



**Lisle Marsden
Church of England
Primary Academy
Mathematics Policy**

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This procedure is non-contractual and can be amended by the academy at any time

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1. Philosophy

Lisle Marsden Church of England Primary Academy's Vision Statement is "Educating for life in all its fullness, committed to excellence and enjoyment through learning, within an enabling environment that nurtures the potential and talents of all; empowering our children with wisdom, knowledge and skills, grounded in the Christian belief that everyone is created in the image and love of God." This policy has been prepared in the spirit of the academy vision Statement and Aims. These are made clear in the School Prospectus, School Website, School Development Plan, and associated documentation.

2. Intent

Lisle Marsden Academy recognises the importance of Maths for all pupils, regardless of ability, as a subject that helps to prepare them for the rigours and demands of adult life. All children throughout the academy will be given equal opportunity to experience every aspect of the Maths curriculum using modifications and differentiation, as necessary.

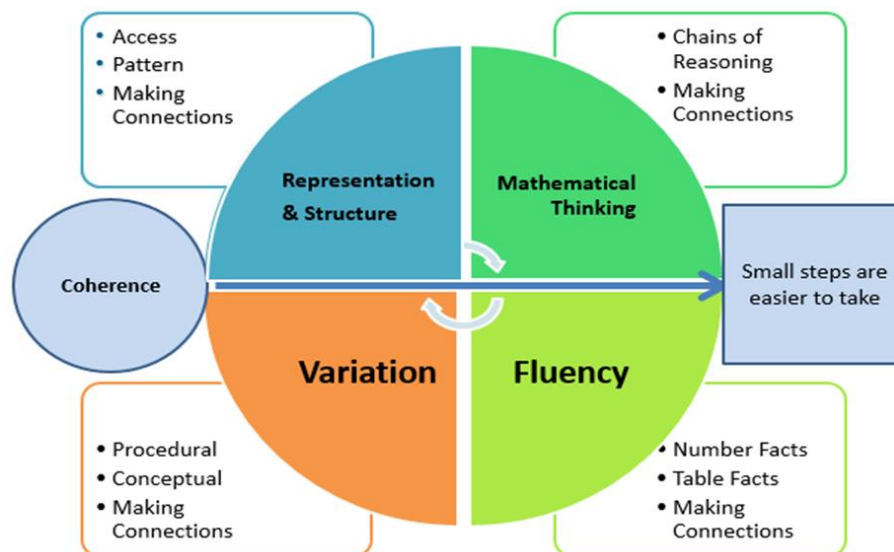
The intent of our maths teaching at Lisle Marsden Academy are aligned with the aims of the National Curriculum: fluency, reasoning and problem solving, both in the mathematics lesson and across the curriculum.

All learners should be numerate and able to use and apply mathematical thinking and skills in everyday life, with confidence.

We encourage learners actively to seek ways of connecting their learning to their present and future lives, the communities around them and to their own capabilities as learners.

We recognise that pupils need to learn basic number facts and acquire fluency in procedures, alongside developing conceptual understanding if they are to be able to solve increasingly complex problems in life and later in the workplace.

A mastery approach to the teaching of mathematics has been adopted using the Maths - No Problem scheme; we have high expectations of all our pupils. We endeavour to make the mathematics curriculum accessible to all pupils; moving them through the programme of study at broadly the same pace. All children need a deep understanding of the mathematics they are learning in order that future learning is built upon firm foundations. We use the '5 Big Ideas' to underpin our teaching for mastery maths: Coherence, Representation & Structure, Variation, Fluency and Mathematical Thinking (see Appendix 1).



Through our mastery maths approach, we intend:

- To deliver the National Curriculum using the Maths No Problem Scheme as a Primary resource with the 5 Big ideas of Mastery incorporated.
- To ensure that all children are offered the chance to improve their maths skills and reach their full potential.
- To ensure that the standard of maths is raised throughout the academy.
- To enable pupils to learn in different types of contexts and create very deliberate, carefully structured multi-sensory learning experiences to cater for each child's learning styles.
- To develop self-assessment through sharing the learning processes to help the children understand what they are doing, why they are doing it, how they are going to learn it and in what way.
- To promote Mathematics to be an enjoyable subject where learners continue to learn it independently and collaboratively.
- To understand and articulate the nature of mathematical thinking and processes.
- To develop reasoning and a deep understanding using a variety of contexts and representations.
- To ensure AFL (Assessment for Learning) assessments are carried out daily and influence future daily/weekly planning.
- To ensure that end of chapter review is completed as a formal assessment of learning and the outcomes used to inform future planning and any interventions needed.
- To ensure summative assessments are completed once a term using the PUMA tests (Rising Stars) and PITA (Point in time Assessment).

