

Lostock Hall Community Primary School

Policy for Mathematics

Document Purpose

This document reflects the values and philosophy of Lostock Hall Community Primary School in relation to the teaching and learning of Mathematics. It provides a framework, within which teaching and non-teaching staff work, and gives guidance on planning, teaching and assessment.

The policy should be read in conjunction with the *2014 National Curriculum for Mathematics and the Revised Statutory Framework for the EYFS (2021) and the Development Matters EYFS Framework*, which has been adopted by the school. This should enable teachers to design a programme of activities that is responsive to their own and children's skills and needs in Mathematics at that particular time.

Audience

This document relates to children in Key Stages 1 and 2. The children in the Nursery and Reception Years follow the Early Learning Goals for Mathematical Development which can be found in the school's Policy for the Foundation Stage.

This policy is intended for all teaching staff and staff with classroom responsibilities, the School Governors, parents, inspection teams and LEA Advisers.

This policy document, after presentation to, and agreement by the staff and Governing Body is distributed to all teaching and non-teaching staff and the School Governors. Such distribution ensures the accessibility of the document to visiting teachers, for example Outreach/Support Staff, and to parents. Extra copies are available from the Mathematics Co-ordinator.

Philosophy

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which 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. It also provides the materials and means for creating new imaginative worlds to explore.

Aims

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

At Lostock Hall CPS Primary School we aim to:

- develop a positive attitude to mathematics as an interesting and attractive subject in which all children gain success and pleasure
- develop a deep mathematical understanding through small step learning objectives and key skills
- encourage the effective use of mathematics as a tool in a wide range of activities within school and, subsequently, adult life

- develop an ability in the children to express themselves fluently, to talk about the subject with assurance, using correct mathematical language and vocabulary
- develop an appreciation of relationships and connections within mathematics
- develop ability to think clearly and logically with independence of thought and flexibility of mind
- develop an appreciation of creative aspects of mathematics and awareness of its aesthetic appeal
- develop Number Sense, efficiency and fluency

INTENT

The 2014 National Curriculum for Maths aims to ensure that all children:

- Become fluent in the fundamentals of Mathematics
- Are able to reason mathematically
- Can solve problems by applying their Mathematics

At Lostock Hall CPS, these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics.

IMPLEMENTATION

The content and principles underpinning the 2014 Mathematics curriculum and the Maths curriculum at Lostock Hall CPS reflect those found in high-performing education systems internationally, particularly those of east and south-east Asian countries. These principles and features characterise the Mastery approach and convey how our curriculum is implemented:

Mastery Approach

Our school adopts a Mastery approach to Mathematics. To ensure whole consistency and progression, the school uses the DfE approved 'White Rose Maths Scheme,' 'Maths No Problem' resources and NCETM materials. These are fully aligned with the school's ongoing engagement with the DfE funded Maths Hubs programme to ensure that staff at all levels understand the pedagogy of the approach. Teachers use careful questions to draw out children's discussions and their reasoning. The class teacher then leads children through strategies for solving problems. Independent work provides the means for all children to develop their fluency further, before progressing to more complex related problems. Mathematical topics are taught in blocks, to enable the achievement of 'mastery' over time. Each lesson phase provides the means to achieve greater depth, with more able children being offered rich and sophisticated problems, as well as exploratory, investigative tasks, within the lesson as appropriate.

