

# Mathematics Policy



Policy developed by Mr Cooke (Mathematics leader): January 2024

Policy approved by Governors:

A handwritten signature in black ink that reads "Fiona Taylor".

Chair of Governors

A handwritten signature in black ink that reads "Mr M Grogan".

Headteacher

Policy shared with staff and shared on the school website: January 2024

***'Never settle for less than your best'***

## MATHEMATICS POLICY

### Our school motto

Never settle for less than your best.

### Our Vision

Following in the footsteps of Jesus, each member of our community will flourish as resilient, respectful and adaptable individuals prepared for life's journey. Along the way we will encourage and inspire each other to continue growing as beacons of light in our own lives and the wider world.

### Our Mission

St George's Central seeks to provide quality education rooted in the Christian faith, serving the spiritual, moral and educational needs of the community of which it is part.

### Rationale

At St George's Central CE Primary School and Nursery, maths plays a crucial role in helping children to develop their understanding of the wider world. We want children to see mathematics as being relevant and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment. It is therefore important that children at our school develop a confidence in, and enthusiasm for, maths which encourages the children to become lifelong learners who can appreciate the beauty and power of mathematics and develop a sense of enjoyment and curiosity around the subject.

### Aims

Following the introduction of the new National Curriculum in 2014 the emphasis has been to ensure that all children:

- Become **FLUENT**
- **REASON** and **EXPLAIN** mathematically
- Can **SOLVE PROBLEMS**

This means that children need to be regularly exposed to opportunities involving increasingly complex problem solving which allows them to apply their maths knowledge. In doing so they should be encouraged to develop an argument and line of enquiry which they can prove and justify using mathematical vocabulary. This includes the ability to break down problems, both routine and non-routine, into a series of steps.

The aims of teaching mathematics at St George's Central are:

- to develop a positive attitude to maths as an interesting subject in which all children can achieve and succeed;
- to develop a numerate environment where mathematical risk-taking, creativity and logical thought are encouraged;
- to promote confidence and competence with mathematical skills, knowledge and concepts, including the number system;
- to develop the ability to apply knowledge and solve problems through decision making and reasoning in a range of contexts including those related to real-life situations;
- to develop a practical understanding of the ways in which information is gathered, presented and interpreted;
- to foster a process of enquiry and experiment;
- to explore features of shape and space and develop measuring skills in a range of contexts;
- to develop mathematical communication through speaking and listening, practical activities and recording work and to encourage children to use mathematical vocabulary to reason and explain;
- to develop mental calculation strategies;
- to develop the declarative, procedural and conditional knowledge needed to support the understanding of mathematics within the curriculum and beyond.
- to develop the ability to work both independently and in cooperation with others;
- to challenge children to stretch themselves and take risks in their learning.

### Roles and Responsibilities

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**Role of the subject leader:**

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

- ensuring continuity and progression from year group to year group;
- advising staff and arranging and delivering in-service training where appropriate. This will be in line with the current School Improvement 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 the requisition and maintenance of resources required for the effective teaching of maths. Again this will be within the confines of the school budget;
- the monitoring of maths, in different ways, to ensure for example, that planned lessons are being delivered, that all aspects are being covered and that tasks are suitably differentiated;
- analysing data from assessments to inform future whole-school actions, strategies and planning;
- keeping up to date on changes to the curriculum or any new initiatives.
- delivering relevant updates and CPD to staff.

Through the above activities, the subject leader will aim to foster a climate which motivates and inspires staff to develop and maintain confidence and positive attitudes towards maths.

**Role of the classroom teacher:**

The classroom teacher is responsible for the progress and development of maths within their classroom. This includes:

- Acting in accordance with this policy.
- Ensuring progression of pupils' mathematical skills, with due regard to the national curriculum.
- Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the national curriculum.
- Liaising with the subject leader about key topics, resources and support for individual pupils.
- Monitoring the progress of pupils in their class and reporting this on an annual basis to parents.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of SLT.
- Undertaking any training that is necessary in order to effectively teach the subject.

**Role of the Inclusion Leader:**

The Inclusion Leader will oversee the progress of children with Special Educational Needs and has a duty to:

- Advise staff on how best to support pupils' needs.
- Advise staff on the inclusion of mathematical objectives in pupils' individual support plans, where appropriate.

**Role of the Headteacher:**

The Headteacher is responsible for overseeing the work of the subject leaders and has a duty to ensure that:

- A Mathematics education is provided in accordance with the Governors' Agreed Syllabus for all registered children at the school.
- Appropriate staffing and resources are made available to meet the aims and objectives of Mathematics within the school.

**Role of the Governing Body:**

The Governing body is responsible for ensuring that:

- There is a current policy statement and curriculum for the teaching of Mathematics.
- Mathematics is included in the basic curriculum.
- Sufficient time and resources are devoted to Mathematics to enable the school to meet its legal obligations and to deliver a quality Mathematics curriculum.

