St Giles' C of E Primary School

POLICY FOR MATHEMATICS

This policy has been reviewed to ensure the Rights of the Child are upheld. In 1989, governments across the world adopted the United Nations Convention on the Rights of the Child (UNCRC), recognising that all children have the right to be treated with dignity and fairness, to be protected, to develop to their full potential and to participate. The Convention sets out the civil, political, economic, social and cultural rights that everyone under 18 is entitled to. It says what countries must do to ensure that all children can enjoy their rights, regardless of who they are, or where they are from. The UN General Assembly adopted the Convention in 1989, and it was ratified by the UK in 1991. It is the most widely adopted international human rights treaty.

The Convention applies to every child without discrimination, whatever their ethnicity, gender, religion, language, abilities or any other status, whatever they think or say, whatever their family background (Article 2)

1. INTRODUCTION

Mathematics equips pupils with the uniquely 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.

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them to encourage economic wellbeing.

The National Curriculum 2014 order for mathematics describes what must be taught in each key stage. St Giles CE Primary School follows the Primary National Strategy Framework for Mathematics which provides detailed guidance for the implementation of the National Curriculum for mathematics. This ensures continuity and progression in the teaching of mathematics. In early years the curriculum is guided by the Early Years Foundation Stage curriculum. (Development Matters). Children in Reception follow a specific Mathematics programme 'Maths Makes Sense'.

This policy follows a whole school format and rationale.

2. RATIONALE

All school policies form a corporate, public and accountable statement of intent. As a primary school it is very important to create an agreed whole school approach of which staffs, children, parents, carers, governors and other agencies have a clear understanding. This policy is the formal statement of intent for mathematics. It reflects the essential part that mathematics plays in the education of our pupils. It is important that a positive attitude

towards mathematics is encouraged amongst all our pupils to foster self-confidence and a sense of achievement. The policy also facilitates how we, as a school, meet the legal requirements of recent Education Acts and National Curriculum Requirements.

3. SCOPE

This statement of policy relates to all pupils, staff, carers and governors of St Giles CE Primary School. The age of pupils from 3-11 must be acknowledged in the creation of policy and the development of the mathematics curriculum.

4. PRINCIPLES

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 in most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject.

Aims

St Giles' mathematics 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 have conceptual understanding and can recall and apply their knowledge rapidly and accurately to problems
- **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 programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make 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.

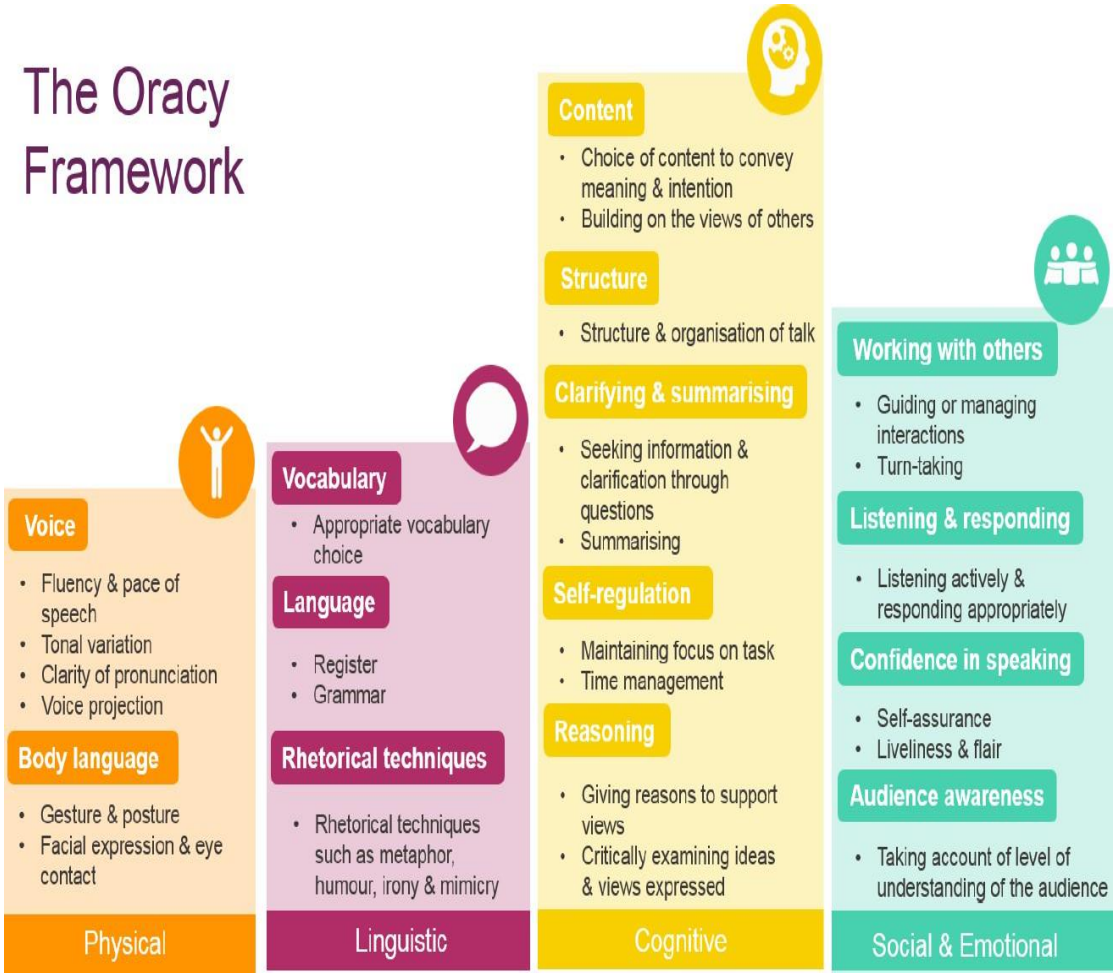
Information and communication technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of Key Stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers are to use their judgement about when ICT tools should be used.

