Mathematics Policy

Leasingham St. Andrew's Church of England Primary School

'Everything you do, do in love'

Reviewed and updated: February 2025

Next review: February 2028

1). Rationale and Principles

The school aims to provide opportunities for the children to develop an interest in numbers, shapes, patterns, quantity, and their overall mathematical skills.

We want to develop curious mathematicians who can spot patterns, make connections, whilst also be able to express their justifications. Therefore, we aim to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning. The three aims of the National Curriculum (fluency, reasoning and problem solving) are addressed during every mathematics lesson. We believe that our approach to teaching mathematics will enhance understanding, enjoyment and achievement for every child. This policy aims to outline the purpose, nature and management of the mathematics taught in our school.

Through the teaching of mathematics, we aim to reflect and live-out the vision of Leasingham St. Andrew's Church of England Primary School.

Everything you do, do in love'

At St Andrew's, we seek to be a safe and happy environment, inspiring our school family to be positive participants in the world community. A place where we are all encouraged, through love and service, to be the very best.

John 13:34 'Love one another, as I have loved you'

We aim to demonstrate the following 'golden threads' through the subject of mathematics.

- High aspirations permeate across the school.
- The school offers a host of cultural experiences and enrichment opportunities.
- Our children develop a love of life-long reading.
- British Values are an intrinsic part of the school.

2). Intent

At St Andrew's, we aim to provide a high-quality mathematics education with a mastery approach so that all children:

· become fluent in the fundamentals of mathematics;

· reason mathematically;

· can solve problems by applying their mathematics.

(National Curriculum 2014)

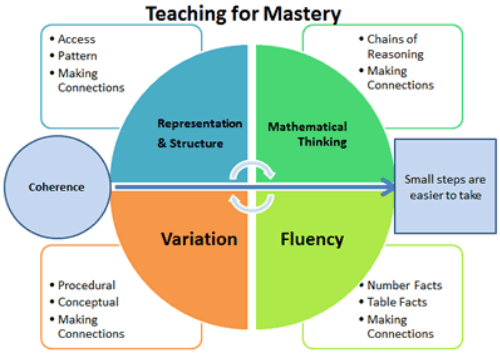
These three aims of the National Curriculum are embedded within each Maths lesson. We want all children to enjoy mathematics and experience success in the subject whilst also developing their curiosity about the subject. Therefore, as outlined in our policy documentation, we aim to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning.

It is vital for us that we foster a positive can-do attitude amongst all children and we actively promote the fact that we can all do maths! We believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts through manageable small steps in learning. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated problems.

We recognise that mathematics is essential to everyday life. Our mathematics curriculum aims to equip all children in becoming successful adults. We are committed to ensuring all children 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.

3). Implementation

To ensure consistency and progression for all children as they move through the school, we use the DfE approved scheme 'Maths No Problem' to support the delivery of mathematics across the school. We wholeheartedly believe that this method will provide a consistent approach to teaching maths across our school as it is underpinned by a methodical curriculum design that spirals and builds upon prior learning. Crucially, ideas are revisited at higher levels as the curriculum spirals through the years. Rather than fidelity to the scheme, our teaching is committed to the principles of mastery. We use The Five Big Ideas of Mastery as our vehicle to promote a deep understanding for all our learners.



Key features of our implementation include:

· Teachers reinforce an expectation that all children are capable of achieving high standards in mathematics.

· 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.

· Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.

· Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.

· 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.

4). Impact

We believe that our approach to teaching maths will enhance understanding, enjoyment and achievement for every child. We want all our children to become confident learners and experience both success and challenge. It is hoped all children will feel empowered to aim high, challenge themselves and strive to be the best they can be. Through experiencing an appropriate level of challenge, we want children to develop a positive attitude to challenging mathematical situations and therefore develop their resilience. They will develop a can-do attitude and understand the value in learning from set-backs and mistakes.

Furthermore, we promote children's independence skills through the use of them selecting the appropriate methods and equipment. Children are exposed to a range of mathematical apparatus throughout the whole school so it is valued as a tool to support learning and problem solving.

We have high expectations of the children to be able to verbalise their mathematical thinking. Through the use of mastery partners, we aim to promote the skills of collaboration and effective communication. The consistent teaching and reinforcement of key vocabulary by teachers and the use of stem sentences, give all children the tools to explain their learning. Consequently, by having a partner, children have the opportunity to explain their own mathematical thinking and apply reasoning, enhancing their overall speaking and listening skills.

By the end of Key Stage 2 we aim for children to be fluent in the fundamentals of mathematics with a conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. They should have the skills to solve problems by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and to real-life scenarios.

