THE GLEBE PRIMARY SCHOOL

Mathematics Policy

Mathematics Policy

Gateway to Learning where Every Body Excels

Article 29: Education must develop every child's personality, talents and abilities to the full.

Aims and Objectives

At The Glebe Primary School, we ensure pupils receive a rich and enjoyable experience in Mathematics by providing the knowledge, skills, concepts and processes that are appropriate to each individual and that relate to the world around them. This provision should enable all of our pupils to:

- Develop confidence and enjoyment through a positive attitude to Mathematics as an interesting and attractive part of the curriculum.
- Develop the ability to think clearly and logically, with confidence, flexibility and independence of thought.
- Develop an understanding and efficient use of Mathematics in meaningful contexts and to promote its importance in everyday life.
- Develop spoken language and vocabulary understanding - 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.
- Develop a deeper understanding of Mathematics through a process of enquiry and investigation
- Use Mathematics to interpret, predict, explain and solve problems involving as much practical experience as possible.
- Develop logical thinking, enquiring minds and an ability to record in a systematic way.
- Develop the ability to use Mathematics as a means of communicating ideas.
- Gain equal access to Mathematical achievement, for all children, so that they achieve their full potential regardless of gender, ethnicity or special needs and disabilities.
- Use technology within Mathematics lessons and in the development of their Mathematical concepts.
- Develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.

Rationale

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 positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum (2014) states that three aims of mathematics aim 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The National Curriculum for Mathematics describes in detail what pupils must learn in each year group. It is vital that a positive attitude towards mathematics is encouraged amongst all of our pupils in order to foster confidence and achievement in a skill that is essential in our society. At The Glebe Primary School, we use the National Curriculum for Mathematics as the basis of our Mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concepts of Mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, problem solving, the development of mathematical thinking and development of teacher subject knowledge are therefore essential components of The Glebe Primary School's approach to this subject.

Principles of Teaching and Learning

At The Glebe Primary School, we use a variety of teaching and learning styles in Mathematics lessons.

During every Mathematics lesson, our teachers strive to:

- Build children's confidence, self-esteem and resilience
- Develop children's independence
- Allow all children to experience regular success
- Contextualise mathematics
- Promote the use of mathematical vocabulary, in a spoken and written manner, in order to develop a child's understanding of mathematical language and vocabulary
- Use a range of approaches to mathematics (visual and concrete materials, models and images)
- Encourage children to independently select resources to help them
- Challenge children of all abilities
- Reconsolidate previous learning and/or misconceptions through short bursts of 'Flashback Maths'
- Encourage children to enjoy mathematics
- Allow children to ask questions, as well as answer them
- Deliver a guided group, where there is a teacher and child led discussion around how questions are solved, as well as the opportunity to identify any misconceptions.

To provide adequate time for developing mathematics, five mathematics lessons are taught per week. Children also take part in weekly Mental Arithmetic sessions and short daily 'Flashback Maths' sessions. Children in Y1-Y4 also partake in short Fluency Bee sessions. In addition, application of skills are linked across the curriculum where appropriate.

Our pupils should:

- 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 to figure out numbers mentally
- calculate accurately and efficiently, both mentally and in writing and paper, drawing 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

Mathematics Progress and Mastery

Mathematics is a core subject in the National Curriculum and we use the objectives from this to support planning along with our Power Maths Scheme, which has been developed by the White Rose Maths Hub.

Our expectation is for all children to be working on the curriculum for their year group, striving to become 'masters' by the end of a school year, focussing on **depth of understanding** and **ability to reason** in a range of situations. Pupils who grasp concepts rapidly should be challenged through a range of complex problems which aim to deepen and consolidate understanding before any acceleration into new content.

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.

Features of Mastery teaching:

- Key new learning points are identified explicitly.
- There is regular interchange between concrete/contextual ideas, pictorial representations and their abstract/symbolic representation.
- Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities.
- Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly.

