Maths Policy

Mr J Darby

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Admin use only	
Location	
Website	
Learning Platform	
Policies File	
Staff room	
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Policies Log updated	

1. Rationale:

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)

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects (National Curriculum 2014)

2. Aims of the National Curriculum:

The aims of the National Curriculum are to ensure that our pupils:

- 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;
- 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.

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 Statutory Framework sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance.

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

3. Aims of Maths:

At Loxdale Primary School, we aim to offer pupils a rich and enjoyable experience in mathematics by providing the knowledge, skills, concepts and processes that are appropriate to each individual and that relate to the world around them.

Our curriculum follows the NCETM Teaching for Mastery approach and the Number Sense Programme, which we have aligned to the National Curriculum. Based on effective research, the mastery approach plans for small steps which allows children to make connections in their thinking in order to build a deeper understanding. Our maths curriculum sequence is cumulative and allows for consolidation of learning to ensure children make connections and remember more.

Vocabulary and Language development is key in all our maths lessons, and by using precise mathematical words and stem sentences, this offers the children a scaffold to broaden and articulate their mathematical thinking.

We aim to:
• develop a positive and confident attitude towards mathematics and to achieve their full mathematical potential;
• develop logical thinking, enquiring minds and an ability to record in a systematic way;
• use maths to interpret, predict, explain and solve problems involving as much practical experience as possible;
• develop the correct mathematical vocabulary and other skills necessary to express their thinking and strategies in an appropriate manner;
• develop their ability to work independently and collaboratively, as appropriate;
• use technology within mathematics lessons and in the development of their mathematical concepts;
• use and apply their mathematical knowledge by making appropriate choices in real-life situations;
• embed the 5 big ideas in teaching for mastery: Coherence, representation and structure, mathematical thinking, fluency and variation;
• plan a sequence of small steps to ensure all children gain a deeper understanding;
• develop the understanding that maths is an essential to our everyday life in the wider world.

4. Roles and Responsibilities:

The Role of the Maths lead:
• Ensure teachers are familiar with outstanding teaching methods to promote achievement in maths and
help them to plan lessons;
• Provide strategic leadership, including with mastery maths approach;
• Lead by example in the way they teach in their own classroom;

- Prepare, organise and lead CPD, with the support of the Senior Leadership Team;
- Work with the SENDCo and Teaching Assistants in delivering interventions;
- Observe colleagues with a view to identifying the support they need;
- Attend CPD and network meetings;
- Inform parents of any updates;
- Discuss regularly with the Headteacher new innovations to be introduced;
- Deploy support staff to address needs within the school;
- Monitor and evaluate mathematics provision in the school;
- Work with external agencies and m to support the delivery of maths;
- Regular feedback provided to governors of updates and new initiatives.
- Work with the SHaW Maths Hub (NCETM)
- Promote the ethos and values of an Nrich problem solving school.

The Role of staff:
- Ensure coverage of the National Curriculum for maths.
- Ensure teacher embed the 5 big ideas in teaching for mastery.
- Increase pupil confidence in mathematics.
- To promote maths as an essential everyday skill.

Head Teacher and Link Governor:
The role of the Head Teacher and Link Governor is to:
- Update awareness of all the Maths policies and Guidelines at Loxdale Primary, through training and discussion.
- Monitor the implementation of the 'Maths Policies and Guidelines' through observation and discussion.

5. Outside Agencies:

At Loxdale Primary School we value the expertise of outside agencies and the opportunities they provide for our children to apply maths to the real world.

We endeavour to develop and promote links with:

1. Local authority establishments
2. Schools (local, national and international).
3. Community based businesses.
4. Parents and friends of school.
5. National governing bodies around the teaching and learning of mathematics
6. Mathematic associations (Association of Teachers of Mathematics)
7. SHaW Maths Hub.

6. Standards and Expectations

Teaching

•To ensure that there is continuity and progression in maths throughout the school in line with the guidance from National Curriculum.
•To recognise that mathematics is a body of knowledge and children should be encouraged to remember vocabulary, notations, conventions and results, leading to them developing the skill of rapid recall.
•To develop skills in the correct use of equipment such as rulers, compasses, protractors etc. and to recognise when the use of such equipment is appropriate and encourage the children to use the correct equipment.
•To make explicit links between real-life problems, as this will develop an understanding of mathematical concepts.
To recognise that mathematics is a life skill and to ensure that real life contexts are used as frequently as possible.
•To develop strategies and skills e.g. decision making, estimating, approximating, linking to previous work,
simplifying tasks, reasoning, testing hypotheses and good working habits.
•To develop the use of technology, especially the interactive whiteboard and increasing use of apps: this offers a powerful tool in the modelling of mathematical concepts and is used wherever it is felt to be appropriate.
•To develop cross-curricular links, by using pupils' mathematical understanding, skills and strategies in other subject areas whenever this is appropriate. Look for opportunities to implement maths throughout the CoJo curriculum, science and computing.

