Policy:	Mathematics Policy

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There are no material changes from the previous version from 2023

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Policy Section:	Curriculum

Let the children come to me and do not hinder them, for the kingdom of God belongs to such as these." (Luke 18:16) This policy is based upon our Christian values of thankfulness, respect, honesty, love and resilience.

Introduction and Rationale:
At St Mary's Primary School, we believe that mathematics is vitally important as it equips pupils with a 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 integral to all aspects of everyday life and with this in mind we endeavour to ensure that all of our children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

Through our mathematics curriculum we intend that our children acquire the necessary knowledge, skills and understanding to become independent lifelong learners who apply mathematics confidently. 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.

To enable this, we use the National Curriculum for Mathematics (2014) for Key Stages 1 and 2 alongside White Rose as the basis of our mathematics programme. For Early Years we use the Statutory Guidance as well as the non-statutory guidance 'Development Matters'. This ensures a systematic approach where continuity and progression are evident throughout the school.

This policy summarises our approach to the teaching of Mathematics at St Mary's School. It should be read in conjunction with other school policies but with particular reference to the Calculation Policy which is specific to this subject area.

Our Aims
We aim to provide the pupils with an excellent mathematics curriculum delivered through quality first teaching to produce individuals who are numerate, creative, independent, inquisitive and confident. We also aim to provide a stimulating environment with adequate resources so that our pupils can develop their mathematical skills to the full.

Our pupils should:
• become fluent in the fundamentals of mathematics so that they can recall and apply knowledge rapidly and accurately.
• become proficient with number, including fluency with mental calculation and look for connections between numbers.
• develop conceptual understanding so that they can solve mathematical problems, including applying mathematics to real-life situations.
• reason mathematically to justify and explain their ideas and answers, including judging whether their answers are reasonable and have strategies for checking them when necessary.
• develop their use of mathematical vocabulary.
• develop a positive attitude towards mathematics so that they can become independent lifelong learners who apply mathematics confidently.

The Curriculum for KS1 and KS2

Our Mathematics curriculum for Years 1-6 follows the objectives from the National Curriculum (2014). To enable us to deliver these effectively we use the White Rose programme. White Rose breaks the National Curriculum objectives down into small steps. Every lesson focusses on a small step which enables all learners to make systematic progress in all areas of Mathematics throughout their time in Primary School. It also enables teachers to effectively monitor where gaps or misconceptions have arisen and to challenge them, planning dynamically using assessment for learning when needed.

To provide adequate time for developing mathematical understanding, knowledge and skills, mathematics is taught daily and discretely using planning adapted from the White Rose scheme. Lessons may vary in length but will usually last for approximately one hour in KS1 and KS2 classrooms. Throughout their mathematics lessons, pupils are provided with a variety of opportunities to develop and extend their mathematical skills and understanding through group work, paired work, whole class teaching and individual work. The pupils engage in the development of mental strategies, fluency practice, practice of written methods, practical and investigational work, problem solving and mathematical discussion including the development of reasoning and explanation skills.

A typical lesson in Years 1 to 6 starts with the use of Flashback 4 which recaps and revisits previous learning. During the main teaching session, the teacher provides input and the children complete targeted activities; sometimes the focus is new learning, but at other times pupils may be practicing to master the application of a concept they have learnt earlier. The teacher and teaching assistant within the classroom work with different groups or individual pupils throughout the week, ensuring that every child has adequate adult input to support or push their thinking. All lessons incorporate conceptual understanding, practicing methods to develop fluency and aspects of problem solving.

Following the main session, the teacher might choose to have a short plenary which can involve addressing misconceptions, summarising key facts and ideas, making links to other mathematics or real-life situations or discussing next steps. Teachers plan learning that is differentiated through scaffolds, resources and adult support to meet the needs of all pupils. Children, when relevant, are challenged and extended by looking deeper and not by moving on to new content. ICT is used in various ways within lessons to support teaching and to motivate the children's learning, for example using the interactive whiteboard and, when relevant, the school laptops and I-Pads.

In addition, problem solving and reasoning from the White Rose scheme is included within every lesson. Key Stage 2 pupils show their working in their books, recording their ideas and sharing them with their teacher and their peers. Key Stage 1 pupils work on a specific problem-solving question each week chosen carefully by their teacher. They explore the question with a Teacher or Teaching Assistant who can

support them to record their understanding. This ensures that every pupil develops the skills of mathematical thinking, reasoning and enquiry.