3. Implementation

All staff follow the Maths - No Problem scheme to plan their maths lessons. For each year group there are a number of chapters to be delivered, each with a varying number of lessons. In recent years, the MNP planning has been updated to enable schools to adapt chapters if time became a constraint. Within a chapter, lessons are now clearly identified as one of the following categories:

- key lesson – the lesson is essential to the maths learning journey
- combined – the lesson can be combined with other lessons in the chapter
- integrated - can be integrated with lessons from other year groups
- independent - can be tackled independently
- non-statutory
- if time allows

It is our aim at Lisle Marsden, that all lessons will be delivered to the children as planned in MNP, however, adjustments to planning may be needed as part of the teacher's ongoing AfL (Assessment for Learning). The planning format for each lesson is the same; it enables all staff to ensure a cycle of learning takes place in the classroom as demonstrated on the Model of planning the MNP process (see below and Appendix 2)



All teachers have access to the Maths No Problem teacher hub which is available on

their website. The hub gives an updated and comprehensive planning guide for all lessons within each chapter.

Planning

When planning each lesson with a chapter of work teachers will consider the following:

- National Curriculum coverage
- Learning objective
- Lesson approach – complete with details about differentiation for the ‘Explore’ and ‘Guided Practice’ for both struggling and advanced learners.
- Resources
- Maths language (key vocabulary and sentence stems for each lesson)
- Additional activity (when appropriate)
- Variation
- Misconceptions
- Non-negotiables
- Formative assessment

Each week the lessons need to be planned to show the learning objectives and activities in brief, with clear differentiation opportunities identified. Teachers’ planning should be changeable depending on the needs of their class, changes to daily and weekly planning will be made as needed to reflect the additional learning needs and extension opportunities that a class may need.

Medium term plans for each year group are available on the MNP website and have been downloaded onto the academy server. These give all staff a clear picture of the maths coverage over the academic year. Each medium-term plan clearly shows the length (in lessons) of each chapter and the learning objectives which are covered within the chapter of work. Teachers should plan for additional maths exploration and learning as needed, these may be identified during individual lessons or at the end of a chapter when the review is completed.

Teaching and Learning

At Lisle Marsden we follow a mastery approach to teaching Maths throughout the whole academy. In Key Stages One and Two we use The Maths - No Problem Primary Series which has been created using the principles of Singapore Mathematics and is fully aligned to the 2014 English National Curriculum. (Fluency,

Problem Solving and Reasoning). The Programme provides all the elements that children require to explore mastery maths at age-related expectations. It is based upon strong pedagogy of conceptual understanding through the CPA (Concrete, Pictorial, Abstract) approach, principles of collaborative learning, exploration, and good teaching/assessment principles.

Through whole class teaching, all children can achieve age-related expectations and deepen their knowledge and understanding of mathematics. Children with identified learning needs will learn alongside their peers at an age-appropriate level; opportunities to master skills will be specific to the needs of these children. Here at Lisle Marsden Academy, we do not agree with putting a ceiling on children's learning or thinking.

The Maths – No Problem approach is a progressive sequence of learning through the lessons; children are actively learning and exploring maths throughout every session to foster greater depth. There is an increased emphasis on collaborative work to encourage mathematical vocabulary and thinking, giving children the opportunity to learn from each other and develop explanation to deepen higher-level understanding.

Each sequence of learning follows a learning journey which is then adapted and tailored to the needs of each class:

- Review of prior learning
- Fluency skills – planned to link in with the learning for the lesson to enable children to make clear connections
- Explore – hooks the children into the lesson, time to explore using apparatus and models.
- Master – embed understanding both with guidance and independently.
- Guided Practice – opportunities for paired/independent work, guided by the class teacher, and moving to the pictorial and abstract approach.
- Independent work – time to demonstrate their understanding.
- Consolidation/Mastery tasks – learning opportunities broadened with problem solving and reasoning

Each year group's learning is broken down into chapters which are then further broken down into lessons; the length of each chapter varies dependent on the coverage as identified in the National Curriculum (Appendix 3).