- A Mastery approach rejects the idea that some children 'can't do maths'. Teachers reinforce an expectation that all children are capable of achieving high standards in Mathematics
- Children will support each other's learning in mixed attainment groups.
- Children will use carefully chosen equipment to represent mathematical problems to expose mathematical structures.
- Children can talk about and explain the mathematics they are learning.
- Our maths lesson last approximately 1 hour, comprising of whole class teaching, independent practise time, with an additional intervention time for those who need it.
- Our learning uses a Concrete Pictorial Abstract model.
- Through careful lesson planning, all children are on a learning journey together from a shared starting point through small coherent steps that are achievable by all.
- The whole class is taught mathematics together. The large majority of children progress through the curriculum content at the same pace.
- Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.
- The learning needs of individual pupils are addressed through careful scaffolding, skilful questioning and appropriate rapid intervention, in order to provide the necessary support and challenge.
- Carefully devised exercises employing procedural and conceptual variation are used. These provide intelligent practice that develops and embeds fluency and conceptual knowledge.
- Challenge will be available to all through opportunity for deep learning, reasoning and open ended challenging problems.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess children regularly to identify those requiring intervention, so that all children keep up.
- The reasoning behind mathematical processes is emphasised. Teacher/pupil interaction explores in detail how answers were obtained, why the method/strategy worked and what might be the most efficient method/strategy. Difficult points and potential misconceptions are identified in advance and strategies to address them planned.
- Fluency will be integrated into the maths lesson and will also be focused on in additional shorter sessions throughout the week

IMPACT

The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Children can underperform in Mathematics because they think they can't do it or are not naturally good at it. The White Rose Maths programme addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mindset. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child. These factors ensure that we are able to maintain high standards, with achievement at the end of KS2 above the national average and a high proportion of children demonstrating greater depth, at the end of each phase.

SCHEME OF WORK

Our school scheme of work is a working document and as such is composed of ongoing plans produced on a week-by-week basis. This is developed from the Foundation Stage Curriculum guidance, the National curriculum 2014 Mastery approach, White Rose Maths Mastery documents and resources, NCETM materials and 'Maths No Problem' books

CROSS-CURRICULAR ISSUES

Throughout the whole curriculum opportunities exist to extend and promote mathematics. Teachers seek to take advantage of all opportunities.

ICT AND MATHEMATICS

Teachers are aware of the potential of ICT for developing and extending mathematical learning and provide opportunities to use ICT in mathematics as and when appropriate.

TEACHERS' PLANNING AND ORGANISATION

Each class teacher is responsible for the mathematics in their class in consultation with and with guidance from the mathematics co-ordinator.

The approach to the teaching of mathematics within the school is based on three key principles.

- A Teaching for Mastery mathematics lesson every day
- A clear focus on interactive investigative and oral work alongside direct, instructional teaching with the whole class and group.
- An emphasis on mathematical fluency, reasoning and problem solving.

Each class organises a daily lesson of between 45 and 60 minutes for mathematics. Mathematical development is taught in a holistic way wherever possible at the Foundation Stage.

Lessons are planned using a common planning format and are monitored by the Mathematics subject lead teachers. Key Stage 1 and 2 teachers use the CPA Maths Mastery approach to structure lessons. Teachers of the Reception classes base their teaching on objectives in the Framework for Reception, this ensures that they are working towards the Early Learning Goals for Mathematical Development. Reception classes use NCETM Mastering Number materials and White Rose resources in their Maths lessons.

Children also participate in extra maths fluency sessions each week. EYFS and KS1 use the NCETM Mastering Number materials to support children's learning.

DIFFERENTIATION

Differentiation should:

Allow children to reach their highest potential

Not predetermine achievement

Promote independent learning

Differentiation should be incorporated into all mathematics lessons in response to pupils' needs and can be done in various ways:

Stepped/Supported/Scaffolded activities which allow access to activities for the less able pupils

Activities which are open-ended activities/investigations where differentiation is through outcome and depth of understanding

Resourcing which provides a variety of resources depending on abilities e.g. counters, cubes, 100 squares, number lines, mirrors, visual representations

Assessment

Assessment has two main purposes:

- assessment of learning (also known as summative assessment)
- Assessment for learning (also known as formative assessment).

Assessment of learning (AoL) – summative assessment

Assessment of learning is any assessment that summarises where learners are at a given point in time – it provides a snapshot of what has been learned. Within Lostock Hall Primary School AoL is used appropriately, e.g. to provide a Teacher Assessment level and grade at the end of KS1.

