We Care, We Aspire, We Belong

Milverton Community Primary and Pre-School

Mathematics Policy

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Introduction

The National Curriculum states that:

"Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject."

At Milverton Community Primary & Pre-School, we want our children to see mathematics as being relevant to their world and applicable to everyday life, as well as being something that they will need as they move on through their school life and ultimately to the world of employment. To that end, a high quality mathematics experience should be one that develops the children's ability to think mathematically and one that allows them to apply the tools to which they have been exposed in a variety of ways.

Our emphasis is to ensure that all children:

- become **FLUENT** in the fundamentals of maths
- can **REASON** and **EXPLAIN** mathematically
- can **SOLVE PROBLEMS** by applying what they have learnt in a variety of ways

This means that children need to be confident mathematicians and regularly exposed to opportunities involving increasingly complex problem solving which allows them to apply their mathematics knowledge. In doing so, they should be encouraged to develop an argument and line of enquiry that they can prove and justify using mathematical vocabulary. This includes the ability to break down problems, both routine and non-routine, into a series of steps.

Aims and Objectives

Our aim is to deliver a mathematics curriculum that places the child at the heart of the process. We want to develop our children's understanding of the principles of mathematics, promote curiosity and fascination and help them to become an active learner with a passion for mathematics. We deliver a well-rounded curriculum, informed by the National Curriculum, which exposes children to carefully designed lessons with opportunities to explore concepts and challenge themselves.

We want to teach mathematics in a way that:

- creates an exciting and stimulating environment in which the children can learn mathematics
- develops mental strategies
- encourages children to use mathematical vocabulary to reason and explain both verbally and in writing
- challenges children to stretch themselves and take risks in their learning
- provides all children with the opportunity for challenge and success.

Curriculum Design

Our mathematics curriculum is based on small steps teaching, allowing the majority of children to progress together and building in opportunities for challenging and deepening understanding. We use White Rose Maths materials as an overarching framework from Reception – Year 6, from which our teachers use their expertise to enhance and adapt the content to meet the needs of their class, whilst ensuring a consistent approach to the use of models designed to support children in their understanding. White Rose Maths supports our cumulative curriculum, so that once a topic is covered, it is met many times again in other contexts. We believe that this gives children of all backgrounds the best opportunity of success, developing and building upon their schemas from prior learning, especially those from disadvantaged backgrounds. The small steps to progression approach helps children to gradually develop their skills, allowing time and flexibility for children to fully master a concept before moving on. Our school progression document ensures that we cover all aspects of the requirements of Curriculum 2014 for mathematics and the EYFS curriculum 2021, whilst also supporting our mastery approach to mathematics teaching and learning.

We believe it is important that children are allowed to explore mathematics and present their findings not only in a written form but also visually; to that end the school has adopted the CPA approach: concrete, pictorial, abstract. The CPA approach to supporting the teaching of mathematics is embedded into our everyday lessons from pre-school to Year 6. This allows the children to experience the physical aspects of mathematics before finding a way to present their findings and understanding in a visual form, before relying on the abstract numbers. Age appropriate manipulatives are available in every classroom to support this.

Planning

Teachers plan professionally sculpted lessons according to the needs of each class. The White Rose Maths schemes of work are use as a starting point for all year

groups from Reception to Year 6. A variety of teaching methods are used across the school and within classes throughout the year, depending on what is most appropriate for the age and stage of the children. Whole class mastery lessons are embedded across the school and all children are encouraged to question and explore. Staff also have access to a variety of extra resources, such as Nrich activities, to engage children in mathematics at a greater depth.