Teaching for mastery approach

The Mastery Approach
• Maths teaching for mastery rejects the idea that a large proportion of people 'just can't do maths'.
• All pupils are encouraged by the belief that by working hard at maths they can succeed.
• Pupils are taught through whole-class interactive teaching, where the focus is on all pupils working together on the same lesson content at the same time. This ensures that all can master concepts before moving to the next part of the curriculum sequence, allowing no pupil to be left behind.
• If a pupil fails to grasp a concept or procedure, this is identified quickly and intervention ensures the pupil is ready to move forward with the whole class in the next lesson.
• Lesson design identifies the new mathematics that is to be taught, the key points, the difficult points and a carefully sequenced journey through the learning.
• In a typical lesson pupils sit facing the teacher and the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.
• Procedural fluency and conceptual understanding are developed in tandem because each supports the development of the other.

• It is recognised that practice is a vital part of learning, but the practice used is intelligent practice that both reinforces
pupils' procedural fluency and develops their conceptual understanding.
• Significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning. The
structure and connections within the mathematics are emphasised, so that pupils develop deep learning that can be
sustained.
• Key facts such as multiplication tables and addition facts within 10 are learnt to automaticity to avoid cognitive
overload in the working memory and enable pupils to focus on new concepts.

7. Curriculum

We ensure that all planning follows the Early years foundation stage Statutory Framework (2021) and National Curriculum for Mathematics (2014), which describes and provides detailed guidance for what should be taught in each Key Stage and ensures continuity and progression in the teaching of mathematics.

In EYFS, developing a strong grounding in number is essential 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, including small pebbles and tens frames for organising counting - 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.

8. Planning

We ensure coverage of EYFS in Early Years and the National Curriculum for Mathematics at Key Stages 1 and 2. The delivery of the National Curriculum is facilitated by the Mastery Approach using the NCETM PD materials and other . These are used to form our long term plans.

Mastery Maths Lesson
• LTP is mapped on Yearly overviews. These have been adapted from the Yearly Overviews from the NCETM Priority Curriculum*

• Geometry, Measures and Data Handling- some elements are contained in the PD materials, but additional time is planned in to teach these discretely throughout the academic year to ensure coverage.
• *As part of Covid Recovery, the NCETM priority curriculum will be used focusing on key objectives. Bridging objectives for each year group will also be used to ensure pupils are secure in those objectives and address gaps in learning (e.g. a Y5 pupil returning will complete work on Y4 bridging objectives to secure understanding before moving on)

Number sense/Arithmetic
• Reception to Year 2 will focus on additive facts which will be supported by Number Sense programme is used to plan, teach and deliver fluency; Y3-6 will use this as an intervention
• Year 3 and 4 will focus on multiplicative facts using soundbites and also a range of questions in their arithmetic sessions
• Year 5 & 6 will focus a range of questions in their arithmetic sessions which a focus on efficiency

Organisation
• Children are taught in classes, with mixed ability seating.
• Keep up, not catch up mentality- all children have the same target
• Work may be scaffolded more to support some children
• Activities to challenge further and deepen thinking for all
• Small steps and use of representations educe cognitive overload
• Intervention used to close gaps in learning from EYS onwards

Lesson Structure KS1 and KS2
1. Recall Slide – Each lesson begins with a walk into learning opportunity with a mixture of questions on previously taught concepts. This is a short task.
2. Feedback – Children respond to feedback and make corrections from the previous lesson. If T is identified in their book then the teacher will provide individual or group support.
3. Teach – teachers use the 'ping pong' approach to teach each small step explicitly using NCETM materials. Teachers may introduce stem sentences for children to be able to explain their learning. Children given the opportunity to practise using the: I do, we do and you do format.
4. Independent – Children will apply what they have been taught in an independent activity. All children will begin from the same starting point with lesson design to be low threshold, high ceiling so it is accessible for all. Teachers will assess learning using live marking.

Lesson Structure EYFS
1. Retrieval – the lesson starts with a review and practice of something that the children looked at in the last lesson. Also children will have the opportunity to recall prior learning during planned child initiated activities.

2. Teach – teaching and group discussion to draw attention the maths using the number sense animations
3. Teach and Independent – most lessons, where appropriate, children are split into two groups. Half stay on the carpet and deepen their learning with the teacher, and the other group at the table complete an independent task that links to the teach.
4. Recall – During child initiated children will be exposed to maths concepts they have been introduced to in the teach part, also staff will facilitate discussion to draw out mathematical thinking.

General features of mastery approach
• When planning teachers to consider the 5 big ideas.