5). Role of the Subject Leader

At Leasingham St Andrew's Church of England Primary School, the role of the mathematics subject leader is to ensure that children make sufficient progress through each year group, acquiring and applying key knowledge. This will be achieved by:

- Securing high quality teaching.
- Ensuring that planning meets the requirements of the school's agreed curriculum.
- Monitoring the effective use of resources.
- Having oversight of curriculum coverage and ensuring that the curriculum meets national requirements.
- Developing assessment and record keeping, ensuring progression and continuity.
- Ensuring that colleagues are aware of expectations and supporting them in teaching the subject through the progressive and sequenced curriculum map.
- Action planning for future development.
- Ensuring that appropriate resources are in place to deliver a rich and challenging curriculum.
- Monitoring the effectiveness of teaching and the impact on learning and standards.
- Evaluating and summarising all aspects of the subject to define next steps for improvement.
- Keeping abreast of development in subject education and media usage.

6). Assessment

At Leasingham St. Andrew's Church of England Primary School, we assess the children's work in mathematics by making informal judgements (Formative assessment) as we observe the children during lessons. At the end of each long term (Autumn, Spring and Summer), teachers will make a judgment as to whether each child is on track for end of year expectations, as outlined in the mathematics curriculum map. This is recorded on the school's online assessment system, Insight. Judgements are as follows:

- Below
- Just Below
- On Track
- Greater Depth

NFER/SATs Assessments (Y1-Y6) are administered three times a year (summative assessment), in line with the whole school assessment calendar. The results of these are used to inform teacher judgements on attainment and progress whilst also highlighting strengths and areas to develop. Due to the nature of observations in EYFS, the children are continually monitored and assessed, with the adults able to provide ad hoc interventions to address misconceptions as they arrive. Children who are assessed as emerging in their age-appropriate development stage, are given bespoke interventions to insure they can achieve their targets, whilst still being exposed to the mathematical content being taught. Data is also analysed by the Assessment and Mathematics Leads in order to look at whole school trends and to identify target children. These children are tracked and monitored to ensure that they are accessing rapid interventions in order support their learning needs and continue to make progress.

Jotters and workbooks (Y1-Y5) are used across the school, where appropriate, to act as an aid for children to record their thinking. This may include, photos of work with concrete equipment, pictorial representations or abstract work. The children may also be required to write written responses to explain their thoughts and show their mathematical thinking. The jotter will act as a useful point of reference for children to refer to as it is their way of recording their learning.

7). Mathematics and ICT

At Leasingham St. Andrew's Church of England Primary School, ICT plays an integral part in the teaching and learning of mathematics. Clear links to ICT are made in planning and every opportunity to explore links with ICT are used.

8). Early Years Foundation Stage (EYFS)

Use of concrete apparatus will be embedded in the EYFS where children will experience learning in maths. As stated earlier WHITE ROSE and NCETM form a major part of the support in planning for deep learning in mathematics and the use of the NUMBERBLOCKS as a huge area to develop number sense, number concepts and pattern spotting. As the pupils progress through, more focus is placed on representing their mathematical knowledge through more formal experiences. Pupils will be encouraged to record their mathematical thinking when ready and this will increase throughout the year. Mastery of mathematics in the Early Years will mostly be evident when the pupils initiate their mathematics both independently and successfully.

- Children will use their maths consistently and without overt adult support when they are secure with a concept.
- Direct teaching could be with whole class or smaller groups and will be adult led and successful learning should be observed and assessed independent of this.
- The mastery approach to mathematics also embraces the Characteristics of Effective Learning as stated in Development Matters document.
- Children should apply their mathematics into a variety of contexts and play situations to make connections.
- Children should use an appropriate and relevant vocabulary and should be actively encouraged to discuss their maths and reason mathematically.
- Children should use well-chosen concrete, pictorial and iconic representations.
- They should recognise and be encouraged to use abstract symbols alongside less formal jottings and recordings.

9). Differentiation including catering for children with Special Educational Needs

Differentiation will be seen by pupils working on differing complexities of problems within the same objective, called 'Intelligent Practice'. 'Rapid graspers' will have challenging problems to solve to ensure that they continue to make progress. There will be some pupils who are using practical equipment for longer in order to support learning. While our aim is that the gap between mathematical attainments in our classes is closed, we accept that in some Key Stage 2 classes there is already a large gap in the attainment of groups of pupils. There will, therefore be a need to give some pupils in these year groups separate mathematical activities.

Those who are not sufficiently fluent with earlier material will consolidate their understanding, including through additional practice, before moving on. This may be through support during the guided practice or out with of the maths lesson. As new learning is built upon previous understanding, so in order for learning to progress and to keep the class together pupils need to be supported to keep up and areas of difficulty must be dealt with as and when they occur. Ideally this would happen on the same day but this is not always possible so it may be the following morning but will be before new learning is introduced.