- Gaps in pupils' knowledge and understanding are identified early by in-class questioning. They are addressed rapidly through individual or small group intervention, either on the same day or the next day, which may be separate from the main mathematics lesson, to ensure all pupils are ready for the next lesson.

Assessment and Recording

Assessments are both formative and summative. Effective assessment is achieved by:

- Live marking during Mathematics lesson to ensure instant intervention/feedback
- Marking written work and formal assessment tasks
- Teacher and teaching assistant observations during lesson inputs, and whilst children are engaged in a practical activity, to assess whether particular skills are being applied accurately
- Pupil self-assessment and/or peer assessment
- Teacher discussions with the children in groups, class or individually
- End of term assessments to be analysed and inform future targets and planning
- Statutory Assessment Tests in Y6
- Statutory Times Table Check in Y4
- Whole school Mathematics termly tracking system to closely monitor the progress of children
- Same day or next day intervention groups when needed – identified from regular assessments, marking and observations

Early Years Foundation Stage

- Foundation Stage Mathematics is taught and planned in line with Development Matters EYFS framework and transition to KS1 in mind.
- In the Foundation Stage, teachers will plan in line with the Early Learning Goals.
- In EYFS in the children focus heavily upon the 'Five Principles of Counting', composition of number, subitising, comparing and ordering numbers, reading and writing numbers, understanding place value, adding and subtracting, measurement, shape, position and direction, pattern, mathematical language (e.g. more or fewer)

Monitoring

Monitoring the teaching and assessment of Mathematics occurs to fit in with the School Development Plan, through the collection of assessment data, 'book looks', pupil interviews and lesson observations. Next steps are then identified and support put in place to meet these next steps. This means that monitoring can then always be focused on these areas for development.

Special Educational Needs and Disabilities

Children of all ages and abilities are catered for within the frameworks of the National Curriculum and the Early Learning Goals. Those with special needs are provided with a School Support Plan, related to their own needs, which is written by the class teacher with help from

the SENDCO. Professional support from outside agencies will be used as appropriate. The SEND policy gives details of the arrangements for specific support.

Role of the Subject Leader

- To identify and address strengths and weaknesses within the subject area in school and put steps in place to address the weaknesses
- To monitor and raise standards in Mathematics
- To ensure that all children are accessing quality first teaching
- To ensure that Mathematics teaching and learning is progressive, addresses misconceptions and deepens all children's understanding
- To monitor teaching standards through lesson observations, informal discussions, 'drop in' sessions, learning walks and 'book looks'
- To ensure children have their opinions acted upon through regular 'pupil voice' interviews and questionnaires
- To monitor individual children who require additional intervention and support
- To liaise with SENDCO to ensure appropriate provision for children with special educational needs and disabilities
- To ensure that all staff and support staff are familiar with all policies, planning formats, frameworks, resources and the curriculum in use at The Glebe Primary School, and to support where necessary
- To inform all staff of relevant and up to date CPD
- To report to Governors about the progress in Mathematics
- To keep up to date with recent Mathematics developments

Parental Links

- Parents are guided to our school website for copies of our calculation policies and arithmetic guidance (please see appendices). Parents also receive termly targets and progress information for their children.
- Parents, from Reception to Year 6, are invited into school to attend workshops about the development of Mathematics at The Glebe Primary School, focusing upon the format of our Mathematics lessons and the methods we use.
- Parents are also invited to attend a yearly Maths workshop in which they take part in mathematical activities with their child using the same methods the children use in their mathematical learning.
- Parents are informed about their child's learning in mathematics through termly curriculum newsletters which are sent home and also found on the school website.
- Children are encouraged to practise number bonds/times tables at home as much as possible to develop speed and accuracy of recall.

Appendices

Appendix 1: Reception Calculation Policy
Appendix 2: KS1 Calculation Policy
Appendix 3: LKS2 Calculation Policy
Appendix 4: UKS2 Calculation Policy
Appendix 5: The Glebe Primary School Arithmetic Guidance