St Laurence Church Infant School

Mathematics Policy

Approved by:	Curriculum, Safeguarding and Pupil Welfare Committee
Last revised on:	June 2023
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Love for learning, life and one another.

As a Rights Respecting School our Mathematics curriculum enables our children as rights holders to learn how to express their views and to have their views considered and taken seriously, as well as promoting happy, successful learners and responsible citizens of the future. Our Maths curriculum aims to develop every child's ability to the full.

Our children told us:

"I love Maths because we get to learn big numbers, like 89, 96 and 100. We also learn to count in different ways and in Year Two we will do our times tables."

"Sometimes Maths is easy but sometimes it can be tricky. When it's tricky, that's ok because then you are learning something new."

"We have things in the classroom to help us with our Maths – counters, number lines, number grids and tens frames. We can get them when we need them which is good."

"Maths is important because you need to know about numbers and money when you're older."

"I love Maths. It's the part of the day that I like best."

The 2014 National Curriculum aims to ensure that all 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.*

"Mastery of mathematics is not a fixed state but a continuum. At each stage of learning, pupils should acquire and demonstrate sufficient grasp of the mathematics relevant to their year group, so that their learning is sustainable over time and can be built upon in subsequent years. This requires development of depth through looking at concepts in detail using a variety of representations and contexts and committing key facts, such as number bonds and times tables, to memory."
Maths Hub/NCETM/Oxford Owl 2015

Intent

At St Laurence Church Infant School, the intention for our Mathematics curriculum is that all pupils enjoy and feel enthused about mathematics, which will foster future awareness and fascination. We want pupils to view themselves as confident, able mathematicians who have fluency in mathematical knowledge, concepts, and skills, so they can calculate, reason and problem solve. Mathematics teaches us how to make sense of the world around us. Therefore, we aim to ensure that our pupils develop the ability to use and apply mathematics across the curriculum and in real-life scenarios, to see its purpose for everyday life and the work they may want to do in the future. By the time pupils leave St Laurence Church Infant School they will have developed the ability to solve problems by applying their skills to a variety of routine and non-routine problems and to reason by thinking logically and working systematically and accurately. Our pupils learn to reason mathematically and explain relationships using specific, related mathematical language. We truly believe that every child is a mathematician and encourage them to realise that it is not a case of they can't do it, but that they can't do it **yet!** Our pupils work independently as well as cooperating with others to understand mathematics through a process of enquiry and experimentation. All staff work with pupils to improve outcomes in mathematics through quality first teaching, intervention, and support groups. We want to encourage a positive attitude and an enjoyment of mathematics, as well as develop each child's mathematical potential in terms of mathematical awareness, skills, knowledge and understanding.

Our Mathematics Curriculum is designed to develop five core characteristics in our pupils, which we believe will lay the foundations for them to be lifelong learners and good global citizens. These drivers are:

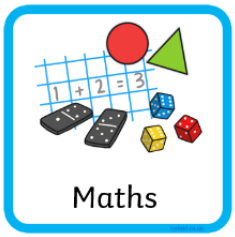
Our aims in teaching Mathematics at St Laurence Church Infant School help all children to...

- **Feel part of a Community** by:
  - Working together
  - Experiencing success and failure
  - Sharing different methods and strategies
  - Caring for shared resources
- **Be Creative** by:
  - Using concrete resources and pictorial representations
  - Solving a range of creative challenges
  - Investigating
- **Develop Curiosity** by:
  - Fostering enjoyment
  - Trying new methods of working and identifying patterns
- **Communicate confidently** by:
  - Giving and interpreting verbal and non-verbal cues when working with partners and in a group
  - Developing effective spoken and written language skills when reasoning
  - Developing their interpersonal skills with others
  - Evaluating their own and other's work
  - Developing physically, mentally, socially and spiritually
  - Building resilience

- Respecting the views of others

Implementation

Staff use the visual timetable icon on their daily timetables whenever maths is being taught, and pupils sing the Maths Jingle at the start of each lesson to ensure they can articulate what Maths is all about.



Maths Jingle: (Sung to the tune of Baa Baa Black Sheep)

Maths is great fun, we use it every day,
Counting with numbers in lots of different ways,
Spotting different patterns,
Recognising shapes,
Working out length & height with measuring tapes.
Maths is great fun, we use it every day,
Recognising notes & coins so we can learn to pay.

Maths is great fun, we use it every day,
Making lots of numbers in many different ways,
Solving tricky problems,
Telling the time,
Calculating numbers on a number line.
Maths is great fun, we use it every day,
Multiplying & dividing using an array.

How we plan Mathematics

Our curriculum incorporates the coverage of the statutory outcomes outlined in the Early Years Foundation Stage and KS1 Mathematics Programme of Study – National Curriculum 2014. Our planning is based on the White Rose Maths Schemes of Learning to guarantee consistency, coherence, and progression throughout the EYFS and KS1. If necessary, the White Rose schemes of learning are adapted to suit the needs of our specific children. In addition, staff refer to other materials to support short-term planning. These are used across EYFS and KS1 allowing children to be exposed to a variety of different types of learning and problems to solve. Teachers also implement our schools' agreed Calculation Policy and Concrete, Pictorial and Abstract approach. To learn mathematics effectively, some things have to be learned before others and this order of small step learning is factored into our planning (e.g. place value needs to be understood before working with addition). Planning is carried out during our weekly PPA meetings, and we use our own grids to show the teaching & learning for each lesson. In addition, each White Rose small step has a lesson plan that outlines key questions, common misconceptions, important vocabulary, and sentence stems, that can be downloaded to support staff. We plan carefully using ongoing assessment opportunities, to ensure high expectations, consistent approaches, and good progression throughout our school. If pupils have not grasped a concept, there is flexibility within our planning to repeat, consolidate or embed learning before moving on.
Further details can be found in the appropriate Schemes of Work, calculation policy and Curriculum Maps.

