Barnacre Road Primary School

Maths Curriculum Statement

November 2023

At Barnacre Road Primary School, our vision is to provide for our children a broad and balanced curriculum which is ambitious for all learners. We aim to ensure that children leave our school equipped with the knowledge, skills, cultural capital and qualities to succeed in the next stage of their education and to make a positive contribution to their local community and society as a whole.

We believe that it is our duty to make learning fun, engaging, memorable, accessible and ambitious for all children, instilling in them a love of learning.

We take seriously our duty to teach children about the fundamental British Values of mutual respect and tolerance, democracy, the rule of law and individual liberty. These values are woven through our curriculum so that our learners leave us prepared for life in modern Britian.

Maths at Barnacre Road: Our Intent

We recognise the importance of Mathematics in preparing children for the next steps in their education and life in modern Britian. Our vision is to make Maths practical, enjoyable and accessible for all learners and to instil in our children a positive attitude to Maths, building confidence and developing independence through perseverance and collaboration.

In our mastery curriculum, we teach for a secure, deep understanding of mathematical concepts through manageable steps. We recognise that mistakes and misconceptions are an integral part of learning and we provide challenge through in-depth problem solving.

In line with the National Curriculum, we aim for our learners to:

• become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

• be able to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios

• reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language

• have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics

At the core of our approach are our 8 key principles of Mathematics:

1. Everyone can learn Maths to the highest levels
2. If you can't do it, you can't do it yet
3. Mistakes are valuable to the learning process
4. Questions are important
5. Mathematics is about creativity and problem solving
6. Mathematics is about making connections and communicating our thoughts

7. Depth is more important than speed of progression through concepts
8. Lessons are about long-term learning, not short-term performing

Our Mastery Approach

We follow a mastery approach to teaching Mathematics. At Barnacre Road, our mastery approach to Mathematics means that the majority of children will be taught curriculum content from their year group only; children become true masters of content, applying their learning in multiple ways and contexts, rather than covering new content superficially before they have truly mastered their learning.

The decision to adopt a mastery approach to our Maths curriculum lay in the National Curriculum 2014, which states:

• The expectation is that most pupils will move through the programmes of study at broadly the same pace.

• Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content.

• Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Big Ideas and Key Principles of Our Mastery Curriculum

Our teaching of Mathematics is underpinned by the NCETM's 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 key principles of our curriculum are:

- Maths is achievable for all: our curriculum is designed with high expectations of all learners. It promotes a positive, can-do attitude to Maths, develops resilience and carefully scaffolds learning to ensure that everyone can make progress
- Learning is deep and sustainable: lessons are designed to teach small steps with questions and tasks selected to ensure that learning is not superficial
- Learning builds on what has already been mastered: learning is a progressive continuum throughout school

- Children should be encouraged to reason and make connections: children are encouraged to spot connections and patterns, such as the links between division and multiplication and ratio
- Children develop conceptual and procedural fluency: teachers move children's learning from the concrete to the pictorial and the abstract
- Problem solving is central to learning: applying learning to real-world situations embeds learning and allows children to appreciate what they are learning and why
- Challenge through greater depth: teachers set tasks to deepen knowledge and improve reasoning skills rather than simply delivering accelerated content

Progression in our Maths Curriculum

Our Maths curriculum is cumulative; concepts are revisited again and again within year groups and across different year groups. Our Maths progression document details the key knowledge that children learn in each year group.

Implementation

From Reception onwards, staff use the White Rose Maths scheme of learning as a starting point for planning. The scheme provides staff with a coherent and comprehensive pathway of 'small steps' which are progressive: each step builds on prior learning and lays the foundation for future learning.

Teachers plan lessons using the White Rose small steps as learning goals. Potential misconceptions are identified in advance and key questions are devised as part of the planning process, as are any necessary scaffolding support or adaptations or pre-teaching requirements. Clear success criteria are identified in advance of the lesson and are shared with children during teacher modelling. Lessons are planned with a clear progression from teacher modelling to independent application of a new skill, using the I do, We do, You do model. Teachers select high-quality resources and/or devise high-quality tasks to support learning. These may include White Rose materials, NCETM materials, self-made resources or resources from other publications. They may also include practical tasks. Lessons include opportunities for reasoning and problem-solving. Opportunities for fluency practice are included outside of the lesson, such as in morning work.

Maths in EYFS

In nursery, Maths is taught through a combination of short, teacher-led inputs, teacher-led group activities, games and through provision. In reception, we follow the White Rose Mastery scheme of learning alongside the Early Years Framework. This outlines the early learning goals, which summarise the knowledge, skills and understanding that all young children should have gained by the end of the Reception year. In addition to this, the Educational Programmes set out in the Early Years Foundation Stage Framework set out what children should experience in the Early Years Foundation Stage to support their learning and development. There is an Educational Programme for all seven areas of learning outlined in the EYFS Framework (including Maths). These programmes are delivered through a range of

adult led activities, as well as through child-initiated learning built upon the children's interests and skills that are identified as needing to be developed.

Mathematics is one of the 'specific areas' and children use their Learning Journey book in Nursery and Maths book in Reception to record activities. Child led observations are also recorded on SeeSaw.