Each maths lesson focusses on one clear learning objective, which all children are expected to master. Extension activities enable those children who grasp the objective rapidly to extend their learning by exploring it at greater depth. Each lesson can include elements of: fluency, to practise skills; reasoning, to deepen understanding; and problem solving, to apply skills depending on the objective being taught and the understanding of the children. Across a range of lessons, children will engage in mathematical discussion (talk partner or group work), investigations, problem solving, practical experiences and written methods. To support pupils with fluency, teachers will revisit prior learning using resources such as 'Flashback 4' (WRM). In KS1, the NCETM Mastering Number programme is used to support fluency development on 4 days per week. Within LKS2, daily times tables sessions focus on developing fluency of multiplication and division facts. Every classroom has a range of practical apparatus to support children's learning.

As a school, we also hold a digital subscription to MyMaths to support homework and home learning. More information can be found in our Homework and Remote Learning Policies.

Assessment

Assessment takes two forms – daily formative assessment and summative assessment at the end of each term. Teachers make informal assessments daily in order to plan the most effective learning for the following session. These assessments may be recorded as comments in children's books, or through discussion with the child. Where possible, teachers address misconceptions on the same day with small groups of children, or the next lesson if it is evident that a larger group need further practise and clarification. Children are expected to make corrections before they move on to the next small step.

At the end of each term, the White Rose Maths end of term assessments are used to support teacher assessment recorded on FFT, to build up a picture of progress and attainment in mathematics across the school. The maths co-ordinator and senior leadership team will use evidence from FFT, test scores, Pupil Progress Meetings, pupil conferencing, lesson observations, book and planning scrutiny to monitor the progress of mathematics across the school.

In order to inform planning, teachers regularly track the children's progress. Formative assessment is used together with children's self-assessment to decide who is ready to move to the next concept and who needs to visit the concept again in another way. Children will be provided with feedback in accordance with the school's EYFS/KS1 and KS2 Marking Policies.

Early Years Foundation Stage

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. A specially designed Maths curriculum in Pre-School supports later learning in Reception. Alongside this, White Rose Maths and the NCETM Mastering Number programme are also used to support adult led sessions and enhance small group work in the Reception Class.

Inclusion

In line with the School's SEND Policy, each child will have an equal entitlement to all aspects of the mathematics curriculum and to experience the full range of activities. Therefore, in delivering mathematics, care will be taken to ensure that a variety of learning styles are accessed and teaching methods adopted.

Teaching maths for mastery offers all pupils access to the full maths curriculum. This inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. There is no differentiation in content taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content. Those children who are not sufficiently fluent are provided with additional

support to consolidate their understanding before moving on. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with intervention – commonly through individual or small group support later the same day where possible. Where children make less than expected progress, efforts are made to ensure relevant support is put in place to help support the child. No child will be denied a full curriculum however and concepts will be revisited throughout the year during challenge times or intervention times to help with long term understanding.

Parental Involvement

We encourage parents and carers to be involved in their child's mathematics education by:

- Inviting them into school twice a year to discuss the progress of their child.
- Providing parents with an interim report and a yearly report outlining their child's achievements.
- Holding a workshop in early maths for Reception parents and carers.
- Sending homework activities in line with our homework policy to be completed by or with their child.

Monitoring and Review

The monitoring of maths teaching and pupil progress is the shared responsibility of teachers, subject leader and the senior leadership team. The work of the subject leader includes supporting colleagues in the teaching of maths, keeping up to date with current developments as well as providing a strategic lead and direction for the subject. The Mathematics Subject Lead has termly update meetings with 'Mathstopia' – a local mathematics advisory service. The subject lead also meets with the Tone Valley Partnership of Schools in order to collaborate, moderate and share best practice.

Within school we conduct review sessions whereby we critically look at Maths as a subject within the school. We carry out learning walks, speak to children/staff, analyse books/marking and assess what we are doing well and what we want to improve. This is then added to the Maths Action Plan for our next steps in development.

All teaching staff have the opportunity to attend CPD in line with school policy and attend all in-house training. HLTAs and TAs are trained in house but also have access to external training where there is a need to do so. CPD delivered reflects the needs of staff and children within the school, based on conversation and data analysis.

Please also refer to the School Calculation Policy & Maths Progression Document