Rockwell Green Church of England Primary School

Maths Policy

Status:	NON-STATUTORY
Responsible person:	Maths Subject Leader
Responsible Governor:	
Ratified by the Head Teacher:	
Date first approved by the Governing Body:	
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Rockwell Green Primary School
Maths Policy 2025/26

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.

At Rockwell Green Primary School, we believe that everyone can do Maths. We aim to develop a culture of deep understanding, confidence and competence in mathematics that produces strong, secure learning and real progress. Our goal is to ensure that when pupils leave us they are assured, happy and resilient mathematicians who relish the challenge of maths. They will be independent and reflective thinkers; whose skills not only liberate them in maths but also support them across the curriculum.

OUR AIMS – INTENT
The aims of maths teaching are:

- To ensure 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.

- To ensure pupils can reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

- To ensure pupils 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.

EARLY YEARS

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, 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 measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Number
Children at the expected level of development will have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5.

Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns
Children at the expected level of development will verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

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 [for example, 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.

KEY STAGE 2

Years 3 and 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.

Years 5 and 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.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

IMPLEMENTATION: TEACHING AND LEARNING

At Rockwell Green School we follow a mastery approach to teaching mathematics. We use the White Rose Schemes of Learning in Reception and the NCETM Curriculum Prioritisation documents from Year 1 to Year 6 supplemented with other quality mathematical resources to give variation. In particular the Gareth Metcalfe I see reasoning and problem solving and Deconstructing word problems resources. We are part of the NRICH Problem Solving Schools initiative which focuses on developing mathematical mindsets and developing mathematical thinking. Teaching is structured through the use of clear explanations, scaffolding (including modelling of Concrete, Pictorial and Abstract approaches) opportunities to practise and apply and feedback.

Fluency

We want our pupils to develop fluency to allow them to unconsciously apply their knowledge as skills which go beyond simply memorising facts. Distributed practice is essential (frequently, often and repeatedly) and the struggle of trying to retrieve is what makes the memory stronger.

- Daily fluency sessions in KS2, separate to the main maths lessons, enable children to connect new knowledge with existing knowledge.
- In Rockets and Reception, the focus is on developing a clear grasp of number and subitising.
- In Reception, Y1, Y2 and in the Autumn Term of Y3, we use the Number Sense Maths scheme to develop fluency.
- Number Sense Maths is also used further up the school as an intervention.
- In Y3 and 4 the emphasis is on consolidation of understanding from KS1 and the mastery of the times tables.
- In Y5 and 6 the focus is on using this knowledge to develop fluency in more complex calculations showing flexibility in which strategy to use, knowing which method is most efficient for them and why and becoming competent problem solvers.
- Children use NumBots and Times Tables Rock Stars to practise key number facts. In KS2 children also complete a weekly times tables challenge which tests knowledge of both

multiplication and division facts. Once the children have completed these challenges the children then move onto challenges which focus on the ready to progress criteria related to number facts.

Representation and Structure

To enable children to become independent mathematicians we use the Concrete, Pictorial, Abstract approach (CPA) to mathematics. This is reflected in our school Calculation Policy. Children learn new concepts through the use of concrete apparatus, this is then modelled pictorially so that the children have methods to support themselves to problem solve before moving to the abstract. This continuum does not move in one direction there is flow back and forth between the concrete, pictorial and abstract across all year groups. To avoid over-reliance on concrete apparatus we encourage pupils to use pictorial and abstract methods once they have had new concepts explained. Teachers use their professional judgement about when it is most appropriate for pupils to move on.

Mathematical Thinking

Pupils are given an opportunity to think mathematically in the majority of maths lesson through the use of problem solving and reasoning tasks. In lessons all pupils, regardless of ability, are given the opportunity to reason and problem solve either independently, with a partner or in groups or through modelling by the teacher.
Pupils are exposed to a range of different types of reasoning and problem solving covering the following areas

- Missing numbers
- Word problems
- Logic problems
- Visual problems
- Finding all possibilities
- Rules and patterns

Teachers use the I see Deconstructing word problems resources to explicitly teach how to solve word problems. The school is part of the NRICH problem solving schools initiative. Each term teachers focus on developing positive attitudes to problem solving (Being curious, collaborative, resourceful and resilient) and developing mathematical mindsets (Exploring and noticing; Working systematically; Conjecturing and generalising; Visualising and representing; Explaining, convincing and proving) using NRICH problems as a focus.

