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 we see maths very much as a multi-discipline, cross curricular, interconnected subject which should encourage creativity. We want children to see mathematics as being relevant to their world 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. Our mathematics policy reflects the essential part that mathematics plays in the education of our pupils. All children are encouraged to enjoy mathematics and become more enthusiastic mathematicians by developing their skills, knowledge and understanding through practical experiences, which have relevance and purpose in everyday situations. It is important that children develop the skills of Numeracy to become lifelong learners. They should be able to apply the skills in different situations across the curriculum and in daily living outside school.

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 in order to develop independent learners;
- to promote confidence and competence with numbers and the number system;

'Never settle for less than your best'

Jesus said, 'I am the light of the world. Whoever follows Me will not walk in darkness, but will have the light of life.' John 8:12

- 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 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 challenge children to stretch themselves and take risks in their learning.

Organisation

In line with national recommendations 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. 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. In the Foundation Stage there will be a daily lesson which will last for at least 30 minutes, alongside opportunities for mathematical activities daily through continuous provision.

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:

- differentiated teaching, questioning and levels of support so that the children are all working towards the same learning objective appropriate to their age group;
- 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's the same, what's different?";***
- 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 home learning for all children in accordance with the Home Learning Policy.

A range of suitable learning opportunities are planned and used to cater for different abilities – differentiated group work, children working independently, in pairs, groups or demonstrating within a whole class. 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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Planning including mixed age classes

Long term planning is taken from the Mathematics National Curriculum which identifies objectives for each year group. This is then broken down using yearly overviews provided by 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. 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 on standard planning sheets. 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 Policy.

Foundation Stage

In Nursery and Reception, work is guided by the Early Years Foundation Stage statutory framework. Mathematics is one of the four specific areas of learning for children in EYFS and involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and describing shapes, spaces, and measures. There is a strong emphasis on developing children's mathematical language. The work children undertake will often be integrated with the other areas of learning.

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. 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 children are shown how to take care of equipment and resources 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.

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 inline 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;

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- 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.

Through the above activities, it is hoped that the subject leader will be able to foster a climate which motivates and inspires staff to develop and maintain confidence and positive attitudes towards maths.

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 learning and teaching.
Teachers are responsible for assessing and recording children's progress in mathematics. Assessment opportunities are built into the planning of lessons and a range of other methods are used as appropriate. Standards are checked both in-school and through external moderation opportunities.

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 White Rose Maths Hub 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.

Health and safety

Children are made aware of their responsibility regarding safe and sensible use of equipment. All equipment used is of a suitable nature e.g. no glass jars for capacity work. Any equipment such as compasses are stored away safely. A risk assessment is carried out prior to children participating in a mathematical activity outside the classroom.

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Governors

The subject leader will encourage positive links with the maths governor to keep the governing body aware of all major issues related to mathematics in the school.

Date of policy: March 2020

Developed by: Mrs J Morris

Chair of Governors

Date: March 2020

Headteacher

Date: March 2020

Policy approved: March 2020

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