Spoken language

The National Curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and

variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. This is underpinned by the school's Oracy Policy.



School curriculum

The programmes of study for mathematics are set out year-by-year for Key Stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate.

St Giles has a published curriculum set out on the website for mathematics on a year-by-year basis.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2 – Years 3-4

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 – Years 5-6

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of Year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

5.

5.1 General

Although relating specifically to mathematics our aims for the subject are also in line with the school's general aims.

We aim to provide the pupils with a mathematics curriculum, which will produce individuals who are literate, numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical knowledge, skills and understanding to their full potential.

5.2 Specific

Our pupils should

· have a sense of the size of a number and where it fits into the number system · know by heart number facts such as number bonds, multiplication tables, doubles and halves · use what they know by heart to figure out numbers mentally

· calculate accurately and efficiently, both mentally and written, drawing on a range of calculation strategies

· recognise when it is appropriate to use a calculator and be able to do so effectively · make sense of number problems, including real life problems, and recognise the operations needed to solve them

· discuss and 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 in appropriate curriculum areas

· develop spatial awareness and an understanding of the properties of 2D and 3D shapes

6. PROVISION

1. St Giles C.E. Primary follows the White Rose Mathematics scheme of work. A scheme influenced, inspired and informed by the work of leading researchers and practitioners across the world.

All White Rose Education materials and training are created by specialist maths teachers. These are continually updated in response to national requirements and the feedback they receive from teachers, parents, carers and pupils, culminating in award-winning products that really make a difference.

White Rose delivers resources, CPD, tools, advice and guidance for teachers who want to make maths teaching amazing, nurturing happy, confident and resilient learners, from reception to GCSE and beyond.

Maths learners embark on an exciting journey of discovery and understanding – leading to a lifetime of opportunities.

2. St Giles are subscribed to the White Rose premium resource package which fits perfectly alongside their schemes of learning.

The worksheets and front of class materials (power-points and videos) follow a teaching for mastery approach. These are high quality, ever evolving and evidence-based resources which help teachers teach and pupils learn.

The resources subscription contains materials that can be used flexibly in the classroom, with something for every step of the scheme. These resources have been designed with many teaching and learning research principles in mind.

Worksheets are available in different formats (write-on, display and power-point) to allow the teacher to adapt them and be more flexible.

Class teaching slides are animated to allow teachers to bring learning to life.

Retrieval practice is incorporated using 'Flashback 4' which provide daily recap practice to ensure pupils are revising key concepts.

'True or false' thought provoking questions are available to be used alongside learning of a particular topic, providing questions that will open discussion.

3. The mastery approach underpins the 2014 National Curriculum. This approach advocates spending longer on topics to embed understanding and developing rich connections across topics. NCETM has identified further principles and features that characterise a mastery approach: • Teachers reinforce an expectation that all pupils can achieve high standards in mathematics. • Most of the pupils' 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 in tandem. • Teachers use precise questioning in class to test conceptual and procedural knowledge and assess pupils regularly to identify those requiring intervention so that all pupils keep up.