- Year 1 - 20 Chapters
- Year 2 – 15 Chapters
- Year 3 – 14 Chapters
- Year 4 – 14 Chapters
- Year 5 – 14 Chapters
- Year 6 – 14 Chapters

Time Allocation

All Mathematics lessons should be approximately 60 minutes long, equating to 5 hours per week. Additional time may/will be allocated at the discretion of class teachers to ensure that the Maths - No Problem scheme is fully delivered over the year. During the Spring term, Year 6 increase their time allocation to allow for time to further develop children's arithmetic skills and preparations for end of key stage assessments.

There should also be time in other subjects for pupils to develop and apply their mathematical skills e.g., in Science, DT and Geography. Graphing and data handling activities in these subjects promote interactive mathematical discussions.

Multiplication Tables ('Times Tables')

Developing fluency in number is a key focus during our maths lessons which is incorporated into the daily MNP lesson. As children work their way through the academy, they begin to work on learning their times tables as stated in the National Curriculum:

- Year 2: recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables
- Year 3: recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- Year 4: recall multiplication and division facts for multiplication tables up to 12x12

Within lessons, time is spent building children's knowledge of the times tables by looking at the patterns to develop fluency. In Key Stage 1, using concrete materials is a starting point to visually see the patterns of the times tables.

Throughout Key Stage 2, children are engaged in a range of times tables games and activities (including homework tasks) to support the learning of the multiplication and division facts. TTRockstars is used to develop fluency and recall, teachers can personalise the multiplication tables to suit the needs of the learners within their class. Children enjoy 'playing' in the different arenas, rock slamming classmates and testing their skills in the soundcheck area. TTRockstars is a fun and engaging way for children to develop fluency with their times tables. Across the spring term, we have mini battles across year groups before our annual Summer Term Competition which continues to engage the children to sharpen their skills.

TTRockstars gives the children a great starting point for Year 4 when they are required to complete the MTC (Multiplication Tables Check) at the end of the year. At Lisle, TTRockstars is used by Year 4 with greater regularity during the Spring and Summer terms. Children can access the different areas to play and then use the SoundCheck area as a baseline for the MTC as it is set out in a comparable way. Throughout May and June, Year 4 pupils have access to the DFE (Department for Education) 'Try it Out' section so that they can familiarise themselves with the official format of the MTC before undertaking the official check in June. Additional access arrangements are made as needed for children who require support to access the online MTC. Once complete, children receive a score out of 25 for the online check.

Journaling

As part of the children's learning journey, journaling is used to support and develop mathematic understanding at various stages in the lesson. Journaling tasks should be meaningful and carefully planned for. Over the course of each chapter, children should be given the opportunity to undertake the different forms of journaling:

- **Descriptive journaling:** provides opportunities to describe the methods used. 'Can you write a set of instructions for a friend so that they can solve this problem?'
- **Evaluative journaling:** provides opportunities for children to make and justify their choices. 'Why did you choose those methods? How were they helpful?'
- **Creative journaling:** provides opportunities for children to develop their own methods/stories. 'Can you write a story to go with this problem. Can you invent a new method?'
- **Investigative journaling:** provides opportunities for children to record their findings after exploring a problem. 'Did you see any patterns? What helped you in this investigation?'
- **Formative journaling:** provides opportunities for children to show what they have learnt/understood. 'Choose a question you feel shows what you have learnt. How did you solve question X? Which of these questions did you find tricky and why?'

The Foundation Stage also uses Maths No problem to plan maths opportunities for our children and to ensure progression throughout the school.

We incorporate the principles of Maths No problem by the early exploration of equipment within our continuous and enhanced provision. We believe child-initiated play helps to embed taught concepts and ideas throughout the week. High quality adult interactions support with this also. We complete the Maths No Problem Journal activities in small, adult directed groups or 1:1 dependant on the needs of the children. It is our aim to cater for all learning types and ensure that early conceptual variation is explored which will lead to greater efficiency in concrete, pictorial and abstract thinking, models and procedures. It is our belief that all children have potential to meet a mastery level in the Early Learning Goals in Number and Numerical Patterns.

