IGNITE INNOVATE INSPIRE

Mathematics Policy
September 2024

'The only way to learn Mathematics is to do Mathematics'
Paul Malmos

Curriculum Vision: <u>Why</u> we teach this Maths curriculum
At Monkhouse, we believe all children will be ambitious, courageous, resilient, respectful and kind so that they fulfil their unique potential and become active members of the wider global community.

<u>What</u> we teach in our Maths curriculum
At Monkhouse, we provide a broad, balanced and progressive maths curriculum which is integrated into other areas of the curriculum, where appropriate. We aim to ignite a passion for learning and exploring and give all children the opportunity to succeed. Our philosophy in maths is centred around the notion of Social Justice and that all children are entitled to have access to the whole maths curriculum. In Maths, our curriculum is designed around our philosophy - Maths: everyone can. This mantra is an underlying feature of our lesson design and ensures that the principles of maths are taught to allow everyone to understand the concepts in maths.

The National Curriculum for Mathematics 2014 aims to ensure that all pupils achieve mastery and at Monkhouse Primary school, we design our lessons so that all children can achieve these aims:

• 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.

How we teach Maths

Early Years Foundation Stage Mathematics
Mathematics is one of the specific areas of learning in the EYFS. The EYFS Framework states that “Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.”

Children are taught to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.This is achieved by providing frequent and varied opportunities to build and apply this understanding. In addition, our curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

We support children to 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.

Key Stage One and Two
We teach according to Mastery principles and pedagogy, using a concrete pictorial-abstract approach to achieve mastery and depth for all children. With an emphasis on problem solving, children are taught to visualise, to make connections and to communicate their understanding both verbally and in written form. Units are taught in extended blocks (see whole school scheme of work) in order to allow sufficient time for children to practise, refine and ultimately master concepts and processes. They are carefully sequenced so that skills and knowledge are continually revisited and applied through procedural and conceptual variation.

Lessons are designed to ensure all children access rich, problem solving tasks and do not just focus on development of procedural fluency. Lessons are designed to follow an episodic teaching approach where all children start with a concept and have teacher input and modelling throughout the lesson. Teachers use assessment for learning to determine where within the lesson children need further guided practise or independent practise. Through this approach, no child is given a predetermined label based on prior attainment and all children’s needs are met.

For further information on how a unit is taught, please see unit overview in appendix.

In addition to the equivalent of a daily Maths session, children also receive:

- 1 session per week on the teaching and revisiting of basic skills

- 1 retrieval practise session per week, which usually looks at recapping on prior learning from previous weeks or units
- 4 Arithmetic sessions per week (See Maths Basic Skills Policy).
- One session per week focussing on development of multiplication knowledge (See Maths Basic Skills Policy).

Assessment and Monitoring

At Monkhouse we use pre unit assessments in Maths. At the start of a unit of work, children take a pre unit assessment which assesses children's understanding of the key skills which are a prerequisite for the unit of work being taught. The results of these pre unit assessments are collated by the class teacher and are used to plan interventions (masterclasses) and any lessons from. This ensures that any gaps in a child's understanding are filled before they move onto the next stage in this area of Maths.

At the end of each unit of work, children complete a post unit assessment which supports the teacher in gaining an insight of the children's understanding across this unit. The post unit assessment covers fluency of skills, reasoning and problem solving and is used to determine if a child has a deeper, conceptual understanding of the area of Maths covered.

Within a Maths lesson, time is allocated to allow children to access the answers to their work and therefore self mark their learning. The timing of this is decided upon by the teacher, but happens at a time to allow a child to be further supported if needed, or further challenged. Once a child has marked their work, they may opt for further support. Throughout the lesson, teachers will use their observations and discussions to challenge children. Teachers will look at Maths books at the end of a lesson and, if necessary, direct a child towards a same day masterclass, or to work with adult support in the next lesson. A system of symbols is used to show where a child has worked independently, with guided support, if a challenge has been given and if further support is required following the lesson.

At Monkhouse we use a combination of end of unit and monthly assessments to assess children's progress towards attaining skills and to identify challenges. Class teachers and any trainee teachers use gap analysis to identify next steps in children's learning and to ensure that these are planned for. Alongside the class teacher's assessment for learning, these monthly assessments (6 points over the year) allow teachers to assess multiplication and arithmetic knowledge and, along with post unit assessments, can assess children on working within the expected standard.

Monitoring:
The monitoring of the teaching and learning of Mathematics will be carried out by the school's senior leadership team and will involve:

- Learning walks and lesson observations
- Analysis of data

- Pupil progress meetings
- Work scrutiny
- Pupil interviews

Any CPD requirements will be identified as part of the monitoring process and staff will be signposted to the relevant CPD either internal or external.

Appendix 1: lesson design overview

Maths lesson design

Pre unit assessment assesses required prior knowledge (from previous year group) before starting a unit and these areas are focussed on where required in lessons or masterclasses

Start with the concept
Children are introduced to tada's learning through looking at the concept and taking the learning back to non threatening maths, which link to previous maths taught in previous year groups.

Through use of Hashtags and deepening opportunities, all children are kept broadly at the same level throughout the lesson. Hashtags are given for children to deepen understanding while others receive support before moving onto the next stage of the lesson

Guided or independent practice
Children work with the class teacher or support staff to continue working on the method or approach as per the start of the session. Children may be directed to a guided group based on success of previous lesson

Small Steps of learning
Teacher modells the next step of the learning as the lesson is broken down into smaller steps. These either build up on learning, address misconceptions or show procedural or conceptual variation. At each stage, the work gets progressively more challenging.

Work is self marked and children either moved onto further opportunities or directed to a guided group or masterclass

Further opportunities to deepen children's understanding, including use of Hashtags.
This can be independently after modelling from the class teacher.

All children receive some input from staff to support their understanding of the deepening tasks.