NCETM, October 2014 (https://www.ncetm.org.uk/public/fi les/19990433/Developing mastery in mathematics_october_2014.pdf) In December 2012, The Advisory Committee on Mathematics Education (ACME) published a report called 'Raising the bar: developing able young mathematicians. The report identified that England needs to increase the number of young mathematicians with a robust grasp of the range of mathematical ways of thinking and working, through experiencing a deep, rich, rigorous and challenging mathematics education. Children should not be accelerated through the school curriculum: 'acceleration encourages only a shallow mastery of the subject and so promotes procedural learning at the expense of deep understanding'. Not allowing children enough time to secure deep understanding can lead to feelings of insecurity and dislike of the subject. Consequently, there is an expectation in the 2014 National Curriculum that most children should 'move through the programmes of study at broadly the same pace'. Children should not be accelerated into a future year group's work. Instead, it is expected that children who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. There is also the expectation that those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on. The aim is for mastery, which is the approach used by many of the high performing jurisdictions in the international league tables. There are some important questions for

schools to consider when teaching for mastery, which should be discussed and agreed with the whole staff:

• To support the expectation that all children can achieve high standards, what are the implications for whole class teaching, class groupings or setting within the school? • How will differentiation be managed to enable all children to access what is being taught? How and when will intervention be given to ensure misconceptions are dealt with immediately and shared with the whole class, so that no children fall behind?

• How will questioning and scaffolding be varied to provide support as needed? What different problems will be provided so that children who grasp the concept quickly are given complex problems which deepen their knowledge of the same content?

• Is there enough focus on the important ability to recall facts and manipulate them to work out other facts, so that children develop the fluency which comes from deep knowledge and practice? • How will enough time be allowed for different types of intelligent practice (basic practice, variations such as practice within different contexts, extended practice which goes deeper and deeper), so that longer can be spent on key concepts? Will more than one mathematics session per day be required? • How will practice and consolidation be provided within different contexts, e.g. time, money or length, to ensure connections are made across different areas of mathematics?
• How will teaching focus on the development of deep structural knowledge and the ability to make connections?

• Is the use of precise mathematical vocabulary consistent across the school? Is correct vocabulary introduced from the beginning of teaching? Are all teaching staff comfortable with mathematical terminology? Practice and variation intelligent practice underpins the mastery approach. 'Intelligent practice' is a term used to describe practice that develops procedural fluency while at the same time exposing mathematical structures, patterns and relationships in order to deepen conceptual understanding.

6.1 Early Years

See curriculum Guidance for the Early Years Foundation Stage and Primary Framework Reception Teaching Programme.

6.2 Key Stage 1

See Primary Framework Year 1 and Year 2 learning overviews and National Curriculum programmes of study.

6.3 Key Stage 2

See Primary Framework Year 3 to Year 6 learning overviews and National Curriculum programmes of study.

7. ASSESSMENT

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. Progress tests are also administered each term which are in-line with Curriculum 2014 age related expectations.

In our school we are continually assessing our pupils and recording their progress. We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress.

Information for assessment will be gathered in various ways: by talking to the children, observing their work, marking their work, etc. Teachers will use these assessments to plan further work.

The principles that underpin our assessment system are:
Every child can achieve: teachers at St-Giles have the mind-set, 'What do I need to do next to enable a child in my class to achieve?'
The National Curriculum objectives will be used as the expectations for all children. Pupils will make age-appropriate progress from their different starting points – 12 months in 12 months, more for those who need to 'close the gap' to reach age related expectations. Teachers are experts at assessment - assessment will be effectively used to ensure the correct scaffolding is built into lessons to ensure all children achieve.

Our assessment and reporting system includes:

Ongoing assessment against the National Curriculum objectives by the class teacher throughout each lesson, through questioning, observation and dialogue.
Children knowing what they are being asked to learn and more importantly, why. Success Criteria are discussed and agreed with or formulated by the children during each lesson, work is then assessed against
The success criteria. Three-way feedback, pupil, peer, teacher with clearly identified next steps – this can be written or verbal feedback.

Regular pupils' work scrutiny.
Progress/Reasoning tests for Maths

All the above feed into 'Data snapshots'; these will take place at class, phase and subject level three times a year, towards the end of each term.

Statutory Assessments (End of Key Stage)
In addition to the above assessments, pupils also complete the following statutory assessments:

Reception – Baseline, EYFS profile
DFE Information for parents on end of Key Stage assessments (SATS)

No Levels
Alongside the introduction of the new National Curriculum, levels were removed for all Year Groups instead at the end of KS1 and KS2 pupils will be given a scaled score and a 'performance descriptor' against the expected standard.