4. Impact

All children will be enthusiastic mathematicians who are numerate, fluent, and able to use and apply mathematical thinking and skills in everyday life, with confidence. They will be able to use reasoning skills to solve complex mathematical problems within mathematics and other areas of the curriculum. Ultimately, they will be well prepared for the secondary school curriculum.

5. Maths Environment

The aspects of mathematics teaching which should be evident in every classroom within the academy:

- A positive attitude toward and sense of excitement about mathematics.
- Children learn through active enquiry and experiment using concrete materials, represent their mathematical ideas through images and follow a clear progression toward recording abstractly.
- Children learn to use multiple representations.
- Mathematical skills are practised and applied across the curriculum.
- A mathematically rich environment supports learning.
- Communication, using precise mathematical language is supported.
- Independence is encouraged, access to a class marking station gives children ownership of their learning.
- Fluency and flexibility feature strongly in every lesson.
- Adults use skilful questioning to reveal, probe and address misconceptions.

6. Special Educational Needs / Gifted and Talented

The Maths - No Problem scheme is an inclusive scheme which allows and encourages all learners to work together at the same core task. Teachers' planning should clearly show the provisions they have in place for struggling/more advanced learners in each session however these children will differ on a day-to-day basis. Teachers and classroom support staff use AfL throughout every session to ensure that the needs of all learners are met. Where needed, additional/alternative maths activities are planned for to meet the specific needs of identified children within some classes.

Differentiation to meet individual needs of children will be achieved through:

- Using the correct maths vocabulary and sentence stems, tailoring vocabulary to the needs of particular children as needed
- Exploration of different methods by using a range of equipment and methods
- Using targeted questions throughout the 'Explore task'
- Presupposing the mistakes that children might make
- Focused support of identified pupils during Guided Practice tasks
- Open ended questions being used to encourage all learners to take an active role in the lesson at their own level.
- Posing challenges that all children can engage in but not all will answer using the same method.
- Giving children ownership and choice; they can choose the mastery activity to show their deeper understanding.

Planning for pupils with identified special educational needs must take account of the type and extent of the difficulty experienced by the pupil as identified in their Pupil Passports. In many cases, the action necessary to cater for these needs will be met through greater differentiation of tasks and materials.

In Key Stage 2, Mathsteasers books can be used to supplement learning for those children who are working at a deeper level of mastery maths. The Mathsteasers learning opportunities will keep advanced learners engaged by encouraging deep mathematical thinking rather than simply accelerating through topics.

7. Assessment and Recording

Assessment for Learning is integral to the delivery of the Maths No Problem scheme of work. At all stages of the lesson children's understanding of maths is being assessed and challenged to ensure that their learning needs are being catered for. Learning within each unit is developed over the course of lessons within a chapter and then a Review is completed at the end of each chapter of learning. The completed review gives a clear assessment of what each developing knowledge the children have acquired. Teachers look closely at the completed reviews and tailor future planning to review/revisit areas of learning which have become apparent during the marking of the reviews. Additional maths starter sessions are then planned into the forthcoming weeks to address the needs which have arisen.

Throughout the Maths No Problem scheme there are also Revision activities to assess children's understanding of up to four chapters of work. Once again, these are marked and reviewed in the same way by the class/maths teacher. Additional

Mid-Year and End of Year Reviews are also used. Summative assessment using PUMA tests is used at the end of each academic term, the raw score for each test is converted into a standardised score to give a clear picture of progress and achievement. This is coupled with termly PITA (Point in Time Assessments) judging a child's termly attainment. These assessments are tracked on the academy assessment system -Tracker+. In addition, the academy will closely monitor fluency by monitoring termly arithmetic test scores.

8. Resources

All classrooms are fully equipped with a range of maths equipment to ensure that all learners have access to equipment to support their learning. All children are actively encouraged to engage in 'hands on' maths to develop their mathematical understanding by developing their knowledge through the CPA (Concrete, Pictorial, Abstract) approach.