THE RACKHAM

C OF E PRIMARY SCHOOL

Mathematics Policy

Policy number: SCH 029

Date: September 2023

The Rackham C of E Primary School is committed to safeguarding and promoting the welfare of children and young people and expects all staff to share this commitment.

Purpose of the policy

This policy reflects the aims and values of The Rackham C of E Primary School. It ensures all stakeholders, including staff, governors, parents and pupils, are working towards the same goals.

Ensure you consider the potential audience for your policy and what information they will want. Your audience may include teaching and non-teaching staff, governors, parents and Ofsted inspectors.

The purpose of this policy is to:

- Set out a framework for all teaching and non-teaching staff, giving guidance on planning, teaching and assessment
- Demonstrate adherence to the National Curriculum objectives and guidelines
- Provide clear information to parents and carers about what their children will be taught
- Allow the governing board to monitor the curriculum
- Provide Ofsted inspectors with evidence of curriculum planning and implementation

This policy will be available on our school website

Subject vison

'Mathematics is a creative and highly interconnected 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 for financial literacy and most forms of employment. A high quality mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.' (DfE 2013)

The aims of the 2014 National Curriculum are for our pupils to:

- Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
- Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Develop an argument, justification and proof by using mathematical language.
- Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering. The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Reception Statutory Framework 2021 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development matters' non statutory guidance.

Mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind this policy promotes the basic and wider understanding of mathematics, and hopes to instil an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning.

Learning skills are an important aspect of mathematics but such skills are only a means to an end, and should be taught and learned in a context that provides purpose and meaning.

Aims and outcomes

Mathematics Mastery:
At The Rackham we are committed to the mastery approach to teach mathematics.

Our Vision:

Working together to be the best we can possibly be by:

- Promote and create a shared vision that mathematics is important
- Commit to embrace a mastery approach.
- Want our pupils to be the best they can be.
- Agree we all want our children to fulfil their potential through the mathematics curriculum

Teaching and learning

What is teaching for mastery?

Fluency:

- Quick recall of facts and procedures
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The ability to recognise relationships and make connections in mathematics

Representation and structure:
Mathematical structures are the key patterns and generalisations that underpin sets of numbers – they are the laws and relationships that we want children to spot. Using different representations can help children to 'see' these laws and relationships.

Variation:

- Procedural variation: This is a deliberate choice of examples used and questions set, to draw attention to certain features such as patterns when adding.
- Conceptual variation: When a concept is presented in different ways, in all of its different forms so children develop a broad understanding of what the ideas looks like, how it can be made, how to write it and how to say it.

Mathematical thinking:

- Looking for pattern and relationships
- Logical Reasoning
- Making Connections

Coherence:
Teachers should develop detailed knowledge of the curriculum in order to break the mathematics down into small steps to develop mastery and address all aspects in a logical progression. This will ensure deep and sustainable learning for all pupils. The continuum within a mastery lesson enables everyone to take part. There is no expectation that everyone will cover every element of the lesson. However, there needs to be challenge for all. This is where the reasoning / problem solving extension of the small step focus for each day is vital.

Planning:

Long term planning:
The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long term planning for mathematics taught in the school. Medium term plans from Reception to Year 6 use the White Rose Mathematics Hub schemes of learning. These schemes provide teachers with exemplification for Mathematics objectives and are broken down into small steps of learning that include fluency, reasoning and problem solving within the context of the National Curriculum programme of study.

The White Rose schemes of learning support the mastery approach to teaching and learning and have number at their heart. Careful planning ensures tasks really do extend and move learning on. Lessons and their related activities broaden and provide depth of understanding within the National Curriculum objectives for each year group.

Concrete, pictorial and abstract representation:
Concrete resources are pivotal to deep understanding and learning of some aspects of the Mathematics curriculum (place value and operations) but not as useful for others (statistics). The aim is to move children to the abstract representation. If they can engage with this and understand the mathematics, let them use it. All three of these steps would be included within a single lesson. As learners move through the small steps mentioned in the coherence strand, they will also move through the CPA stages. It is important to remember that concrete resources are used to expose the structure of Mathematics, not as a crutch for learners to rely on. The aim is that at the end of the lesson, all learners are engaging with the abstract representation.