Pupils who grasp concepts rapidly (Rapid Graspers) will be challenged through being offered rich and sophisticated problems before any acceleration through new content. Teachers use a variety of resources to ensure appropriate challenges that link to the lesson objective, including NCETM Mastery materials, NRich, White Rose and MNP Teasers.

Teachers are aware of the SEND pupils in their class and their specific Mathematical needs. Where appropriate, pupils may be supported through the use of additional adults and different resources. Pupil passport and EHCP targets will inform teachers decisions regarding appropriate support and intervention for these pupils. For children with specific learning needs, their Maths learning will be in line with the guidance set out in their personalised EHCP.

10). Equal Opportunities

At Leasingham St. Andrew's Church of England Primary School, all children will be given equal access to mathematics irrespective of race, gender and creed, level of ability or nationality. Mutual respect and tolerance for all cultures will be promoted through the study of mathematics.

11). Resources

At Leasingham St. Andrew's Church of England Primary School, Since September 2016, we have used the Maths No Problem Scheme in Y1-Y5, White Rose (EYFS) and Y6 follow their own curriculum design to support our delivery of the National Curriculum objectives. We wholeheartedly believe that this method will provide a consistent approach to teaching maths across our school as it is underpinned by a methodical curriculum design that spirals and builds upon prior learning. Crucially, ideas are revisited at higher levels as the curriculum spirals through the years.

The Appendix (Teaching and Learning of Mathematics at St. Andrew's) sets out the approach to teaching maths at our school and how we support all children to make progress and achieve their potential.

Resources are audited regularly and reviewed through discussion with teachers.

12). Monitoring and Evaluation

To monitor and evaluate mathematics, the subject leader:

- Supports teachers via explaining the progressive curriculum map, discussing the key concepts in mathematics, co-planning, team teaching, observing and giving feedback.
- Monitors teachers' medium-term planning against the progression contained in the curriculum map.
- Reviews resource provision.
- Works co-operatively with the SENDCo
- Reviews the progress with implementing this policy in the school with the Headteacher and/or subject governor.
- Holds pupil progress meetings with the class teacher to monitor and evaluate progress and attainment and discuss next steps for specific children/groups of children.
- The Maths Leader, alongside the SLT, are responsible for having an overview of standards. This information can be gained in a number of ways – book sampling, pupil

interviews, planning scrutiny, monitoring displays and visiting lessons. Information gained is collated by the subject leaders and used to highlight areas of strength and weakness. Appropriate action is then taken depending upon the outcome.

The school's governor monitoring programme includes monitoring of individual subjects by governors, to support and challenge the subject leaders.

13). Disability and Equality Statement

This policy has been written with reference to and in consideration of the school's Disability Equality Scheme. Assessment will include consideration of issues identified by the involvement of disabled children, staff and parents and any information the school holds on disabled children, staff and parents.

Any questions or concerns regarding this policy should be made to the Headteacher.

Appendix

14) Teaching and Learning of Mathematics at St. Andrews

At St. Andrew's Leasingham we will judge the success of our mathematical teaching by using data analysis, book and planning scrutiny, observations, teacher's self- evaluation, regular use of formative and summative assessment results. In addition, the motivation and interest displayed by our pupils is very important and this will be used as a measure. You will typically see the following features to mathematics learning:

Teaching for Mastery

We believe that teaching for mastery in mathematics is a term directly associated with quality first teaching. It is one of the techniques we use to impact on children's learning. We believe that Teaching for Mastery is supporting the children in acquiring a deep, long term, secure and adaptable understanding of any subject.

- The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and thorough 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.
- Practise 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 carry out ongoing AFL (assessment for learning) of pupils regularly to identify those requiring intervention, so that all pupils keep up.
- Teachers use the CPA approach (concrete, pictorial, abstract) to ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understandings are developed simultaneously.

- Pupils are seated according to the professional judgement of the class teacher. This may be a specific ability group working together, mixed ability groups/ pairs. This will be in the belief that all pupils can attain highly in mathematics and every pupil will have different strengths and development areas. Therefore groupings within classes are flexible and pupils will work in different groups dependent on their need.

