

Greenmount Primary Mathematics Policy
May 2022

National Curriculum

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They will also apply their mathematical knowledge to science and other subjects. (National Curriculum 2014)

Aims

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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.*

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems to develop mastery before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their understanding, including additional practice, before moving on. (National Curriculum 2014)

Intent

Maths is everywhere and is vitally important in our daily lives. Here at Greenmount, we believe every child is a mathematician. We have a strong focus on promoting children's depth of understanding and plan our teaching to build on children's understanding and needs.

We believe that for children to be successful mathematicians they need to develop strong number sense, be fluent in the recall of number facts and have a positive growth mindset.

Our maths mastery approach is embedded throughout the school. Each class is equipped with a wide range of resources to support children develop a deep understanding of mathematical concepts. Manipulatives are frequently used from nursery through to year 6 to support this.

Mathematics at Greenmount ensures that all pupils develop a positive attitude towards maths, as maths is integral to understanding and communicating in the world around them. We aim to help children achieve this by developing their confidence to talk about mathematics and be able to explain HOW and WHY they have arrived at a particular answer or conclusion. We want our children to be 'high school ready' and have the firm foundations for future learning and life. We want children to:

- To be **Fluent**, to **reason**, and **explain** mathematically when **solving problems**
- To challenge children and support them to take risks in their learning
- To develop an enjoyment of learning through practical activity, investigation, mastering a skill, exploration and discussion
- To develop confidence and competence with numbers and the number system
- To have positive attitudes towards mathematics with ever increasing confidence, independence, perseverance and resilience.
- To develop the ability to solve problems through connecting ideas, working systematically and logically, decision-making and applying their mathematical skills in a range of contexts, including other subjects in the national curriculum.
- To understand the importance of mathematics in everyday life, especially in relation to essential life skills, such as telling the time and understanding money.

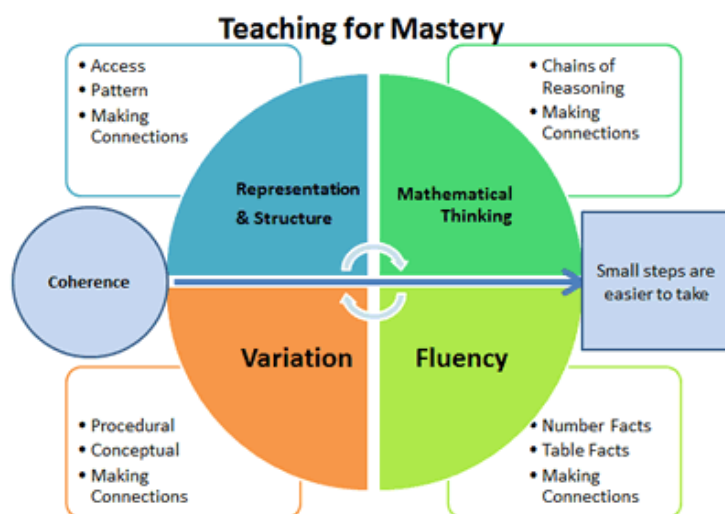
We provide a rich maths curriculum with a range of different resources to ensure learning is purposeful, challenging and rewarding for all pupils. Many of our electronic resources can be accessed in school and at home thus maximising pupils opportunity to learn.

Implementation

Planning

The National Curriculum maths objectives are the basis for all maths planning and this is used alongside the White Rose Maths Schemes of learning. Our calculation policy (see appendix) clearly states which strategies should be taught in which year groups and this document is used as a starting point for 'what and how' to teach strategies. The White Rose small steps are used as a starting point (alongside the calculation policy) to ensure that there is an equal balance of the 'basics' (fluency) being taught as well as reasoning and problem

solving. Maths lessons follow the principles of the Teaching for Mastery Model developed by the NCTEM. Learning and teaching resources are supplemented with Nrich, NCETM, Testbase materials and other appropriate materials to support children's learning needs.



Daily Maths lessons

Maths is taught daily in each class with an addition arithmetic lesson on one of the days. Each lesson is approximately 50-70mins (50-60 for KS1, 60-70 KS2) and follow a similar format. Lessons often began with counting, either whole class or pairs: this is to ensure children receive regular practise. This is followed by a 5-10-minute oral/mental starter (Fluent in 5 or Flashback 4) that allows children to apply skills learnt and recall number facts. The main part of the lesson involves reviewing previous learning, developing new skills and problem solving and reasoning. Ideas are shared, misconceptions addressed, and children are active learners. Children work on the same objective, differentiation can be seen through the concrete and visual apparatus used to support understanding, adult support and the amount of work a child produces.