Assessment for learning (AfL) – formative assessment

“Assessment for learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to get to and how best to get there.”

The school supports teacher assessment through the use of the Mathematics Progression National Curriculum LCC (2014) documentation. This documentation sets out a progression of learning for individual strands of the National Curriculum against age related expectations.

The assessment procedures within our school encompass:

- Making ongoing assessments and responding appropriately to pupils during ‘day-to-day’ teaching. These ‘immediate’ responses are mainly verbal and are not normally recorded.
- Using knowledge of pupils drawn from ongoing pupil tracking records and the progression documents to inform ‘prior learning’ at the beginning of each unit of work to guide our planning and teaching.
- Adjusting planning and teaching within units in response to pupils’ performance.
- Use of ongoing teacher assessment in order to identify gaps in attainment on a regular basis and at the end of each full term using this information to ‘sub level’ a child’s attainment using the low, secure and high judgements.
- Use of information gained from statutory and optional tests. Analysis is done at both a quantitative and qualitative level. Information gained is used to set focused curricular targets and also to determine which strategies or methods are particularly effective in respect of specific areas of mathematics.

EQUAL OPPORTUNITIES

We incorporate mathematics into a wide range of cross-curricular subjects and we seek to take advantage of multi-cultural aspects of mathematics.

All teaching and non-teaching staff at Lostock Hall Community Primary School are responsible for

ensuring that all pupils, irrespective of gender, ability, ethnic origin and social circumstances, have access to the whole curriculum, and the opportunity to make the greatest progress possible in all areas of the curriculum, while at our school.

SPECIAL EDUCATIONAL NEEDS

Where applicable children's IEPs incorporate suitable objectives from the Pivots/Foundation Stage Curriculum guidance/National curriculum and teachers keep those objectives in mind when planning work.

When additional support staff are available to support groups or individual children they work collaboratively with the class teacher.

RECORDS OF PUPILS WORK

There are occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and efficient method of recording.

Children are encouraged to use mental strategies before resorting to a written algorithm.

Exercise Books for Recording

It is school policy that the following is used

- KS1 plain exercise books/ 1cm squares/maths journals/Maths no
 Problem workbooks
- Year 3 1cm squares/maths journals/White Rose Task sheets
- Year 4 1cm squares-gradual move to 7mm squares when individual
 children are ready/maths journals/White Rose Task
 sheets
- Year 5/6 7mm squares /maths journals/White Rose Task sheets

All children are encouraged to work tidily and neatly when recording their work.

MARKING

See Marking Policy

ASSESSMENT AND RECORD-KEEPING

See Assessment Policy

REPORTING TO PARENTS

Reports are completed before the end of the summer term and parents are given opportunity to discuss their child's progress on two separate occasions

PARENTAL INVOLVEMENT

Parents are invited into school twice yearly to discuss their children's work. When significant changes have been/are made to the mathematics curriculum, parents are invited to a meeting or sent information

via the newsletter. Year group mathematics support booklets for parents are regularly sent home.

MONITORING AND EVALUATION

The Mathematics subject lead teachers are released from their classroom in order to work alongside other teachers. This time is used to monitor and evaluate the quality and standards of mathematics throughout the school and enables the Lead teachers to support teachers in their own classrooms.

Opportunities for teachers to review the schemes, policy and published materials are given on a regular basis during staff meetings.

STAFFING AND RESOURCES

Practical Resources

All teachers are encouraged to use appropriate practical resources to follow the CPA method and support children's understanding and learning. Teachers have their own base ten resources and additional resources are clearly organised and labelled in the Maths resources cupboard in Year 6 middle area.

THE GOVERNING BODY

We have identified a Maths governor. The Maths governor visits the school termly to talk with teachers and when possible observes some daily mathematics lessons.

The Maths governor reports back to the full governing body on a regular basis.

HOMEWORK

See Homework Policy