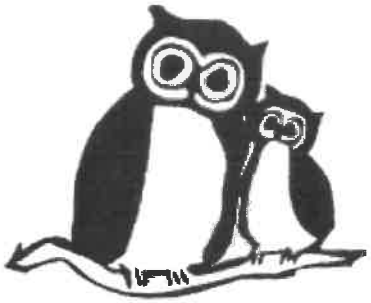
Little Melton Primary School



Mathematics Policy

Approved by Governing Body

Date May 2021

Review May 2024

Signed .....

Chair of Governors

Little Melton Primary School
Mathematics Policy

Introduction

> Outstanding Mathematics teaching is rooted in the development of all pupils' conceptual understanding of important concepts and progression. It enables pupils to make connections between topics and see the 'big picture'. Teaching nurtures mathematical independence and allows time for thinking and encourages discussion. Problem solving discussion and investigation are seen as integral to learning mathematics. (Oftsed 2012)

At Little Melton Primary School, we believe in an agreed approach to the planning, delivery and assessment of the mathematics curriculum. We endorse and follow the aims of both the National Curriculum for Maths and the EYFS Profile.

We have a shared belief that mathematics equips all learners with a powerful set of tools to understand and change the world. This mathematical toolkit includes fluency, number sense, logical reasoning, problem solving skills, resilience and confidence in approach and the ability to think in abstract ways. It enables the learner to understand and appreciate relationships and pattern in both number and geometry in their everyday lives. With this in mind, we endeavour to ensure that all of our learners develop a positive and enthusiastic attitude towards mathematics with a continuing growth mindset that encourages resilience.

> 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. (National Curriculum 2014)

Aims

At Little Melton Primary School, we aim to provide a mathematics curriculum which is rich and varied within a stimulating environment with access to a range of resources. It is our intent to provide children with a mathematics curriculum that will allow them to become confident individuals through developing their mathematical skills to their full potential. We aim to present maths as a challenging, exciting, creative and relevant subject in order to promote a positive and confident attitude. We aim to develop lively, enquiring minds encouraging pupils to become self- motivated, confident and capable in order to solve problems that will become an integral part of their future.

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 have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- can **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.

We believe that all of our learners deserve to be set appropriate learning challenges, to be taught well and to be given the opportunity to learn in ways that maximise the chances of success and to have adults working with them to tackle any specific barriers they face to progress. Therefore, we aim to:

- Develop a positive attitude to maths as an interesting and attractive subject in which all gain success and pleasure.
- Develop mathematical understanding through clear and coherent sequenced teaching of appropriate learning objectives and utilising a clear CPA approach.
- Encourage the effective use of mathematics as a tool in a wide range of activities within school and, subsequently, adult life.
- Develop an ability for learners to express themselves fluently using suitable mathematical vocabulary.
- Develop an appreciation of relationships within mathematics and with other subjects.
- Develop ability to think clearly and logically with independence of thought and flexibility of mind.
- Develop an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal.
- Develop mathematical fluency and number sense alongside quick recall of basic facts.

Curriculum Content

The Reception class follows the Early Years Foundation Stage Profile 2021 handbook as they work towards the Early Learning Goals. The Number Blocks scheme is also used to support the early development of number.

The teaching of mathematics at Key Stage 1 and Key Stage 2 is based around the 2014 National Curriculum. A whole school overview stating the intended curriculum has been written as guidance for all staff. The sequence of learning for each of the four classes is provided within termly subject narrative documents. These link the National Curriculum objectives to a clear and coherent sequence that provides active learning and is focused on the application of knowledge and skills that explicitly defines, targets and extends the learners broadening mathematical understanding. Through the careful planning of 'small steps' which sequentially build on each other, children achieve strong arithmetical, reasoning and problem-solving skills which they can apply across different areas of mathematics and other curriculum subjects. White Rose Maths Hub Schemes of Learning and the NCETM mastery documents have been used to support curriculum design. Our curriculum content is regularly reviewed and adapted to suit the needs of each cohort to ensure that all learners meet their potential. A Calculations Policy is also available to show progression with calculation methods across the stages of development.

We believe that it is important that opportunities are given to apply and use mathematics in real contexts. It is important that time is found in other subjects to develop mathematical skills, e.g. the collection and presentation of data in history and geography. We celebrate mathematics as a whole school and enjoy whole school Number Days and STEM activities.

Teaching, Marking and Assessment

In EYFS, mathematical learning takes place during dedicated time for whole class input and structured play in and outside the classroom. Key Stage 1 and Key Stage 2 have a timetabled daily maths lesson that follows the termly subject narratives and sequences of learning. Opportunities to extend mathematical thinking are often provided at alternative times throughout the day. To support the Year 4 statutory multiplication test, Key Stage 2 have access to Times Table Rockstars to support the development and application of times table knowledge. This can be used in school and can be used at home. A wide range of ICT is used to support learning and to enrich the curriculum.