Planning

- ***Whole class together*** – we teach Maths to whole classes. In line with the expectations of the National Curriculum, we believe that all children, where possible, should be exposed to the same curriculum content at the same pace and therefore allowing them full access. We believe that this will help to develop both a deep understanding and secure fluency of key mathematical concepts. At the planning stage, teachers consider the scaffolding that may be required for children struggling to grasp concepts in the lesson and suitable challenge questions for those who may grasp the concepts rapidly.
- **Longer but deeper -** topics are taught in units of work that focus on key concepts and allow for children to gain a deep understanding. Supported by Maths No Problem, lessons and resources are crafted carefully to foster deep conceptual and procedural knowledge. Decisions about when to progress will always be based on the security of pupils' understanding and their readiness to move onto the next stage. Therefore, where appropriate, teachers supplement Maths No Problem lessons with our own carefully crafted lessons to allow the children to learn the content more deeply. Learning is focused on one key conceptual idea and the steps in learning small in order to allow connections to be made. In turn, this will give an opportunity for every children to maste a concept and allow some children to be challenged deeper, through applying their skills to greater depth tasks.
- **Key learning points –** these are identified by teachers during planning and ensure they are drawing attention to the key mathematical concept. The use of stem sentences aid children's ability to talk about maths confidently and provide scaffolding for children who need support to explain their thinking.
- **Questions –** teacher questioning is key to ensuring that all children are challenged at an appropriate level and that children's understanding or misconceptions can be addressed immediately. Open questioning will probe pupil understanding throughout, taking some children's learning deeper. We insist on children responding using the precise

mathematical vocabulary. This is supported through their work with a mastery partner where they are required to explain their mathematical thinking throughout the lesson.

Key Features of a Lesson

Following the Maths No Problem approach across Year 1-5, we aim for children to receive a consistent approach to maths every day. Each lesson is divided into 4 distinct parts; an anchor task, let's learn, guided practice and independent work.

- **Explore/Anchor task -** an introductory activity for pupils that relates to the lesson objective. It may be a question or problem, but it allows the children to think with their maths partner (or as a class in some KS1 classes)about methods they have previously been taught which they could apply to help them solve this task. and appropriate of methods. After this, appropriate methods are modelled and reinforced by the teacher. Here misconceptions are often planned for, exposed and therefore addressed.
- **Let's Learn –** learning linked to the in-focus task is explained and demonstrated by the class teacher. This puts new learning into a context.
- **Guided practice -** gives the children time to consolidate what they have just learnt before moving on to the independent task. It also allows for immediate evaluation of the pupils learning and understanding. During this time, teachers will identify those pupils needing further assistance and then support appropriately.
- **Independent Workbook -** when ready, children work independently in workbooks (in KS1 this is supported accordingly). Tasks and activities are designed to be easy for pupils to enter while still containing challenging components. For advanced learners, the textbooks also contain non-routine questions for pupils to develop their higher-order thinking skills.

Using Manipulatives

Carefully chosen practical resources and pictorial representations are used to explore concepts. We believe it is important that key concepts are introduced using a variety of concrete, pictorial and abstract representations. It is also crucial that throughout the lesson, children will see all representations alongside one another to help expose the different underlying structure of mathematics. Rather than seeing the C-P-A approach as separate stages of

learning, we believe it is important that children go back and forth between them to help support their learning and deepen their understanding of a concept.

Equipment is available during all maths lessons (and at all stages of the lesson) and children are actively encouraged to utilise this. As they move further through the school, some children may independently pick their choice of equipment, however when learning new concepts this equipment may be selected by the teacher

Questions to challenge thinking

To challenge thinking, teachers use questioning throughout every lesson to check understanding – a variety of questions are used, but you will hear the same ones being repeated: How do you know? Can you prove it? Are you sure? Can you represent it another way? What's the value? What's the same/different about? Can you explain that? What does your partner think? Can you imagine?

Discussion and *feedback*

Depth of understanding is developed through pupils' being able to **communicate** using the correct mathematical language. We ask pupils to explain, justify and prove their ideas so that they are deepening their understanding of a concept. The use of a mastery partner is therefore crucial to our lesson design.

Mental Fluency

'True' fluency can be best defined as 'children being able to confidently use and apply their knowledge of number relationship, number facts and our number system in order to calculate and solve problems.' In order for this to occur, we believe it is vital to provide our children with plenty of opportunities to use, apply and recall their number knowledge.

Mental strategies are the foundations for most of the areas of mathematics that use numbers, particularly formal written methods. Without efficient mental strategies, children can often struggle to quickly and fluently calculate. Therefore, we teach daily mental fluency sessions to supplement our maths lessons. We firmly believe that improving the fluency of our pupils will allow them to become more efficient mathematicians; equipping them to confidently use their skills for reasoning and problem solving.

For pupils in KS1, our aim is for all children to develop automaticity in number facts and a deep conceptual understanding of number relationships (number sense) in distinct ways:

- Continuous provision
- Use of subitising
- Use of games
- Early Number Sense resources (ISeeMaths)
- Beginning to engage with Mastering Number KS1
- Use of TTRockstars (towards Spring Term)

For pupils in KS2, our fluency sessions follow four distinct phases:

- Number of the day.
- Rapid Recall.
- Arithmetic.
- Application.
- Use of TTRockstars and other online recall site.
- 'Round Robin' activities focusing on KIRFs of the week.