



# Policy for Mathematics

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# St Luke's CE Maths Policy



## **INTRODUCTION**

At St Luke's CE Primary School, we value each and every child and the contribution they make to our school. Consequently, we aim to ensure that every child achieves their full potential and make good progress based on their different starting points in accordance with their ability.

The [National Curriculum 2014](#), outlines that:

*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.*

Mathematics is a key skill within school and a life skill to be utilised throughout our daily experiences. Mathematics equips pupils with a powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Therefore, we endeavour to develop a positive attitude towards mathematics that will improve children's confidence as they journey through their lives.

## **RATIONALE**

The [National Curriculum for Mathematics](#) (2014) describes in detail what pupils must learn in each year group. It ensures continuity, progression and high expectations for attainment in mathematics.

At St Luke's, we use the [National Curriculum for Mathematics](#) (2014) as the basis of our mathematics programme. This is supplemented by the [White Rose Scheme of Work](#) to ensure that all our pupils achieve mastery in the key concepts of mathematics, appropriate for their age group. We also pre-teach concepts to children who are at risk of falling behind in order to maximise progress and avoid gaps in children's understanding. Maths talk, assessment for learning (AfL), an emphasis on investigation and problem solving, the development of mathematical thinking and the development of teacher subject knowledge are therefore essential components of St Luke's approach to this subject.

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## AIMS AND OBJECTIVES

As we place our pupils at the centre of our curriculum, we have several hopes and aspirations for them as they progress through the Mathematics curriculum. Therefore, at St Luke's, our Maths curriculum aims to promote and develop the following attributes in all our pupils:

- a positive 'can do' attitude to mathematics as an interesting and attractive part of the curriculum;
- the ability to think clearly and logically, with confidence, flexibility and independence of thought;
- a deeper understanding of mathematics through a process of enquiry, experiment and investigation;
- an understanding of the connectivity of patterns and relationships within mathematics;
- the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become increasingly aware of the uses of mathematics in the wider world;
- the ability to use mathematics as a means of communicating ideas;
- an ability and inclination to work both alone and cooperatively when solving mathematical problems and to reason, think logically and work systematically and accurately;
- personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success;
- an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal;
- competence and confidence in mathematical knowledge, concepts and skills;
- have the building blocks in place and to provide a solid foundation to lead onto secondary, further and higher education;

This supports the aims of the [National Curriculum for Mathematics \(2014\)](#), which aspires for pupils to:

- *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.*

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Our main objectives, along with those from the [National Curriculum for Mathematics](#), are for our pupils to:

- have a well-developed sense of the size of a number and where it fits into the number system (place value);
- know by heart number facts such as number bonds, multiplication tables, doubles and halves;
- use what they know by heart and apply this knowledge to similar concepts and patterns in Maths (i.e. intelligent practice);
- calculate accurately and efficiently, both mentally and in writing on paper;
- draw on a range of calculation strategies;
- make sense of number problems, including non-routine, 'real' problems and identify the operations needed to solve them;
- explain their methods and reasoning, using correct mathematical terms;
- judge whether their answers are reasonable and have strategies for checking them where necessary;
- suggest suitable units for measuring and make sensible estimates of measurements;
- explain and make predictions from the numbers in graphs, diagrams, charts and tables;
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes;
- work with computers as a mathematical tool.

To provide adequate time for developing these aims and objectives, Mathematics is taught daily and discretely for at least 60 minutes in KS1 and KS2. Teachers of EYFS ensure the children learn through a mixture of adult led and child initiated activities, both inside and outside the classroom. In order to provide a breadth of experience with the use of Maths, the application of skills is linked across the curriculum where appropriate.

## **OUR TARGETS**

For the academic year 2019 – 2020, our teachers are aiming to exceed the government floor target of a minimum of 65% of pupils achieving their age related expectations in Maths. By the end of KS2, at least 65% of pupils should achieve the expected standards in English and Maths combined in the KS2 SATs. To support this, we expect at least 80% of our pupils to make good or outstanding progress from their own starting points, except those with exceptional circumstances (INA, SEN, etc.).

## **ASSESSING MATHS IN ST LUKE'S**

This section details the various assessment methods and practices used at St Luke's through which we ensure that all children make appropriate progress and that the activities they take part in are suitably matched to their ability and level of development.

