

Maths Subject Policy

Milton Road Primary School



INTENT

“We want our children to be happy and healthy today, fulfilled in the future and able to make their world an even better place.”

We aim to ensure that all pupils become fluent in the fundamentals of mathematics; can reason mathematically and can solve problems by applying their mathematics to a variety of routine and non-routine problems. Mathematics is broken down into seven strands: counting and understanding numbers; knowing and using number facts; calculating; understanding shape; measuring; handling data; using and applying mathematics.

We believe that the acquisition of mental maths strategies, problem solving and discussion are central to learning and teaching in mathematics. Opportunities for the use and development of mathematical skills are continually explored in all subject areas and will include the outdoor environment. We apply a CPA (Concrete, Pictorial, and Abstract) approach to our maths to help pupils to develop a deep understanding of maths as part of mastery learning.

Introduction

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. (National Curriculum 2014)

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Framework in relation to mathematics aims for our pupils to:

- develop and improve their skills in counting
- understand and use numbers
- calculate simple addition and subtraction problems
- describe shapes, spaces, and measures

The EYFS Statutory Framework 2021 is focussed in developing a strong grounding in number so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding, such as using manipulatives, children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children 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.

The purpose of mathematics in our school is to develop:

- Positive attitudes towards the subject
- Competence and confidence in using and applying mathematical knowledge, concepts and skills
- An ability to solve problems, to reason, to think logically and to work systematically and accurately
- Initiative and motivation to work both independently and in cooperation with others
- Confident communication of maths where pupils ask and answer questions, openly share work and learn from mistakes
- An ability to use and apply mathematics across the curriculum
- An understanding of mathematics through a process of enquiry and investigation
- A robust development of children's recall of fluency.

We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching & learning.

IMPLEMENTATION

Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- weekly opportunities for learning through Active maths
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- Use of a variety mathematical equipment including computers

The progression of knowledge and skills in EYFS is delivered through a combination of adult directed learning during whole class inputs, enhancements, challenges and activities, as well as child initiated learning through access to an ever-evolving provision. Maths promotes learning and development in Communication and Language and Mathematics.

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Planning

Long term planning

The EYFS Progression of Knowledge and Skills is underpinned by the Mathematics Educational programme (EYFS statutory Framework 2024). The EYFS curriculum at Milton Road has been designed using the 7 educational programmes identified within the EYFS Statutory Framework. The mathematical skills and knowledge taught within EYFS form the foundations of mathematical thinking, and support learning in KS1. The National Curriculum for Mathematics 2014 provide the long term planning for mathematics taught in the school. We follow the unit progression from Maths No Problem!

Medium term planning

EYFS is constructed from the Maths No Problem! scheme, and is supplemented and adapted using White Rose, NCTEM, NRICH and EY Maths. Years 1-6 use the Maths No Problem! schemes of learning as their medium term planning documents; with adaptations to Maths No Problem! made to suit the needs of the class. This schemes provides teachers with exemplification for maths objectives and is 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 idea of depth before breadth. They support pupils working collaboratively as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short term planning

Daily mathematics lessons are created using the variety of teaching resources provided by the Maths No Problem scheme – including textbooks and workbooks; additionally supported by other materials such as White Rose and NRICH. All classes have a daily mathematics lesson where possible. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes. All year groups are in mixed-ability groupings. EYFS teachers ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom.

Special educational needs & disabilities (SEND)

Where appropriate, our daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. However, based on the children's individual needs, we adapt our approach to best suit the needs of the individual. Where required, children's Ordinary Adaptive Plans (OAP) incorporate suitable objectives from the National Curriculum for Mathematics or development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as additional opportunities such as: teacher-led interventions, AfLA (After Lunch Activities) sessions with the class teacher or 1:1 tutor sessions for pupils in upper KS2. In some cases, our Mathematics Scheme can be adapted to suit the needs of an individual by allowing them to access age-appropriate material, as well as supplementing their learning with activities from previous year groups in order to fill gaps in their understanding. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson teachers have a responsibility to not only provide adaptive activities to support children with SEND but also activities that provide sufficient challenge for children who are high-attainers. It is the teachers' responsibility to ensure that all children are challenged appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children - regardless of race, gender, ability or special needs, including those for whom English is an additional language - develop an enjoyment and confidence with mathematics. This policy is in line with the school's 'Equality and Inclusion' policy. Lessons involving range of visual, aural and kinaesthetic elements will benefit all children.