Within Key Stage 2, we are also using 'Fluent in Five'. This provides a daily 5-10 minute mental mathematics challenge with a short questions which reviews previous topics and reinforces important number facts and calculation methods. To improve fluency and recall KS1 will use flashcards regularly as well as having a dedicated 5-10 minute mental mathematics session planned by the teacher based on formative assessment of the children's knowledge and skills.

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We value the use of the Concrete, Pictorial and Abstract (CPA) method where the children are supported to develop deep mathematical understanding through the use of apparatus and visual methods before, or alongside, introducing more abstract symbols and concepts. However, children can move fluidly between the three methods, it is not a linear sequence, and it is important to recognise how the use of the CPA method develops their ability to solve problems, reason and explain their ideas.

The use of accurate mathematical vocabulary and clear explanation is also extremely important for pupils so that they develop deep understanding of concepts. In lessons, any new vocabulary is explained clearly and revisited often as well as being displayed on the working wall. The use of sentence stems is also vital for language development. Both teachers and children are expected to use correct mathematical vocabulary and sentence stems in their verbal and written explanations. Therefore, a rigorous approach to the development of teacher subject knowledge is essential.

Interventions

Every morning a Maths Club is run for KS2 pupils. We use 'Assertive Mentoring' (AM) materials and the club is open to all children in KS2 but Year 6 are expected to attend; some year 2 children are also invited to join. In addition, there is a mathematics tutor who supports particular KS2 children who have been identified as needing support with certain mathematical topics.

KS1 and EYFS pupils who need extra support are identified quickly by their teachers and supported within the classroom and given extra time to practice key skills when appropriate. Extra interventions are put into place by staff as needed with support from the mathematics team.

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Assessment and Marking

During lessons, teachers will use formative assessment techniques and questioning to ascertain pupil understanding. They will then provide immediate, effective feedback to pupils about their learning and where necessary challenge misconceptions and incorrect answers. Teaching staff all follow the marking policy

and, where possible, questions should be marked with pupils present as they are completing them so that any mistakes or misunderstanding can be rectified immediately. To support this, teaching assistants have time set each day to go through incorrect answers with pupils to ensure that no gaps in understanding arise.

Every class in KS1 and KS2 completes White Rose assessments at the end of every unit and the end of every term. These summative assessments allow teachers to identify gaps and then to spend time with their classes to eliminate them. In addition, the school's progress tracking system is updated termly so that progress can be monitored.

Cross-curricular links

Mathematics contributes to many other subjects and the children should be given opportunities to apply and use mathematics in real life contexts. It is important that time is found in other subjects for pupils to develop and embed their mathematical skills and understanding. Therefore, there should be regular, carefully planned opportunities for the application of mathematical skills and knowledge, for example measuring in science, discussing and utilising the properties of shape in art, and the collection and presentation of data in science. Additional enrichment opportunities are provided, when possible, for pupils to further develop mathematical thinking, such as through cooking, music, and sports.

Displays and Resources

Every classroom is expected to have a mathematics working wall. White Rose symbols, vocabulary and sentence stems from the current unit should be clearly displayed and referred to. It should also contain other supports and scaffolds for pupils, such as examples of calculation methods. Celebration of mathematical success is also important and is recognised in our corridor display boards in KS1 and KS2. In addition, a bank of essential mathematics resources including Numicon, Dienes, Singapore counters and Cuisenaire rods is kept in each classroom. Regular training ensures that the staff are confident in using the resources available.

Home Learning

Teachers in KS2 provide regular mathematics homework to develop fluency, deepen children's understanding and make links to real-life concepts. To enable all children to have an opportunity to complete their homework, a club is provided within school for children one lunchtime a week staffed by KS2 teachers. Finally, all children in KS2 have access to the app Times Table Rock Stars and are encouraged to use it to improve their fluency and recall.

Reporting

Parents and carers have the opportunity to come into school to see their children's work and progress approximately once a month. During this time, teachers are available to discuss any questions that they might have. Formal parent's evenings are held at regular intervals throughout the year to update parents and carers of their child's progress. At the end of the academic year, parents and carers receive a written report on which there is a summary of their child's effort and progress over

the year. The child's current level of performance is also indicated and parents are informed of the meaning of this level in terms of national targets.

