MATHS POLICY

APPROVED BY GOVERNORS:

Our School Values

Nurturing life skills and inspiring achievement for today and tomorrow

M Mastering successful learning skills through a growth mindset approach so that we become confident risk takers with our learning.
A Achieving through challenge so that everyone reaches their full potential, academically, emotionally and socially.
N Nurturing life skills so that we become independent, resilient and self-assured learners.
U Understanding and valuing others so that we become active and engaged citizens in our community.
D Developing a positive learning environment, which is safe, stimulating, enjoyable and supportive.
E Engaging creativity and curiosity through purposeful and inspiring learning experiences so that all individuals are motivated to learn both in and out of school.
N Nourishing healthy behaviour through physical activity, a balanced diet and positive thinking so that our wellbeing impacts on our happiness in everyday life.

Introduction

This policy reflects the school's values and philosophy in relation to the teaching and learning of mathematics. It sets out a framework within which all teaching staff can operate and it gives guidance on planning, teaching and assessment. The policy should be read in conjunction with the National Curriculum Guidelines, the school's Calculation Policy and the school's Intent and Implementation document for Mathematics. These set out the rationale for teaching each area of the mathematics curriculum and specify the skills that will be developed for all pupils.

Curriculum Intent for Mathematics at Manuden Primary School

Rational:
Mathematics is a tool for everyday life. It is a whole network of concepts and relationships that provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real-life problems. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. Mathematics contributes to many subjects within the primary curriculum and opportunities are explored in order to draw mathematical experiences out of a wide range of activities, allowing children to use and apply mathematics in real life contexts. Mathematical skills are purposefully developed through the school's Creative Curriculum.

Ambition:
At Manuden, all children are taught daily Mathematics lessons from Foundation Stage to Year 6. During this time, basic mathematical concepts are embedded as early as possible in a child's learning journey. This equips them with the skills required to demonstrate a deep conceptual understanding of Mathematics and use this to support problem solving and reasoning strategies. Teachers ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understanding are developed simultaneously.

Concepts:
In line with the National Curriculum for Mathematics, all children will. . .

- 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.

- **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.

All key skills are supported with the use of concrete, pictorial and abstract methods, allowing children to cement their understanding and learning in mathematical concepts.

In addition, at Manuden Primary School we aim to:

- Promote enjoyment and enthusiasm for learning through practical activity, cross-curricular learning, exploration and discussion.
- Develop mathematical skills and knowledge and quick recall of basic facts in line with the National Curriculum Mathematics Programmes of Study.
- Promote confidence and competence with numbers and the number system.
- Develop the ability to think mathematically: solve problems through decision making and reasoning in a range of contexts.
- Develop a practical understanding of the ways in which information is gathered and presented.
- Explore features of geometry and measurement in a range of contexts.
- Understand the importance of mathematics in everyday life and promote mathematical thinking as a life skill.
- To use mathematics as part of their everyday life in school and at home.

Curriculum Implementation for Mathematics at Manuden Primary School

Principles of Teaching and Learning in a Mastery Curriculum:
Manuden Primary School uses a variety of teaching and learning styles in mathematics during each lesson. Groupings within classes are flexible and pupils will work in different groups dependent on their need. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further. Practice and consolidation play a central role to mathematics learning. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem. Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up. Teachers ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understanding are developed simultaneously. In all lessons, learning objectives and success criteria are used and children have an opportunity to self-select their level of challenge.

Planning:
The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long-term planning for mathematics taught in the school. White Rose Maths Hub schemes of learning are used for medium term planning documents. These schemes provide teachers with exemplification for maths objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. They support a mastery approach to teaching and learning and have number at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Lesson Structure:
All classes have a daily mathematics lessons which include opportunities for fluency, reasoning and problem solving in line with the National Curriculum. In all lessons, learning objectives and success criteria are used and children have an opportunity to self-select their level of challenge. The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics. Lesson structures include the following elements:

- **DO IT**
  - opportunites to develop fluency through varied and frequent practice
- **TWIST IT**
  - opportunities for mathematical reasoning
- **SOLVE IT**
  - opportunities for applying their mathematics to a variety of routine and non-routine problems in a range of contexts

Teaching Strategies:
Within the lesson structure, a wide variety of teaching and learning strategies are used. We have a strong commitment to the following in our teaching of mathematics and it is expected that all teachers share this philosophy and demonstrate it in their teaching:

- Whole class interactive teaching with clear teacher exposition and modelling, both to introduce new concepts at the start of the lesson and to assess and consolidate what the children have learnt in plenary sessions.
- A strong emphasis on questioning, by the teacher of the pupils.
- New topics and concepts should always be introduced by clearly linking them to existing knowledge and understanding.
- An emphasis on using and applying mathematics through problem solving.
- Sharing thinking as an approach to solving problems and investigations.
- Mathematical discussion between the teacher and the children and among children themselves (talk/learning partners).
- Concepts are modelled to pupils using multiple representations.
- The use of 'good mistakes' as a powerful teaching tool.
- The use of correct mathematical language.
- A high priority is set on the learning of times tables.
- Maths games, particularly as starter activities, to rehearse key facts and to engender a love of maths.