- Coherence opportunities for all pupils using very small steps of learning enables pupils to learn together and gain deep conceptual understanding
- Representation and structure to draw out the concept being taught and staff will consider which representation is best suited to each concept
- Mathematical thinking ensure children are taught to have a deeper understanding and look for patterns and relationships. They use stem sentence to support use of precise mathematical vocabulary.
- Fluency demands more of learners than memorisation of a single procedure or collection of facts. It encompasses a mixture of efficiency, accuracy and flexibility.
- Variation is to highlight the essential features of a concept or idea through varying the non-essential features

9. Display

Working Walls and resources
Staff will ensure each working wall feature relevant vocabulary, worked examples, errors as a model of the teaching point. All classes will display a place value chart, appropriate to their year group, as well as times tables appropriate to their year group. In Key Stage 1, staff will also ensure a number square is on display for children's reference.

10. Assessment

Formative assessment, carried out by the class teacher, is an integral part of their role and is used on a daily basis to inform future planning. It involves identifying children's progress against the learning challenges set for the lesson through planning. Assessments are made through questioning, live marking, observation, discussion and note-taking and termly testing. These assessments are used to determine what a child has already achieved and to identify their next steps in learning. Staff meet in phases to discuss and moderate children's work in year groups. SLT and subject leader monitoring help to support teachers in their delivery of maths.
Summative assessment occurs at the end of each term; in Years 1-6, years 2 and 6 may use past SATs papers to assess and support children's learning in conjunction with these.

11. SEND

Children with learning difficulties and those who are mathematically able are supported through a scaffolded curriculum and are given opportunities to develop skills at an appropriate rate.

• On-going informal assessment, in the form of targeted questioning, and daily marking directly informs the learning objectives set for each individual. As a result, appropriate challenges and opportunities are planned for and delivered – Same Day Intervention will support in doing this.

• Children with specific mathematical learning needs will have provision made through the targets set from iasend, or, if Disadvantaged, other support e.g. through targeted questioning.

•Teaching Assistants and other adults in school are used to support individual children. (a range of manipulatives can be explored to support these pupils.)

• The SEND policy gives details of the arrangements for specific support.

Children that are operating above the national expectation may have access to separate interventions to challenge them, as well as challenging work within class.

12. Homework and Parental Engagement

Weekly homework is set and is designed to encourage parental involvement and understanding of their children's learning, much of the homework is set on-line. Children without access to a computer are given the opportunity to complete this in school.

13. Monitoring

The monitoring of Maths occurs at least half-termly to fit in with the School Development Plan, through the collection of assessment data, learning walks, book and planning scrutiny, pupil interviews and observations. Next steps are then identified and support put in place to meet these next steps. This means then that monitoring can always be focused on the areas, as identified by the SDP, or ongoing needs of staff and pupils.

14. Staff Development

Continuing Professional Development needs are identified by individual members of staff and by the Senior Leadership Team. Staff are encouraged to continue to update and extend their personal knowledge and understanding of mathematics on a regular basis. These are addressed in termly Staff Meetings, school based INSET, courses run by maths SHaW hub and NCTEM, Numeracy Training Courses and individual work with the maths lead.

15. Use of Technology

The use of technology is referred to throughout this policy, but further to this, Times Tables Rockstars will be used to support the children in learning their multiplication facts. Teachers will encourage their children to use this regularly and, along with the subject leader, will check on children's usage, celebrating their achievements with this. Other Apps

and software can be used to support the teaching of maths, such as the interactive lessons and resources developed. Education City will be used in the setting of homework too.

16. Links to the School Development Plan

In school we provide a broad and balanced curriculum for all pupils. Through the planning of the Maths curriculum we meet the needs of individuals and groups of pupils. Effective learning opportunities are provided that can be modified, if necessary, to provide all pupils with the relevant and appropriately challenging work at each Key Stage.

The following three principles ensure an inclusive curriculum:-
• using small steps to set suitable learning challenges;
• responding to pupils diverse learning needs;
• overcoming potential barriers to learning and making amends for individuals and groups of pupils.

17. Equality and SMSC

Loxdale ensures that we eliminate all discrimination, on the grounds of race, gender, gender reassignment, disability, sexuality (including sexual orientation), age, religion and belief. We believe that all pupils, employees and other service users should be treated with dignity and respect at all times and we will not tolerate bullying, harassment or victimisation of any groups or individuals. We will ensure that in planning, delivering and monitoring our strategies and policies, equality and diversity issues are considered at the outset of that work and that we will consult with pupils, parents, staff, partners where appropriate and the wider community. Collaborative activities in maths will support the children's Social development.

18. Link with Parents

Parents are given opportunities to meet with the teacher and discuss their child's progress and a detailed written report is provided towards the end the academic year, which includes information about children's progress and next steps in their mathematical learning. Class teachers and the maths lead are always available to discuss maths strategies with parents.

Signed: Mr J Darby

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