Early Years Foundation Stage (EYFS)

The EYFS are committed to ensuring the confident development of number sense and therefore there is emphasis on mastery of key early concepts. To achieve this, both the Statutory and non-statutory guidance 'Development Matters' are followed. In addition, all classes use 'Numberblocks' to support the children's developing sense of number. All children are viewed as mathematicians and have their own individualised targets to support their development.

Children learn through a mixture of adult-led and child-initiated activities, both inside and outside the classroom. In Reception, the children have daily lessons which are approximately 30 minutes in length, including both whole class teaching and group or individual work. In the 3-4 year old nurseries, there is a short whole class daily input, followed by targeted adult-led activities throughout the week.

The children also explore a range of mathematical concepts in continuous provision from the age of 2 upwards. Within the learning environment, a range of activities which include the promotion of mathematical skills, understanding and vocabulary are carefully set up. Some are constantly present such as sand play and some are temporary, for example a tray with numicon and numbers to ten or numbered building blocks. Each activity is thought through and laid out with specific resources. These activities are carefully monitored by staff and children's ideas and learning are supported and extended as needed. Child-initiated learning in mathematics can occur at any time, in any location and all staff are trained to notice this and build on it to create a valuable interaction where mathematical concepts are explored. Children receive verbal feedback throughout these interactions which deepens their abilities to problem solve and reason mathematically.

Inclusion and Equal Opportunities

At St Mary's we aim to fully include all pupils with SEND in daily lessons allowing them to participate with their peers. Where necessary teachers will, in consultation with the Inclusion Manager, draw up an Individual Education Plan (IEP) for a child. When planning, teachers will take IEPs into consideration and simplify or modify tasks or use a classroom assistant to support.

As a staff we endeavour to provide equal opportunities for all pupils in Mathematics. We aim to take into account cultural background, gender and SEN, both in our teaching attitudes and in the published materials we use with our pupils. Through our Mathematics curriculum we intend that all of our children acquire the necessary knowledge, skills and understanding to become independent lifelong learners who apply mathematics confidently.

We believe that it is our mission at St Mary's CE Primary School, to enable all pupils to meet confidently the challenges of adulthood, by striving for academic success

and developing strong relationships based on the Gospel values of trust and respect and our Christian values of Thankfulness, Respect, Resilience, Honesty and Love.

Role of the Subject Leader
It is the role of the mathematics team to support the school in achieving these aims. To do this, we will create an action plan detailing our priorities and how we will deliver these, ultimately ensuring that all staff are fully supported in their teaching of mathematics and that the children are making good progress.

COVID 19 Statement Maths
Addressing gaps and misconceptions following school closure:

Following the recent school closures during the COVID 19 epidemic, many children at St Mary's have been affected by a full or partial break in learning. There are gaps arising in mathematics due to this. St Mary's is committed to ensuring the curriculum remains broad whilst maximising opportunities for the revision of basic skills in mathematics. It is vital that rapid progress is made by all pupils to return to their pre-lockdown levels of attainment. This will be achieved by:

- The quick identification of gaps in children's learning through assessment
- Rapid action to address gaps both in class, through pupil conferencing and interventions
- Tailored tutoring for specific children with gaps in learning.
- High expectations of all learners with tasks aimed at age-appropriate levels and scaffolded for those with gaps and misconceptions
- The continued teaching of a broad and balanced curriculum following St Mary's School curriculum documents with extended opportunities to apply mathematics skills.

Instant access to high quality home learning in the event of full or partial closures
In the event of full or partial school closures due to the coronavirus outbreak, St Mary's CE Primary School recognises the need to continually deliver high quality education to minimise the disruption to pupils' education.

For KS1 and KS2 this will include:

- A daily maths lesson which will cover a sequence of learning from the appropriate year groups curriculum via zoom.
- A daily fluency session which will include opportunities to revisit and revise core number skills and calculations as appropriate.
- Opportunities to use online programmes, for example Times Tables Rock Stars to support maths learning.
- Resources from White Rose – worksheets, challenge questions to be sent in PDF version via emails, to enable children to open it on any device.
- Maths work will be submitted to the class teacher by email and teachers will give feedback.