More able mathematicians (those working at greater depth) work through much of the same content as their class. Rather than moving them onto new content, teachers carefully plan and support additional tasks and questions that are tailored to provide enrichment to deepen and challenge the learners and further develop mathematical thinking skills.

SEN pupils and those working significantly below age-related expectations are included in whole class lessons (when appropriate) and teachers carefully plan and target questions to ensure all learners are involved and learning. Work for SEN pupils is often differentiated to ensure individual needs are met.

Arithmetic Maths

All classes (Yr3-yr6) have a dedicated timetable slot to practise, revisit and consolidate basic arithmetic learnt. In years 3-6, children complete weekly arithmetic quizzes (mainly Twinkl and also other providers when needed) to ensure the new skills learnt are practised regularly and kept 'simmering'. This enables teachers to regularly identify misconceptions, errors and any areas that need revisiting and can be immediately addressed through teaching, intervention or fluency practise.

As well as daily maths lessons Reception-Year 2 are participating in the NCTEM's daily 'mastering number' that focus's children's number sense to develop fluency in calculations.

Times Tables Rock Stars (TTRS) are used regularly in year 3-6 to increase children's recall of multiplication and division facts. Numbots is used in R-yr3 to recall early number sense and numberbonds. The maths leaders monitor the use of TTRS and Numbots and promote its use, at school and at home, with half termly rewards and Hall of Fame display boards.

Cross Curricular Links

Although maths is mainly taught as a separate subject, every effort is made to link maths with other areas of the curriculum. We try to identify links with ICT (e.g. beebot, log boxes, spreadsheets, coding etc) Science (e.g. graphs and tables) and DT (e.g. measure and geometry). We draw children's attention to the links between maths and other curricular subjects, so they do not see maths as an isolated subject. Maths needs to be experienced beyond the classroom and made relevant to the lives of children.

Children with Special Educational Needs and Disabilities (SEND)

We aim to fully include SEND pupils in the maths lesson so that they benefit from the emphasis on oral and mental work and by listening and participating with other children in demonstrating and explaining their methods. SEND children, whenever possible, will be learning a similar maths strand to that of their peers, although their objective may differ slightly to meet individual needs. Objectives for SEND children are taken from our detailed assessment tracker (B-squared). Where necessary teachers will, in consultation with the SENDCo if needed, draw up an individual education plan for a child. Gifted and talented children are also considered and set tasks that promote greater depth of understanding rather than acceleration through the maths curriculum (unless this is appropriate).

Assessment

On-going daily assessment enables teachers to quickly identify pupils who have not grasped a concept or have a misconception and address this swiftly with immediate intervention. Weekly arithmetic scores are tracked by class teachers and the maths coordinators collect and analyse the online data (from TTRS) for fluency in times tables. Marking and feedback is an integral part of our assessment (See appendix for maths marking policy).

Children are assessed formally 3 times a year in both KS1 and KS2 using the Progress in Understanding Mathematics Assessment (PUMA).

Homework

KS2 complete weekly times table practise that goes home on Friday and returned on Monday. They are also encouraged to play TTRS 2-4 times a week. KS1 take home a maths challenge. The amount of homework set is about 10 mins for KS1 and 15-20 mins for KS2. This can be written work to be completed, practise of key skills or directed time on Times Table Rock Stars. Homework is acknowledged by the teacher through oral feedback, marking or peer marking and rewarded with house-points.

Resources

All classes have a maths working wall which reflects the learning that is taking place. A wide range of manipulatives are used throughout school. Counters, tens frames, number rods, place value counters/cards are vital to help children to move from the concrete to the visual understanding of number and calculations and are used in all year groups throughout school. New concepts are introduced using manipulatives to reveal the structure of the maths to strengthen understanding.

Impact

Children at Greenmount have a positive attitude and growth mind set towards mathematics and own mathematical ability. They are confident mathematicians who enjoy maths and understand the role of maths in daily life. They can confidently talk about maths using mathematical vocabulary and explain how and why they arrive at a particular answer. Children broadly work at the same pace, allowing more pupils to achieve age-related expectations. More able mathematicians are appropriately challenged to deepen their understanding of the content taught. Children make good progress from their starting points despite the many barriers they face. Greenmountaineers are all mathematicians!

Next review date July 2025