Values

The policy is underpinned by all four of the school's core values:

Courage

Responsibility

Excellence

Wisdom

Through an exciting and engaging maths curriculum, we endeavour to make explicit teaching related to our key values.

Lessons

In all lessons, learning objectives are clearly displayed and discussed. The emphasis in lessons is to make teaching interactive and lively, to engage all children, and encourage them to talk about mathematics through the use of appropriate vocabulary.

Lessons involve elements of:

- Instruction – giving information and structuring it well;
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays;
- Explaining and illustrating – giving accurate and well-paced explanations;
- Questioning and discussing;

- Consolidating;
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points;
- Summarising – reviewing mathematics that has been taught enabling children to focus on next steps.

Mathematics lessons follow our RIPEN sequence:

R – Retrieve or Recall previous learning

I – Introduce or Improve

P – Practice or Perfect

E – Evaluate

N – Next steps – prep / home learning

Resources and environment

The learning environment in every classroom is mathematically rich and support current learning. Maths Working Walls are up-to-date, clearly visible and provide the children with key vocabulary and key questions. Number lines (appropriate to the year group) are displayed in the classes. Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the resources room.

Maths and IT

Maths learning is also implemented through Purple Mash, Times-Tables Rock Stars and Century Tech which gives the opportunity to target, develop and analyse maths learning.

Pupils' Records of work

Children are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and efficient technique. Children in all year groups are encouraged to use mental strategies and their own jottings before moving on to more formal written methods.

Out of class work and homework

In years 2 to 6, weekly mathematics homework is set via the Online platform 'Century', and provides opportunities for children to practise and consolidate their skills and knowledge, to develop and extend their techniques and strategies.

Marking

Marking of children's work is essential to ensure they make further progress. Work is marked against learning objectives, in line with the school marking policy and the use of whole class feedback sheets. Children are encouraged to self-assess their work and given time to make corrections or improvements. Some pieces of work in mathematics can be marked by children themselves (as indicated in a red pen), especially exercises involving routine practice, with support and guidance from the teacher.

IMPACT

Assessment

Assessment is an integral part of teaching and learning and is a continuous process.

Formative Assessment

Teachers make assessments of children daily through;

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments on whole class feedback sheets.

Summative Assessments

Termly assessments are carried out across the school using the assessment materials for each year group (except year 6) provided by Progress in Understanding Maths Assessments (PUMA). To ensure children are prepared for the end-of-year tests, Year 6 will instead use old SATs tests. These materials - used alongside judgements made from class work - support teachers in making an assessment for each child, which in line with the assessment policy they enter onto Insight Tracker. Teachers track the detailed progress of all children in mathematics, followed-up in Pupil Progress meetings with the SENCO. These meetings are timetabled each half-term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Statutory Assessments

Milton Road follow statutory assessment frameworks for the Multiplication Times Table Check and Year 6 SATs in Mathematics. The analysis of outcomes of these assessments is used to make judgements on the impact of mathematics teaching, and inform the resourcing and school improvement for the following academic year.

Role of the Maths Subject Leader

- To lead in the development of maths throughout the school.
- To monitor the planning, teaching and learning of mathematics throughout the school.
- To help raise standards in maths.
- To provide teachers with support in the teaching of mathematics.
- To provide staff with CPD opportunities in relation to maths within the confines of the budget and the School Improvement Plan.
- To monitor and maintain high quality resources.
- To keep up to date with new developments in the area of mathematics.