Mathematical Language and Vocabulary:
Teachers will refer to New National Curriculum and the glossary of terms when planning for a new topic to ensure that they are reinforcing the correct terms and language. The relevant vocabulary will be clearly displayed in the classroom and children will be encouraged to use the correct mathematical language and terminology to discuss their mathematics and to explain their reasoning.

Resources:
A wide variety of Maths resources, are available for children to self-select during daily Maths lessons. Individual Maths Packs contain a range of age-appropriate manipulatives to support the teaching and learning of number and develop independence in mathematical working. Equipment that supports topics such as geometry, measurement, statistics and teachers' resources are centrally stored, as are games. Children are given opportunities to use a range of Maths apps and programmes on the iPads and computers to enhance their knowledge and understanding for different mathematical concepts. The school also subscribes to a number of online Maths learning platforms such as Mathletics, Times Table Rockstars and Numbots. In addition, Manuden Primary School has produced a bank of high-quality video lessons to support home learning.

Curriculum Impact for Mathematics at Manuden Primary School

Marking: (See our Marking and Assessment for Learning policy)

Manuden Primary School Maths Policy 2021

Assessment:
Each child's progress is continually assessed in line with National Curriculum objectives and expectations and informs day-to-day planning. We assess by:

- Intuitive on the spot comments made by the teacher to the child/group which extend/limit or change the direction of the given task
- Discussions with the class or group, particularly during the plenary
- Observation whilst children are engaged in a task or are specifically asked to work through a question
- Daily marking and feedback
- Self-Assessment/Pupil Perception
- Formal assessment tasks

Throughout the year, all year groups complete termly PUMA tests which inform Teacher Assessments judgements. Pupil Progress Meetings take place every half term and enable review and discussion of pupils' progress. This information is used to ensure appropriate intervention is in place to ensure that those children who are not working at age related expectations are provided with the support they need.

At the end of Year 2 and Year 6 the children sit SATs (Statutory Assessment Tests). Children sit an arithmetic test and are required to complete reasoning papers (one in Year 2 and two in Year 6). Other year groups sit end of year tests. Throughout the year, all year groups complete end of unit tests. Pupil Progress Meetings take place every half term and enable review and discussion of pupils' progress. This information is used to ensure appropriate intervention groups are in place to ensure that those children who are not working at age related expectations are provided with the support they need.

Equal Opportunities:
Maths is planned to meet the varied needs of all learners, regardless of their gender, background, culture, physical or cognitive development. Learning objectives are set to meet these needs in line with our Special Needs Policy and Equality Policy. Special care is taken by all staff to ensure that all children have equal opportunity to succeed in mathematics and that insecurities and stereotypes are not compounded by how the work is organised and presented.

Special Educational Needs and Inclusion:
The development of pupils' mathematical skills needs to include varied teaching approaches and use of resources to support a child's learning and progression. Planning for these groups of children, with careful consideration to the resources and teaching approaches, should ensure that the activities have been suitably matched to individual needs. Quality first teaching in Mathematics at Manuden Primary School, allows pupils to access fluency, reasoning and problem solving during daily mathematics lessons and Mathematics is planned to meet the varied needs of all learners. All children have access to Mathletics, TT Rockstars and Numbots at home and at school and through creative homework, children are able to complete a range of Mathematical tasks termly.

Subject Leadership:
The Mathematics Leader shows a keen interest and passion for the teaching and development of Mathematics within school and has embedded the Mastery approach to learning. Through attending teacher research groups, the subject leader has focused on improving lesson structure with colleagues, allowing for high quality and consistent Mathematical teaching throughout the school.

Subject Knowledge:
The Mathematics Leader ensures that staff are supported to deliver high quality teaching with regular reading and research around new strategies and guidance. Triad working and participation in teacher research groups support the development of Maths subject knowledge and pedagogy across the school and the use of moderation ensure colleagues' subject knowledge and judgements in Mathematics are accurate. White Rose Maths Hub progression and resources and a clear calculation policy ensures subject knowledge is consistent throughout the school. Through data analysis, gaps and barriers to learning are identified and closed, working closely with staff to achieve this.

Monitoring and Review:
This policy will be monitored and reviewed as part of the school's monitoring and evaluation procedures.