To be 'secondary ready' children need to meet the required end of Key Stage 2 expectations; this is broken down into key outcomes for each curriculum year. We use the National Curriculum objectives to assess outcomes for children at the end of each curriculum year – for example:
A child that has achieved all the objectives set out for Year 3 for maths (and no further) would be said to be working at the end of Year 3 expectation for maths. A child achieving half or so of the mathematics objectives for Year 5 would be classed as working at the mid-Year 5 expectation for maths. A child achieving only a few reading objectives for Year 1 would be classed as working at the beginning of Year 1 expectation.

We use the following terminology to assess pupil's knowledge of the curriculum, against age-related expectations, in each core subject area:
Working Towards
Expected
Above, reflecting the age-related objectives have been achieved

The depth and application of a child's learning is an important marker of their achievement and

progress. **(Refer to Assessment Policy)**

Early Years - Nursery & Reception
Class teachers will use a combination of the EYFS profile and the baseline assessment to measure children's progress.

Baseline:
The baseline assessment will result in a score that forms part of each child's baseline profile. By having a good understanding of the child's abilities when they start school, class teachers are able to measure each child's progress and plan for next steps in learning.
The baseline assessment is face-to-face with a mixture of tasks and observational checklists.

EYFS Profile:
The EYFS profile assessment is carried out in the final term of Reception
The main purpose of the EYFS profile is to provide a reliable, valid and accurate assessment of individual children at the end of the EYFS.

EYFS profile data is used to:
Inform parents about their child's development against the early learning goals (ELGs) and the characteristics of their learning.
Help year 1 teachers plan an effective, responsive and appropriate curriculum that will meet the needs of each child.
Children in Nursery and Reception are assessed against the Prime and Specific areas of Learning in the EYFS profile; these are recorded on our on-line system, Early Essence. Assessments are based on observation of daily activities and events. At the end of Reception for each Early Learning Goal, teachers will judge whether a child is meeting the level of development expected at the end of the Reception year:

Emerging, not yet reached the expected level of development
Expected

Year 2.

Reporting to Parents
Discussions at parent, teacher, consultation meetings in the autumn, spring and summer terms are based on the assessment system in place for each age group.
Parents also receive outcomes of statutory assessments and an annual report.

8. ROLE OF SUBJECT LEADER

The mathematics subject leader is responsible for co-ordinating mathematics through the school. This includes:

- ensuring continuity and progression from year group to year group.

· advising on in-service training to staff where appropriate. This will be in line with the needs identified in the Development Plan and within the confines of the school budget.
· advising and supporting colleagues in the implementation and assessment of mathematics throughout the school.
· assisting with requisition and maintenance of resources required for the teaching of mathematics. Again, this will be within the confines of the school budget.

9. ROLE OF THE CLASS TEACHER

· to ensure progression in the acquisition of mathematics skills with due regard to the National Curriculum 2014
· to develop and update skills, knowledge and understanding of mathematics
· to identify inset needs in mathematics and take advantage of training opportunities · to keep appropriate on-going records
· to plan effectively for mathematics (with year group partners), liaising with subject leader when necessary.
· to inform parents of pupil's progress, achievements and attainment.

10. PARENTAL/CARER INVOLVEMENT

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multicultural aspects of mathematics where possible. All children have equal access to the curriculum regardless of their gender/ethnicity. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

11. PARENTAL/CARER INVOLVEMENT

At St Giles CE Primary School, we encourage parents and carers through:

- parent consultation each term to discuss the progress of their child
- inviting then into school in the summer term to discuss the yearly report
- inviting then to curriculum evenings or circulating information via half termly newsletters when significant changes have been/are made to the mathematics curriculum
- encouraging them to help in classrooms
- holding workshops for parents/carers focusing on areas of mathematics

12. GOVERNING BODY

At St Giles CE Primary School, we have an identified governor for numeracy, and he has reviewed policy and practice and is invited to attend relevant school INSET.

The Mathematics link governor visits the school termly to talk with the subject leader and when possible, observes some daily mathematics lessons and children's work. The Mathematics governor reports back to the curriculum committee on a regular basis.

Reviewed: September 2025

To be reviewed: 30 September 2027

Article 3 (best interests of the child) The best interests of the child must be a top priority in all decisions and actions that affect children.

Article 28 (right to education) Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights. Richer countries must help poorer countries achieve this.

Article 29 (goals of education) Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures, and the environment.