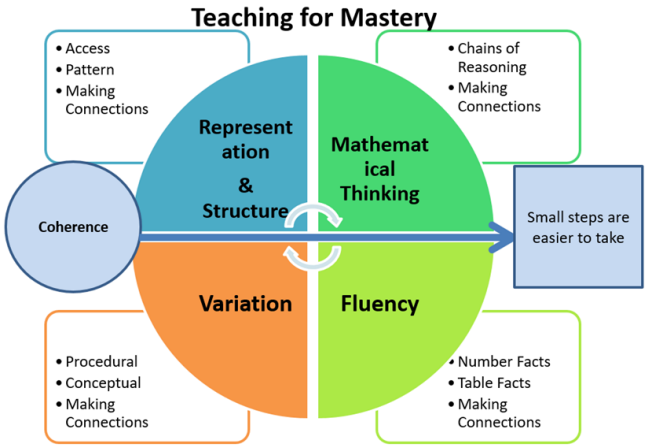

Problem solving

Teaching for Mastery

Maths mastery means pupils of all ages acquire a deep, long-term, secure and adaptable understanding of mathematics. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.

Teaching for Mastery is underpinned by the 'Five Big Ideas' for teaching. These are:

- Fluency - efficient, accurate recall of key number facts and procedures, requiring the flexibility to move between different contexts and representations.
- Variation – draw closer attention to a key feature of a mathematical concept or structure by varying some elements, while keeping others the same.
- Representation and Structure – selecting representations to expose a mathematical structure, allowing pupils to 'see' the maths.
- Mathematical Thinking – looking for patterns and relationships, making connections.
- Coherence – teaching is designed to enable a coherent learning progression throughout the curriculum, allowing all pupils to develop a deep and connected understanding,



Assessment



At Green Ridge, we use a range of different assessment strategies. Daily marking provides a vital opportunity to assess children's progress within a lesson and informs next steps for the following lesson. Teachers will use regular informal assessments throughout lessons e.g., through questioning, to gauge how well pupils are accessing the learning and can then therefore adapt the lesson (or subsequent lessons) to ensure the needs of all children within the class are met.

Hot tasks provide an end of unit assessment which include a range of arithmetic and reasoning questions, highlighting the progress a pupil has made throughout a unit. It also helps to identify areas that may need to be consolidated in early morning fluency sessions or during discrete consolidation lessons.

At the end of each unit, teacher assessment judgements are made based on the work children have produced throughout the unit and from end of unit assessments.

At the end of each term, summative NTS assessments are completed which help verify the termly assessments conducted by teachers and ensure remaining gaps in learning are identified and consolidated. at the end of the year and communicated to subsequent class teachers.

When children start in Reception, they will be assessed using the Reception Baseline Assessment - a statutory assessment which provides a snapshot of where pupils are when they start full time school. In the summer term of Y6, SATs are administered which measure the attainment and progress of the children who take them.

SMSC + British Values



At Green Ridge, we are committed to promoting diversity and equality and aim to promote British Values and SMSC through our Maths curriculum. Our strategies consist of including same sex couples, characters from a range of races and ethnicities and people with disabilities to provide context in word problems; highlighting the work of female mathematicians; and mixing up names and pronouns to challenge gender stereotypes in careers.

We nurture children's spiritual growth through developing deep thinking and questioning and encourage them to make links with Maths and how we can make sense of the world around us. We aim to enthuse and excite children through our delivery of lessons and incorporate problem solving tasks to allow pupils to have an awareness of how Maths relates to other areas and raises the importance of the subject. Problem-solving skills and collaborative learning are fundamental to Maths through discussion, reasoning, creative thinking and explaining concepts to each other which, in turn, enhances children social development in Maths.

Impact – how will we know we achieved our aims?

- Children have a love of Maths and can articulate their interests.
- Children will display mathematical automaticity and fluency.
- Children are able to reason and apply their knowledge to problem-solving based tasks.
- Children can use mathematical language and vocabulary.
- Children have an awareness of the importance of Maths in everyday life.
- Children will follow a well-sequenced curriculum that builds on their knowledge over time.
- Children will be confident in their own mathematical abilities.