The Structure of The Lesson (Years 1-6)

Lessons are planned based on the White Rose small steps. Prior to the lesson, teachers identify those children likely to need additional support to meet the learning goal. Support may take the form of pre-teaching, adult support and adaptation of tasks or resources. Likewise, teachers identify those children who are likely to require additional challenge. This may take the form of deeper questioning or open-ended reasoning tasks.

Each day, children complete an independent activity based on previous learning. This is an opportunity for children to demonstrate learning of a prior concept independently, which supports staff in assessing children's learning. This may take place within the Maths lesson or the Number Work session (see below). This may be recorded in books, discussed verbally or recorded on whiteboards.

The lesson then begins with a clear starter activity, calling on prior learning which will underpin today's new learning. For example, in a lesson on simplifying fractions, the starter activity might be identifying factors of numbers and the highest common factor of two numbers.

New learning is introduced with a clearly defined learning goal. Teachers model the process required to solve the problems using an explicit success criteria. During modelling, there is regular interchange between concrete, pictorial and abstract representations of problems, as appropriate for the age and stage of the children. Modelling follows the 'I do, we do, you do' process to enable children to apply their new learning with teacher support. It is expected that all children will be active participants in the learning process. Teachers use active learning strategies to ensure that all children give answers to practice questions.

During teaching inputs, sentence stems are used to support children to consolidate new ideas and vocabulary. This provides pupils with a shared language to discuss their learning.

Each lesson includes an opportunity for independent, paired, or group work. Scaffolding of tasks and additional challenge are incorporated as mentioned above.

The teacher uses ongoing assessment for learning to identify gaps in knowledge or misconceptions and adjusts the lesson accordingly.

The lesson ends with an opportunity to review the day's learning. This may include a problem-solving activity discussed as a class or in pairs. Feedback is given to children in line with our marking and assessment policy.

Number Work

In addition to the Maths lesson, a daily number work session of approximately ten minutes takes place with a focus on arithmetic skills. The focus of number work is to teach new arithmetic skills, embed prior learning and to increase speed and accuracy of calculations. Work is recorded in the numberwork books.

Key Instant Recall Facts (KIRFs)

In line with the White Rose curriculum, we have devised a list of Key Instant Recall Facts (KIRFs) for each half term in each year group. The KIRF of the half term is a focus in Maths lesson starters and/or within daily Number Work and, if necessary, within intervention. It forms part of homework and is shared with parents in order to encourage practice at home. When children confidently recall their KIRFs, their cognitive load is reduced and they are better able to access new learning.

Children with Special Educational Needs and Disabilities

Our Maths curriculum is inclusive and ambitious for all learners and we expect that all children should be successful, regardless of any special educational need. All learners are given full access to the Maths curriculum and the Mastery Approach aims for the bast majority of children to access age-appropriate teaching. Class teachers will adapt teaching inputs and provide additional support through scaffolding for any child who requires support. Strategies to support children with Special Educational Needs or Disabilities might include adaptation of resources, adult support, pre-teaching of vocabulary or content and alternative ways of recording understanding. In some circumstances, where children are working significantly below their chronological age-related expectations, children may receive differentiated teaching and tasks. Class teachers are supported by our SENDCo, Mrs Mellor, in meeting the needs of all learners.

More Able Children

Teachers may identify some children as more able in Maths. Typically these children will:

- Think logically and see mathematical relationships -
- Make connections between the concepts they have learned
- Identify patterns easily
- Apply their knowledge to new or unfamiliar contexts
- Communicate their reasoning and justify their methods

These children will be challenged through targeted questioning and open-ended problem-solving tasks.

Impact

The expected impact of our curriculum is that children will meet the requirements of the Early Years Foundation Stage at the end of reception and the requirements of the National

Curriculum at other age groups. Teachers will monitor children's progress against the small steps of the White Rose scheme of learning, which corresponds with National Curriculum requirements at each year group.

The Impact of our curriculum is constantly monitored by class teachers through formative and summative assessments. Our scheme of work includes guidance for teachers in assessing pupils against learning objectives. At the end of lesson, teacher record on the school's tracking system, Insight, whether children are showing evidence of having understood the learning. The outcomes of this initial assessment allow teachers to plan subsequent lessons or same day/next day interventions for individuals or groups.

Morning work and lesson entry tasks incorporate prior learning. Children are expected to complete these independently. These tasks allow teachers to monitor what learning has been retained. The outcomes of these tasks are recorded on Insight.

Approximately one week after the end of each unit of work, the White Rose end of unit assessment is undertaken independently by children. This forms one part of our summative assessment and allows teachers to see what learning has been retained. These assessments inform teacher judgements made against our small step objectives on Insight. Each term, children undertake NFER assessments to further support teachers' judgments on children's learning.

Each term, teachers will make an assessment judgement of children's attainment: Below, Just Below, On Track or Greater Depth (in relation to age related expectations) and of children's progress (steps progress- year group entering, developing, secure and secure+). See our assessment policy for more information.

Curriculum coverage is monitored by the subject leader and senior leadership team on a half termly basis to ensure that classes are on track throughout the year.

Standards of teaching and learning in Maths are monitored by the subject leader, curriculum leader (deputy headteacher) and the headteacher, as well as the SENDCo who will monitor Maths provision for children with Special Educational Needs and Disabilities. Monitoring may include: pupil interviews, work scrutiny and lesson observations.