Marking, either verbal or written, is carried out in accordance to school marking policy. Marking is essential to progress and informs the learner of misconceptions and next steps and instant feedback is crucial

throughout mathematics lessons. In Key Stage 2, green pen responses are encouraged. Self-evaluation also forms part of mathematical marking.

All learners are regularly assessed with the use of both formative and summative strategies. Formative approaches support teachers to adapt and extend the learning journey and summative approaches allow for detailed gaps analysis to assist future planning. For pupils who may struggle or possibly 'fall behind' with parts of the curriculum, in class support is provided on a daily basis. Additionally, pre-teaching, consolidation and intervention can also be provided to ensure readiness for the next step of the sequence. For SEND pupils a personalised curriculum may be more appropriate.

The Mathematics Lesson – Teaching Approaches

Teachers use a range of teaching strategies to engage learners in maths and ensure progress is made by all within a class. Although no set formula is used, a typical lesson may include:

- Both teaching input and pupil activities that follows the 'Concrete Pictorial Abstract' approach.
- A balance between whole class, guided grouped and independent work (groups, pairs and individual work).
- The use of 'flashback' approaches to revisit prior learning to support the development of long-term memory and retrieval skills.
- Effectively differentiated activities/objectives and appropriate challenge. Children may self- select activities with varying challenge levels.
- Mistakes and misconceptions being explored and celebrated as a means of making progress and linking with growth mindset approaches.
- Opportunities for conjecture, reasoning, generalising and justification.
- The practising and embedding of key mathematical facts and vocabulary.
- Celebration of learning.

Sometimes the focus for the session is new learning, at other times pupils may be practising, to master the application of a concept they have learned earlier. It may be a lesson solely focusing on problem-solving or reasoning skills. Each lesson aims to include elements of fluency, reasoning and problem-solving. The focus of the session may vary for different children depending on their learning needs. Teachers aim for a secure understanding of a skill before moving onto a new one. Extension tasks are offered to allow learners to dive deeper into a concept and broaden their understanding.

Teaching assistants are deployed effectively to provide support to individuals or to groups under the direction of the class teacher. We view our teaching assistants as an important asset and are regularly involved in the planning, delivery and review of the mathematics lessons and curriculum. Many TAs are also involved in delivering interventions.

In Key Stage 2, weekly homework tasks are set. These are given via CGP work books and develop the application of knowledge and skills. They allow for the practise of SAT style reasoning and problem-solving style questions. Children are also encouraged to learn times tables at home. Key Stage do not have formal weekly homework, although they might be asked to practise a skill from a lesson, e.g. Singing the number bond song.

Classroom Environments

Each classroom has a working wall and/or a maths display which is updated throughout the learning sequence supporting the current area of learning. This might include the following: learning objectives,

worked examples, relevant vocabulary, pictorial representations, number facts, interactive aspects, examples of work.

Manipulatives are key to conceptual understanding and all classrooms have access to a range of mathematical resources to support learning. For example: base10, Numicon, number lines, bead strings, 100 squares, digit cards, counters/cubes. Other items available include Cuisenaire rods, shapes, maths dictionaries, counting sticks, money, mirrors. ICT resources are also accessed regularly and are also utilised through the IWB for whole class teaching. In all lessons, resources should be used and learning based around a CPA approach adopted. Mathematical games are also available to support learning.

Role of the Subject Leader

It is the subject leader's responsibility to ensures teachers understand the requirements of the National Curriculum and, where required, help them to plan lessons and provide suitable resources. They should lead by example by setting high standards in their own teaching. They are responsible for preparing, organising and leading CPD. They will monitor and evaluate mathematics across the school and provide support to colleagues. They produce an annual Maths audit based on performance data and in between a '20-minute monitoring' approach is used each half-term. These both then inform the Termly Action Planning. The subject leader will run maths events to promote mathematics in the school, e.g. Number Day.

The subject leader will attend regular CPD and attend cluster mathematics networks. They will keep up-to-date with current publications and developments related to mathematics. They will also provide a strategic lead in the implementation of developing maths within the School Development Plan.

Equal Opportunities

All children have equal access to the curriculum regardless of gender, background or SEND. We aim to incorporate mathematics into a range of experiences enabling all pupils to achieve success and reach as high a standard as possible.

High Ability in Mathematics

Alongside a commitment to equal opportunities, we also take seriously the need to provide stretching and stimulating work to our most able Mathematicians. Lessons are widely differentiated to provide opportunities for all, and we also make use of enrichment activities for the most able. Examples of these from recent years include the Maths Challenge at Norwich School, the Cambridge NRICH online challenges and the Lotus F1 design competition.

Monitoring and Review

We are aware of the need to review and update the school mathematics policy regularly to take into account new initiatives, changes in the curriculum and assessment. We will review this policy in May 2024.