Legal Framework

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This policy has due regard to statutory guidance including, but not limited to, the following:

- DfE (2021) 'National Curriculum in England: Mathematics Programmes of Study'
- DfE (2021) 'Statutory framework for the Early Years Foundation Stage'
- DfE (2021) 'Teaching Mathematics in Primary Schools'
- OFSTED (2023) "Coordinating Mathematical Success: The Mathematics Subject Report"

This policy operates in conjunction with the following school documents and policies:

- Behaviour and Relationships Policy
- Early Years Policy
- Equality Policy
- Handwriting and Presentation Policy
- Home Learning Policy
- Marking and Feedback Policy
- Maths Calculation Policy
- Maths Fraction Policy
- Maths Curriculum Statement
- Maths Subject Overviews
- Maths Long Term Plan
- Progression in Maths
- Progression in Maths Vocabulary
- SEND Policy
- Teaching and Learning Policy

### **Organisation**

Mathematics is one of the four specific areas of learning for children in Early Years. There is a planned class input, alongside opportunities for mathematical activities daily through continuous provision.

In line with national recommendations, from Year 1 onwards, a daily mathematics lesson is planned and taught. The suggested timings of 45 minutes (KS1) and 1 hour (KS2) are used as a baseline, however there is flexibility within this if particular lessons require it.

KS2 classes have two additional 'Maths Skills' sessions where mental calculation and arithmetic are targeted. There are also opportunities for cross-curricular links, which will provide work in other areas of the curriculum to support and reinforce children's mathematical learning, as well as maths based morning tasks which focus children upon their learning as they enter school in the morning.

The [Early Years Foundation Stage Statutory Framework](#) and [National Curriculum for Mathematics](#) outlines the curriculum content for maths across the school.

The [Maths Long Term Plan](#) indicates specific coverage within each year group which is further supported by a range of Curriculum Overviews relating to mathematics (which can be found on the school website).

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## Learning and Teaching Styles

We use a mastery approach to the teaching and learning of mathematics, which is underpinned by the NCETM's 5 Big Ideas:

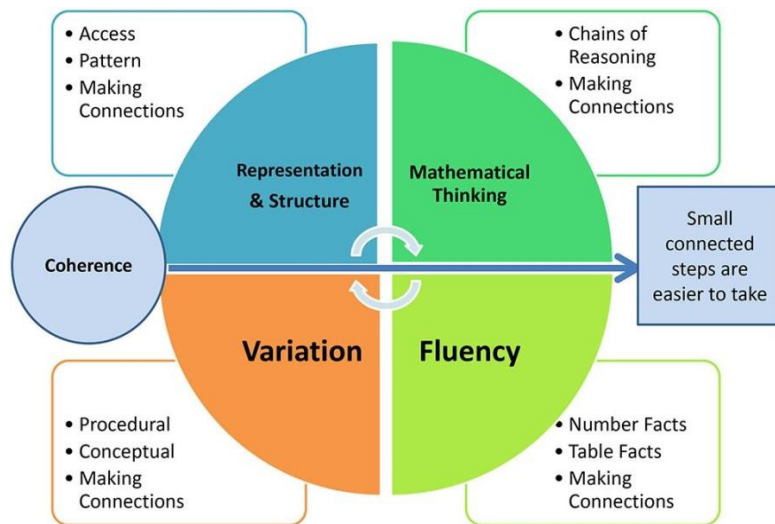
**Representation and Structure** (ensures concepts are explored using concrete, pictorial and abstract representations and children actively look for patterns);

**Mathematical Thinking** (allows children to make chains of reasoning connected with the other areas of their mathematics)

**Coherence** (achieved through the planning of small connected steps to link every question and lesson within a topic)

**Fluency** (there remains an emphasis on Fluency with a relentless focus on number and times table facts)

**Variation** (teachers use both procedural and conceptual variation within their lessons to ensure deeper understanding of concepts).



The school uses a variety of learning and teaching styles in mathematics and employs strategies that cater for different types of learners which involves:

- adaptive teaching, questioning and levels of support so that the children are all working towards the same learning objective appropriate to their age group or ability;
- direct teaching of methods and vocabulary through modelled examples which ensures children are fully confident to tackle independent tasks;
- embedding mathematical understanding through concrete, pictorial and abstract images and representation;
- encouraging pupils to explain their reasoning and thinking both verbally and in writing;
- exposing all children to challenge through tasks and questioning;
- ensuring opportunities to use and apply knowledge and skills is integrated into planning and teaching;
- developing deeper knowledge and essential features of mathematical concepts through making comparisons and exploring questions such as ***“What do you notice?”*** and ***“What’s the same, what’s different?”***;
- Spotting patterns and relationships which support a process of enquiry and experimentation;
- establishing the foundations of mental calculation and recall of number facts through daily starters which consolidate mental recall and informal/written calculations;
- ensuring time is given in other subjects for pupils to develop and apply their mathematical skills;
- setting homework for all children in accordance with the Homework Policy.