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## ***FORMATIVE ASSESSMENT (AfL)***

Assessment is an integral and continuous part of the teaching and learning process at St Luke's and much of this is done informally as part of each teacher's day to day work. Teachers routinely integrate the use of formative assessment strategies such as: discussion, effective questioning, clear learning objectives, the use of success criteria, analysing errors and misconceptions, effective feedback and response in their teaching and marking as well as observing children participating in a variety of Maths related activities.

A record of each child's attainment against the key objectives from the [National Curriculum for Mathematics \(2014\)](#) is held on our school's tracker, key indicators of progress (KIPs). From this, teachers can assess each child's progress against the key objectives for their year group. Also, groups of children (i.e. EAL, disadvantaged, SEN, girls, boys, etc) can be tracked and monitored, so that interventions can be provided, where appropriate, to facilitate accelerated progress.

Findings from the different types of assessment are used to inform future planning and teaching to ensure that children can improve upon their misconceptions and misunderstanding in order to progress successfully through each unit of work. Therefore, planning begins from a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.

## ***MENTAL MATHS ASSESSMENT***

Each class from Y2 – Y6 undertake a weekly mental Maths test to ascertain and sharpen the children's key skills. With this, we hope for children to become more proficient in their mental calculations and be able to use and apply skills and strategies in different contexts quickly and with relative ease. Information on each child's performance is tracked and high focus groups are devised in order to help children to make progress.

To further help our pupils to develop confidence when using and applying key skills, they participate in Quick Maths sessions each day. Quick Maths lasts for a maximum of 10 minutes and gives pupils an opportunity to devise a variety of strategies that they can use to improve their basic skills.

## ***SUMMATIVE ASSESSMENT***

More formal methods are used to determine the levels of achievement of children at various times during the school year:

***Pre- and Post-Assessment:*** At the beginning of each unit of work, the children are assessed to determine their readiness for the forthcoming unit. The information from this is used for gap closing purposes and to enable teachers to plan and group children smartly in order to facilitate progress. Assessment is also carried out at the end of each unit to evaluate the progress that the children have made for that unit and to plan for children to consolidate and extend their learning in the future.

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**Assessment Weeks:** We use termly assessments as a way of recording children's progress in objectives covered across that specific term. This information is then inputted onto our school's internal tracker, which may be communicated to parents, both formally and informally, at various points throughout the year.

Termly assessments are carried out across the school using the [NFER](#) (Autumn 1, Spring 1 and Summer 1) assessment materials for each year group. The [NFER](#) tests are used alongside judgements from class work to form a teacher assessment for each child. These judgements are then fed into the whole school tracking system to be analysed by the assessment and numeracy coordinators for action.

**Statutory End of Key Stage Assessment:** The National Curriculum requires that each child is assessed in Y2 and Y6 against the required standards for their relevant curriculum (age related) to determine whether they have met the 'expected standard' for that curriculum. These tests are carried out at the end of KS1 (Year 2) and at the end of KS2 (Year 6), which is usually administered in May. We expect the majority of children will be working at the expected level for their age.

## EARLY YEARS FOUNDATION STAGE (EYFS)

We follow the EYFS curriculum guidance for Mathematics, [Development Matters in the Early Years Foundation Stage \(EYFS\)](#). Therefore, we are committed to ensuring the confident development of number sense, shape, space and measure and put tremendous emphasis on the mastery of key early concepts. Pupils explore the 'story' of numbers to ten and the development of models and images for numbers as a solid foundation for further progress. Based on practical and through 'play' activities, teachers observe and assess children regularly in accordance with the EYFS framework for assessment.

## MEETING THE NEEDS OF ALL OUR PUPILS

In St Luke's, we incorporate a variety of teaching and learning styles in each Mathematics lesson. All children from Y1 to Y6 are taught in differentiated groups. However, at times children may be required to work in mixed ability group because we believe that children learn best when they are able to express and share their understanding with others, including their peers. Concepts are often explored together to make mathematical relationships explicit and to strengthen pupils' understanding of the interconnectivity of mathematical concepts and ideas. Therefore, our teachers endeavour to:

- undertake a mastery approach, where differentiation occurs in the *support* and *intervention provided* to different pupils, not in the topics taught
- develop a 'can do' attitude in Maths, using the growth mindset approach
- pre-teach concepts to children who are at risk of falling behind or inviting them to precision teaching session in order to close gaps or accelerate learning
- provide same day intervention, where appropriate
- build children's confidence and self esteem