Variation

At Rockwell Green we want to teach though the use of procedural and conceptual variation. Variation is not the same as variety. The key idea of teaching with variation is to highlight the essential features of the concept by varying the non-essential features.

In conceptual variation pupils are taught ‘what it is ‘and ‘what it is not’ and are introduced to a variety of standard and non-standard examples so they are used to seeing concepts in different ways.

In procedural variation pupils are taught to make links between one calculation and the next and one problem and the next.

Coherence
The four areas outlined above are linked to ensure coherence through small connected steps.

DIFFERENTIATION
Different methods of differentiation are used within the teaching of maths.

- Learning is differentiated through a 'scaffolding up' approach to ensure that the majority of the class can access the learning for their year group e.g. by using concrete apparatus; through a higher level of adult support; working in mixed ability pairs
- Teachers regularly and explicitly model the use of manipulatives and representations
- Children who are working well below their year group will be given appropriate work to enable them to close the gap between them and their peers
- Where gaps in learning are identified these are closed, through carefully chosen interventions designed specifically to target areas the children are not yet confident with.
- Challenge is provided for rapid graspers by expecting them to find all possibilities; prove and explain their understanding and apply their knowledge to a range of different problem-solving tasks
- All pupils are given opportunities to reason and problem solve at their level.
- Rapid graspers may at times be given tasks at the beginning of the lesson, if the teacher is confident they already understand the concept being taught, so the teacher can focus on the rest of the class.

RESOURCES
Each classroom has a wide range of apparatus to support both the concrete and pictorial aspects of the subject. Teachers ensure children have easy access to these resources by organising them so they can be put out onto the tables in lessons rather than the children having to go and get them. Larger mathematical equipment and that which is used less frequently can be found in the maths cupboard.

ASSESSMENT AND RECORD KEEPING

At Rockwell Green Primary School assessment is an integral part of the teaching process.

Marking and Feedback

- Feedback, whether verbal or written, is given to the pupils as soon as possible.
- In the majority of sessions pupils should be given time to respond to feedback. An extension question based on the previous learning should be provided for those pupils who have correctly completed all previous learning.
- Teachers and TAs stop the learning of particular groups at appropriate times to reinforce specific learning objectives. The whole class does not need to stop. In this way, misconceptions are addressed quickly and learning is moved on within each lesson to ensure rapid progress.
- Pupils are encouraged to mark their own learning e.g. through the use of answer sheets and reflect on any questions which are incorrect.
- Alternatively, pupils can work in pairs to check answer and reflect together on why they may be different.

Assessment

- The assessment of children's learning in mathematics is on-going and informs planning and teaching.
- Teachers regularly record assessments on the school APP grids.
- At the end of each term assessment judgements for each child in Reception to Year 6 are entered onto the school assessment system.
- In Reception judgements are made against the Early Learning Goals and evidence is recorded both in their maths books and on Tapestry.
- Standardised NFER tests are carried out in the Autumn and Summer Term in Years 3 to 5 to inform and support teachers with the next steps for pupils. They are also completed in Yr1 in the Summer term. Yr2 still complete the Yr2 SATs at the end of Year 2.
- Practice SATS are carried out in Year 6 to inform and support teachers with the next steps for pupils.
- In Year 1 pupils are screened regularly for key objectives and intervention is implemented to ensure these children keep up with the rest of the class rather than having to catch up.

MONITORING

The Maths Leader at Rockwell Green Primary School is responsible for monitoring. This is carried out through:

- Monitoring of planning
- Learning Walks
- Book scrutiny
- Pupil voice
- Termly pupil progress meetings
- Regular formal and informal discussions with staff individually and in staff meetings
- Analysis of data

Reviewed by: Elizabeth Williams
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Next Review: May 2028