

Mathematics Policy

Intent

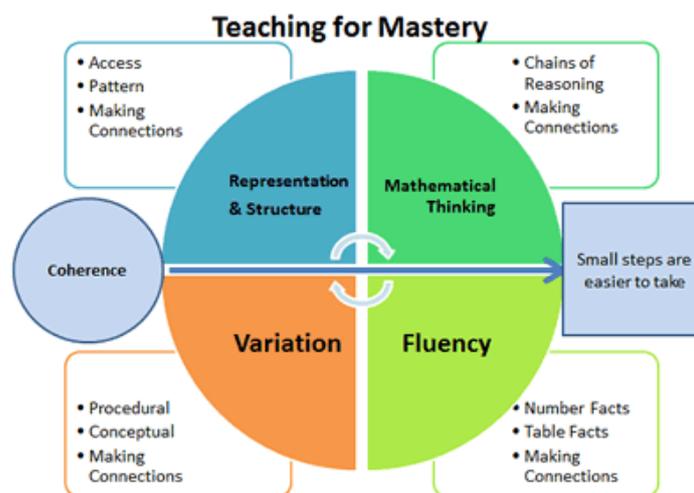
To provide a Mathematics curriculum which caters for the needs of all children. It will enable children to build on and acquire a deep, long-term, secure understanding of skills that are essential in life.

The school aims to ensure that all pupils:

- Develop a growth mind-set and positive attitude towards mathematics.
- Become confident and proficient with number, including fluency with mental calculation and look for connections between numbers.
- Become problem solvers, who can reason, think logically, work systematically and apply their knowledge of mathematics.
- Develop their use of mathematical language.
- Become independent learners and to work co-operatively with others.
- Appreciate real life contexts to learning in mathematics.

The National Curriculum 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.



Our teaching for mastery is underpinned by the NCETM's 5 Big Ideas:

- Opportunities for **Mathematical Thinking** allow children to make chains of reasoning connected with the other areas of their mathematics.

- A focus on **Representation and Structure** ensures concepts are explored using concrete, pictorial and abstract representations, the children actively look for patterns and generalise whilst problem solving.
- **Coherence** is achieved through the planning of small, connected steps to link every question and lesson within a topic.
- Teachers use both procedural and conceptual **Variation** within their lessons and there remains an emphasis on **Fluency** with a relentless focus on number and times table facts.

The National Curriculum sets out year-by-year programmes of study for Key Stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of pupils from birth to five years old and supports an integrated approach to early learning.

This is supported by the 'Development Matters' non statutory guidance as well as the White Rose Medium Term plans for EYFS Mathematics.

Implement

To achieve the above, we do the following:

Curriculum design and planning

- Staff use White Rose Maths Schemes of Learning as a starting point in order to develop a coherent and comprehensive conceptual pathway through the mathematics. The focus is on the whole class progressing together. Collaborative planning with year group colleagues is encouraged to ensure consistency.
- Learning is broken down into small, connected steps, building from what pupils already know. The lesson journey should be detailed and evident on flipcharts (Smart Notebook or PowerPoint) as there is no requirement for teachers to produce detailed paper plans.
- Difficult points and potential misconceptions are identified in advance and strategies to address them planned.
- Key questions are planned, to challenge thinking and develop learning for all pupils.
- Contexts and representations are carefully chosen to develop reasoning skills and to help pupils link concrete ideas to abstract mathematical concepts.
- The use of high quality materials and tasks to support learning and provide access to the mathematics, is integrated into lessons. These may include White Rose Maths Schemes of Learning and Assessment Materials, Maths No Problem textbook activities, NCETM Mastery Assessment materials, NRICH, visual images and concrete resources.
- Opportunities for extra fluency practice (instant recall of key facts, such as number bonds, times tables, division facts, addition and subtraction facts) should be provided outside mathematics lessons (morning starters or post-lunch).

General class teaching

As a school we understand that Mathematics is an essential part of daily life. In our lessons, we give children the opportunities to work mathematically and link it to other curriculum areas where appropriate.

Lesson Structure

- Daily teaching of Mathematics using White Rose Maths.

- Daily opportunities for basic skill practise. Each year group has a list of basic skills that children need to be secure in by the end of the year, ready to progress onto the next year's curriculum.
- The Concrete, Pictorial and Abstract approach is used consistently and interchangeably to develop a deep understanding.
- Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities.
- Lessons refer back to previous learning where appropriate.
- Key new learning points are identified explicitly.
- Making comparisons is an important feature of developing deep knowledge. The questions "What's the same, what's different?" are often used to draw attention to essential features of concepts.
- Repetition of key ideas (for example, STEM sentences in the form of whole class recitation, repeating to talk partners etc) is used frequently. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.
- Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly. If children need further support, adults will complete a short intervention at the earliest convenient time.
- Gaps in pupils' knowledge and understanding are identified early by in-class questioning. They are addressed rapidly through individual or small group intervention, during the lesson, on the same day or the next day. These may be separate from the main mathematics lesson, to ensure all pupils are ready for the next lesson.
- Teachers discuss their mathematics teaching regularly with colleagues, sharing teaching ideas and classroom experiences in detail and working together to improve their practice.