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- develop children's independence
- contextualise mathematics
- use practical approaches to mathematics (models and images)
- encourage children to select resources independently to help them in lessons
- challenge children of all abilities by ensuring that activities are appropriately matched to their level of ability and development through careful use of AfL strategies
- develop children's understanding of mathematical language
- encourage children to learn from teachers, peers and their own mistakes
- allow children to ask questions as well as answer them
- develop children's critical thinking skills through problem solving, reasoning and arguing and 'debating' contextual issues in Maths
- improve children's resilience and a desire to achieve their full potential
- enable children to apply their skills across the curriculum
- allow all children to participate in practical activities and mathematical games
- plan open and closed tasks, so that all pupils engage in the learning process

## **MONITORING AND REVIEW**

Monitoring of the standards of children's work and the quality of teaching in Mathematics is the responsibility of the Numeracy Coordinator alongside members of the senior leadership team. The monitoring of children's progress begins with pupil progress meetings, but continues with the subject leader evaluating further evidence to ensure children are making progress. This monitoring happens through lessons observations, learning walks, examination of work in books, pupil interviews, analysis of assessment results and the assessments used, and through other means depending on what information needs to be gleaned.

The work of the Numeracy Coordinator also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in St Luke's. Consequently, following monitoring activities, feedback is given to staff about how they can strengthen their practice and CPD (professional development) opportunities built in, when necessary. These might take the shape of inputs during staff meetings, coaching, mentoring or by a variety of other means.

Where specific initiatives have been put in place through action planning for school development, these are monitored by the subject leader in order to evaluate their impact. Findings are then reported to the headteacher and governors as part of the 'Subject Leader's Ongoing Report'. Opportunities for teachers to review the scheme of work, policy and published materials are also afforded during a variety of meetings.

## **INCLUSION IN MATHS**

We are committed to ensuring that all pupils and are able to access a broad, high quality curriculum and therefore we follow our accessibility policy. In order to meet the additional needs of individual SEND pupils at St Luke's, we tailor resources, organise the classroom environment and buy in further resources as and when the need arises.

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## ***SPECIAL EDUCATIONAL NEEDS and DISABILITY (SEND)***

The daily mathematics lessons are inclusive to pupils with SEND. Where required, children's IEPs incorporate suitable objectives from the [National Curriculum for Mathematics \(2014\)](#) or [Development Matters in the Early Years Foundation Stage \(EYFS\)](#) and teachers keep these objectives in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 or small group basis outside the Mathematics lesson. Pre-teaching, precision teaching and focused intervention programmes are available in school to help children with gaps in their learning and mathematical understanding. These are delivered on a 1:1 or small group basis by trained support staff and overseen by the class teacher.

Within the daily mathematics lesson, teachers must not only provide differentiated activities to support children with SEND, but also activities that provide appropriate challenges for children who are high achievers in mathematics. Good practice dictates that it is vital that all children are challenged at a level appropriate to their ability.

Within the [National Curriculum for Mathematics](#), children of all ages and abilities are catered for. Those with special mathematical needs will be provided with appropriate work at their own level of ability, which will facilitate an extended learning process. Having determined the child's needs, appropriate learning steps will be presented and achievement of these will promote good progress. Liaison will take place with the SENDCo if particular provision is required in an individual learning plan with reference to the new [SEN Code of Practice](#) as well as the [School's SEN Policy](#).

At the start of each academic year, teachers project expected progress for each child in their class. Assessments confirm the progress they have made each term towards their predicted targets. Children, who are not making expected progress, will be identified and provided with support in particularly weak areas to boost their learning.

## ***EQUAL OPPORTUNITIES***

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of mathematics. We ensure that all children are able to fulfil their potential regardless of race, religion, disability or gender. Therefore, it is important that:

- our expectations do not limit pupil's achievement.
- we set targets to meet the individual needs of each child and for them to be aware of the next steps in their learning.
- we aim to challenge and extend pupils to help them increase the need for independent thinking.
- we use a range of teaching and learning styles to ensure that all our children have the opportunity to gain mathematical knowledge and understanding regardless of age, gender, race, class, physical or intellectual ability.

[Click here for our Accessibility Policy](#)

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## PROMOTING SMSC AND BRITISH VALUES

We aim to promote SMSC and British Values across every aspect of our curriculum and throughout the wider school life. Therefore, we incorporate aspects of spiritual, moral, social and cultural attitude and an understanding of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs and for those without faith in our teaching of Mathematics, where appropriate.