The application of the curriculum promotes a ‘keep up, not catch up’ approach to mathematics, in order to establish a secure path to proficiency for pupils. A range of suitable learning opportunities are planned and used to cater for different abilities – adapted work, children working independently, in pairs, groups or demonstrating within a whole class. A concrete, pictorial and abstract approach to the teaching of maths is used across the school, with the use of concrete resources encouraged to children of all ages and all abilities. The use of open-ended investigations provides excellent opportunities for differentiated outcomes. Classroom assistants are used to support and challenge further identified children.

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### Early Years

In our Nursery cohorts and Reception, work is guided by the Early Years Foundation Stage statutory framework. Mathematics is one of the four specific areas of learning and involves providing children with opportunities to develop a strong grounding in number. Children should be able to count confidently, develop a deep understanding of the numbers 1 – 10, the relationships between them and the patterns within the numbers. It is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measure. It is also important that the children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go' and talk to adults and peers about what they notice, developing their mathematical language.

### Planning including mixed age classes

Long term planning is taken from the Mathematics National Curriculum which identifies objectives for each year group. The mathematics programmes of study are organised in a distinct sequence and structured into separate domains. This is then broken down using yearly overviews working alongside White Rose maths Hub and maths consultant Tara Loughran in order to pace out coverage of the curriculum throughout the year.

Teachers are encouraged to use professional discretion when deciding on how long is needed on particular curriculum area whilst ensuring all objectives are covered by the end of the academic year. Children should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. The application of maths within a context is expected across all areas of the curriculum. 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. Mixed age class planning takes account of the curriculum content for both year groups and ensures full coverage for all children.

Short term (weekly) planning is recorded each week. These plans outline the mathematical concept to be focused on during that week with daily learning challenges and reference to representations, fluency, reasoning and problem solving opportunities which the children will be developing their understanding of. Teachers use their own judgement and ongoing formative assessment to ensure a flexible approach is adopted which recognises the pace of learning within the classroom. Planning will demonstrate the various challenges available to children, together with Assessment for Learning opportunities (speaking and listening and self/peer assessment) and teacher assessment. Children will be provided with feedback either verbally or through written marking. When marking work teachers should adhere to the school's Marking and Feedback Policy.

### Presentation of work

Children's work is presented according to the agreed school's presentation policy. In addition, children use pencil in their maths books and often work vertically, presenting work in two columns. Children use appropriate maths exercise books for their stage of development. One digit per box is a clear rule when recording on squared paper. Children are encouraged to record their working out/mental jottings in their book, with the answers to questions being made more explicit.

### Resources

Mathematical materials, equipment and basic resources are stored in each classroom and in central resource areas in KS1 and KS2. The mathematics subject leader should be informed when equipment needs replacing or supplementing. The use of these resources is regularly modelled. The children are also shown how to take care of equipment and progressively encouraged to select materials suitable for the task in which they are engaged. Each classroom will have a display dedicated to maths; this will be in the form of a working wall, which reflects the current learning within the classroom. Activities from White Rose Maths Hub and maths consultant Tara Loughran are used to support teaching and learning across the school.

### Assessment, recording and reporting

Assessment is a vital tool in the teaching of Mathematics, designed to monitor children's progress and measure attainment. It is a continuous process used to inform future planning by staff at this school or the child's next school. Assessment takes place in line with the agreed school's assessment policy and is regarded as an integral part of teaching and learning. Assessment opportunities are built into the planning of lessons and a range of methods are used as appropriate. Standards are checked both in-school and through external moderation opportunities.

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Ongoing, formative assessments are matched to the Learning Challenge and help to adjust daily plans. A range of Assessment for Learning strategies are used including listening to what children say and questioning them to ascertain their level of understanding, and observations of individuals or groups, looking for particular skills or concepts to be demonstrated. Children's work is marked promptly and in accordance with the school marking policy.

More formal, summative assessments measure progress against the key objectives and inform future planning and teaching. These take place at the end of each term and are used to assess progress against school and national targets. Using Rising Stars National Test Style assessments, pupils are assessed against their year group objectives at the end of every term. National Curriculum tests are used at the end of KS1 and KS2. Targets are set for the next school year and a summary of each child's progress is reported to parents following statutory guidance. Information is also passed onto the next teacher.

### **Monitoring and evaluating**

The teaching staff monitor their children's progress through questioning, observation, discussion, teacher assessment, Assessment for Learning, marking work and formal assessment. The teaching of maths is managed through book monitoring, lesson observations, short and medium term planning, interviews with children, discussion during staff meetings and tracking children's progress in formal assessments.

### **Inclusion**

All children have equal access to the mathematics curriculum. Our school strives to meet the needs of pupils with special educational needs, with disabilities, those who are gifted and talented and those learning English as an additional language. Additional support is planned for and delivered in a variety of ways, as required. Links to multicultural aspects of mathematics are planned and taught. Further guidance can be found in the school's inclusion policy.

### **Conclusion**

At St. George's Central we believe that it is our professional duty to share this policy with all new members of staff, parents and carers on request. The policy will be reviewed in the light of experiences, new developments or requirements. The leader will discuss any aspect of this policy on request.

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