Marking

Marking of mathematics books should be completed in line with the Worsthorne marking policy. It is essential that all marking picks up and addresses any misconceptions/mistakes and thorough questioning ensures children have clarified their thinking clearly.

Inclusion and Special Needs

Worsthorne aims to meet the needs of all, taking into account gender, ethnicity, culture, religion, language, disability, age and social circumstances. The provision for children with special needs is detailed in the SEND Policy. SEN pupils may be supported by additional adults, different resources, differentiated activities. They may also complete additional activities outside of the mathematics lesson. We have high expectations of all children and strongly believe that all children are able to achieve in mathematics. Some may take longer to grasp concepts and may need careful scaffolding or extra time/support.

Assessment and Record Keeping

In addition to the formative assessment undertaken in lessons, teachers will use termly summative assessments (during Assessment Week) supplied by the White Rose Maths Hub to reinforce their judgements and provide further opportunities to identify gaps in pupil learning and tailor future lessons. Teacher judgements are then entered onto Target Tracker each term and teachers talk through the progress of their pupils at termly tracking progress meetings: this ensures targeted support can be given to those who need it.

Early Years Foundation Stage (EYFS)

Children in EYFS explore mathematical concepts through active exploration and their everyday play-based learning. Children are taught key concepts and develop number sense using a hands-on practical approach. EYFS practitioners provide opportunities for children to manipulate a variety

of objects which supports their understanding of quantity and number. Pupils explore the 'story' of numbers to ten and the development of models and images for numbers as a solid foundation for further progress. The CPA approach is used when teaching children key mathematical skills. Practitioners allow children time for exploration and the use of concrete objects helps to support children's mathematical understanding. Mathematics in the early years provides children with a solid foundation that will enable them to develop skills as they progress through their schooling and ensures children are ready for the National Curriculum.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and supports them to plan lessons. Leads by example by setting high standards in their own teaching.
- Leads continuing professional development; facilitates joint professional development, provides coaching and feedback for teachers to improve pupil learning.
- Leads the whole-school monitoring and evaluation of teaching and learning in mathematics by observing teaching and learning in mathematics regularly; analysing assessment data in order to plan whole school improvement in mathematics; conducting work scrutiny to inform evaluation of progress; conducting pupil interviews.
- Takes responsibility for managing own professional development by participating in external training, independent private study, engaging in educational research and scholarly reading and keeping up-to-date with Teaching for Mastery developments.
- Keeps parents informed about mathematics issues.
- Ensures that the school's senior leaders and governors are kept informed about the quality of teaching and learning in mathematics.
- Works in close partnership with the school's senior leaders to ensure the learning needs of all pupils in mathematics are met effectively.
- Keeps the school's policy for mathematics under regular review.

EYFS

- NumBots to be used for number recognition, counting, subitising, addition and subtraction.

KS1

- NumBots to be used for number recognition, counting, subitising, addition and subtraction.
- Times Tables Rockstars in Year 2 to multiply in 2's, 5's and 10's by the end of the year

Lower KS2

- NumBots to be used for number recognition, counting, subitising, addition and subtraction.
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Resources

- As a school, working walls resources accessible and children know where they are so they can be accessed independently
- Concrete materials to be updated, available for children to use when they need to and used in each classroom
- NumBots to be used throughout school for number recognition, counting, subitising, addition and subtraction. (This also enables KS2 to work fluently mentally when completing equations)
- Times Tables Rockstars in Year 2 to multiply in 2's, 5's and 10's by the end of the Year 2
- Times Tables Rockstars in Year 3 to multiply in 2's, 3's, 4's, 5's, 8's and 10's by the end of the Year 3

- Times Tables Rockstars in Years 4, 5 and 6 recall multiplication and division facts for multiplication tables up to 12 x 12.
- Year 4 to complete multiplication times table check

Impact

Target Tracker is being used effectively to monitor children to ensure they are making at least expected progress at each assessment point.

Three times a Year, children will be assessed using WRM assessments. Data from this will be analysed to set whole class targets or identify interventions.

Interventions identified from data, are being conducted to support children where necessary.

Teachers are planning a curriculum that is acknowledging gaps in learning from the previous school closures. Planning is showing an impact on children's progress.

Date of Policy	July 2021
Person Responsible	Lisa O'Brien
To be reviewed	Annually
Review Date	July 2022