How we teach Mathematics

We develop Mathematical skills effectively by using a concrete, pictorial, abstract approach, where pupils can use concrete objects to help them understand what they are doing. They use pictorial representations to help them reason and solve problems which leads to an understanding of more abstract and mental methods. Reasoning and problem solving are woven throughout every lesson and challenges are provided for fast finishers. At the start of each lesson, Flashback 4 questions are used

to enable children to 'know more and remember more'. Pupils are taught mathematics 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.

How we teach Mathematics in EYFS

Mathematics is one of the seven areas of learning within the Early Years Foundation Stage Curriculum. There is a focus on learning through play for children at this stage of their education. Therefore, practical, hands-on mathematical activities will be available in dedicated areas in both the inside and outside environments. These will be changed regularly, as topic areas change, to keep pupils engaged, and allow them to explore concepts introduced in adult-led activities. Time is built in daily for short adult focussed inputs which can be whole class or smaller groups. This does not have to be formal and can include number songs and games, for example. Children are given regular opportunities to practise their counting and subitising skills and revisit prior learning during their fact fluency sessions. Staff also provide incidental learning opportunities through the quality interactions with children, for example, encouraging children to count aloud during their play or sorting objects and then explaining their reasoning. Teachers know their children very well and look for teachable moments. The use of objective led planners can support this.

How we teach Mathematics in Key Stage One

The principal focus of mathematics teaching in Key Stage 1 is to ensure pupils develop confidence and mental fluency. It is essential that all pupils have a deep understanding so that future learning continues to build on solid foundations. Pupils take part in an explicit Maths lesson every day, as well as a fact fluency session, to develop their quick recall of number facts. A typical lesson starts with whole class teaching of the learning objective, using structured 'walk thru' methods. Children then complete set activities to show their learning through either group, paired or independent work. Plenaries happen at different stages of the lesson to address misconceptions, give assessment opportunities, reinforce the learning objective or to move the learning forward. Pupils can be organised into either mixed ability or ability groups, which remain fluid, allowing children to access learning with an appropriate level of challenge. Other subjects may have strong links to some maths topics allowing cross-curricular teaching. For example, shape through art, statistics through computing and measures through science.

Impact

Assessment

Each pupil can progress at a rate suitable to his or her own experience, ability, and stage of development. Pupils are continually being assessed, by questioning, marking, observation and teacher pupil conversations. This ongoing teacher assessment can be recorded on our annotated planning, on objective led planners and on our data tracking system. Objective led planners can be used during lessons to inform teachers with their ongoing assessment. These are particularly useful during more practical concepts. Progress in the Early Years Foundation Stage is assessed against the developmental bands and, at the end of the year, the Early Learning Goals.

In Key Stage 1, progress is assessed against key objectives from the National Curriculum content. White Rose fluency and reasoning assessments may be completed at teacher's discretion at the end of units as an aide to pitch future learning. At the end of Year 2 teachers use the National Curriculum and Teacher Assessment Framework to make a teacher assessment judgement of each child. These teacher assessments are shared with the Junior School.

How we ensure all children access the Mathematics curriculum.

When planning mathematics, consideration is given to the children's varying levels of ability and through following the White Rose materials we are able to plan for mastery at all levels of ability. We use additional published materials e.g. Mathematical Challenges to provide suitable extension activities for more able children so that they can make further progress through challenges and investigations. Maths continuums are used to help plan smaller steps of progress for children on the SEND register.

A research based intervention, 1stclass@number, is delivered by a trained teaching assistant during Autumn and Spring Term to Year Two children and Year One children in the summer term. Other mathematics interventions such as the Power of 2 and Plus 1 may also be used.

We have our own Equal Opportunities Policy and are aware of the Birmingham Policy. We seek to ensure that no child is disadvantaged because of gender, language, background or race. Results are scrutinised to make sure that any group which appears to be disadvantaged receives help to remedy this.

Resources

To support the delivery of maths lessons to all pupils, the school has a large range of practical resources available. Each KS1 class should have a maths toolbox of resources available for children to access independently. These include basic resources such as number tracks, number lines, 100 squares, double-sided counters, tens frames, bead strings, part whole models, base 10, numicon etc. Staff are given a resource checklist at the start of each academic year to check that these are in place. Other specific resources (eg, balance scales, meter rulers, weighing scales, 3D shapes and clocks) are stored in either our maths central resource cupboard near the staffroom or the maths drawer unit in Classroom One. Resources are checked on a regular basis and staff are asked about their resource needs so that deficiencies can be remedied as far as financial constraints allow. There are also several applications to support mathematics using iPads, including Numberblocks, one minute maths and ICT games.

How we Monitor and Evaluate Mathematics

The Mathematics Co-ordinator, together with the Curriculum Leader, will maintain an overview of the mathematics teaching in the school to ensure effective implementation of the Mathematics Policy. The monitoring schedule includes:

- Scrutiny of planning
- Work scrutiny
- Assessment analysis
- Discussions with staff
- Discussions with children
- Lesson observations
- Learning walks
- Resource reviews

Date of policy: June 2023

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Mathematics Co-ordinator: Lorraine Sharp