[Click here for our SMSC Policy](#)

[Click here to find out more about British Values](#)

## OPPORTUNITIES FOR OUT OF SCHOOL LEARNING

It is our school policy to provide parents and carers with opportunities to work with their children at home. Activities may be brief (homework) or more long term (projects), but are valuable in promoting children's learning in Mathematics. Activities are sent home to children in Years 1 to 6 on a weekly basis as part of our home learning challenges. These can take the form of games, activities or quick written tasks as well as termly projects, which we encourage parents/carers to work through with their children.

To develop the children use of technology as a tool to facilitate their learning, each child has a [MyMaths](#) and [Times Table Rockstars](#) username and password. This allows teachers to set tasks for the children to complete both during and after school. These may also be revisited in the children's own time to review and consolidate their learning.

## REPORTING TO PARENTS/CARERS

Reports are completed before the end of the summer term and parents/carers are given an opportunity to formally discuss their child's progress at parents' evenings in the autumn and spring terms. Parents/carers can make an informal appointment to discuss their child's progress at any time over the school year. They are also encouraged and offered support and guidance to facilitate their children's learning of mathematics.

## SCHEMES USED AT ST LUKE'S

Mathematics is a core subject in the [National Curriculum](#) and we use the objectives from this to support planning and to assess children's progress.

### *LONG TERM PLANNING*

The [National Curriculum for Mathematics \(2014\)](#), [Development Matters in the Early Years Foundation Stage \(EYFS\)](#), the Early Learning Goals (Number, Shape Space & Measure) and the [White Rose Scheme](#) provide the long term planning for the Mathematics taught in

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school. From this, a detailed, structured curriculum is mapped out across all phases and year group, ensuring continuity and supporting transition.

### ***MEDIUM TERM PLANNING***

From Reception to Y6, we use [White Rose](#) as well as [Hamilton Trust](#) medium term plans. EYFS' planning is based on [Development Matters in the Early Years Foundation Stage \(EYFS\)](#) (Number, Shape Space & Measure). Teachers use their medium term plans to outline the areas of mathematics that will be taught during the term to ensure coverage of the [National Curriculum for Mathematics \(2014\)](#) and the [Development Matters in the Early Years Foundation Stage \(EYFS\)](#).

### ***SHORT TERM PLANNING***

Lessons are planned using a common planning format and are collected and monitored by either the headteacher, Mathematics subject leader or phase leader. EYFS planning is based on the medium term plans and delivered as appropriate to individual children with thought to where the children are currently and what steps they need to take next.

Within short term planning, clear success criteria for each learning objective taught are created – demonstrating the progression needed to reach and exceed the objective. This will enable the class teacher to follow a clear and systematic teaching sequence, where input and activities are differentiated by considering which parts of the success criteria individual children are ready for. Using the mastery approach, all children work on the same objective, but at their level and differentiation is achieved through support or resource, etc. Planning, where possible, will therefore involve real life contexts for maths, where children are problem solving with a purpose in mind. To ensure that mastery is achieved and as many children as possible reach greater depth, we have a strategy for [the teaching of Maths in St Luke's](#), which each teacher follows.

By using [the teaching of Maths in St Luke's](#) approach, effective mastery curricula in mathematics are designed in relatively small carefully sequenced steps, which must each be mastered before pupils move to the next stage. Fundamental skills and knowledge are secured first. This often entails focusing on curriculum content in considerable depth at early stages to build deep conceptual knowledge alongside developing procedural fluency. Herein, the focus is on the development of deep structural knowledge and the ability to make connections. Making connections in mathematics deepens knowledge of concepts and procedures, ensures what is learnt is sustained over time, and reduces the time required to assimilate and master later concepts and techniques.

## **SAFEGUARDING CHILDREN**

We promote the safeguarding and wellbeing of all children at all times throughout the curriculum. Our children are given opportunities to develop self-confidence and resilience; they are taught to challenge, question and make informed choices; and are given skills to resolve conflicts. Should any pupil make a disclosure, our staff are aware of the safeguarding policy and follow our safeguarding procedure.

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[Click here for our Safeguarding Policy](#)

## **POLICY REVIEW AND EVALUATION**

Evaluation of this policy will be ongoing and will be carried out through a variety of meetings, lesson observations and evaluations. Resources will be audited on a regular basis and proposals for new resources will be discussed with the headteacher and Numeracy Coordinator. Furthermore, this policy is reviewed and updated yearly by the Numeracy Coordinator.

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