Short term planning:
White Rose schemes of learning support daily lesson planning. Lessons are planned using a common planning format and are monitored at intervals by the mathematics subject leader. EYFS planning is based on the medium term plans and delivered as appropriate to children dependent on where the children are now and what steps they need to take next. Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach. All classes have a daily mathematics lesson. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes.

Special Educational Needs & Disabilities (SEND):

- Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's APDR will incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters.
- Targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson.
- Mathematics focused intervention in school help children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and the class teacher.
- Within the daily mathematics lesson teachers have a responsibility to provide adapted activities to support children with SEND and provide sufficient challenge for all.

Equal Opportunities:
Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. This policy is in line with the school's 'Racial Equality' policy.

Curriculum overview

Here at The Rackham C of E Primary School, pupils will follow a Mathematics curriculum that gradually develops learning, the outcome being the acquisition of knowledge and skills that enable each pupil to enquire, research and analyse. Pupils will have a coherent understanding of calculation strategies and mathematical concepts. Children will know more, remember more and understand more.

Early Years Foundation Stage (EYFS)

Mathematics within the EYFS is developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupil's interests and current themes and will focus on the expectations from Development Matters / Early Years Outcomes. Mathematical understanding can be developed through stories, songs, games, imaginative play, child initiated learning and structured teaching. As pupils progress, they will be encouraged to record their mathematical thinking in a more formal way.

"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."

Statutory framework for the Early Years Foundation stage 2021

Key Stage (KS) 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure pupils develop confidence and mental fluency. The mastery approach provides a structure that supports all children to develop an increasingly deeper understanding of Mathematics so that future learning continues to build on solid foundations.

If the subject is represented using concrete materials, pictorial representations and abstract symbols, it will allow children to visualise Mathematics in varied ways, see connections and to independently explore and investigate a topic. Practical activities and resources offer the children a deeper mathematical understanding of more complex concepts. Providing children with visual representations also offers a scaffold when developing a more robust understanding of Mathematics.

Throughout Key Stage 1, children gain knowledge of number and place value and become confident when using the four operations in both formal methods (see Calculation Policy for further details). Alongside number work, pupils begin to identify fractions using shapes, objects and quantities and make connections to equal sharing and grouping. Pupils are taught to count to ten in fractions, recognise equivalent fractions and develop their understanding of fractions on a number line.

Pupils will develop their ability to recognise, describe, draw, compare and sort different shapes. Pupils have the opportunity to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money and are expected to use related vocabulary for all topics. Other subjects may have strong links to some Mathematics topics allowing cross-curricular teaching.

Key Stage (KS) 2

Lower Key Stage 2: Years 3-4

Mathematics teaching in lower Key Stage 2 provides opportunities for our pupils to become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. Pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. Children continue to develop their ability to solve a range of problems. By the end of Year 4, pupils have been taught the multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Upper Key Stage 2: Years 5-6

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. They develop connections between multiplication and division with fractions, decimals, percentages and ratio. Pupils 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. 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. Children also have opportunity to utilise this knowledge base within reasoning and problem solving activities

Cross-curricular links

Mathematics shares links with the following subjects:

- English: development of literacy skills through reading and writing and reasoning skills and mathematical explanations to demonstrate understanding.
- ICT: use of the internet, spreadsheets and coding.
- Spiritual, moral, social and cultural (SMSC): encourages empathy towards other cultures and religions, and reflection on moral issues

Assessment and recording

Assessment

The Rackham C of E Primary School uses assessment to enable staff to understand what pupils have learnt before, what they need to learn now and what they will learn next.

Formative assessment
Formative Mathematics assessment is ongoing and will be used to inform teachers in relation to their planning, lesson activities and differentiation.

Summative assessment
Summative assessment is completed termly, based on the skills that the medium-term plan requires as a key focus.

At the end of each school term, pupils will be assessed within 1 of the following bands:

- Pre-Key Stage (PKS)
- Working Towards the curriculum (WTS)
- Working at Expected (EXP)
- Working at Greater depth (GDS)

Within Key Stage One and Two White Rose end of term assessments will be used to support s teacher judgement based on the grading above. End of KS2 will sit SATs and at the end of KS1 children will complete non-statutory tests.

Marking

Children receive regular feedback and marking follows the school's marking policy.

Recording

In Mathematics, pupils will record their learning in the following ways:

- Mathematics books or within KS1 this will involve the use of White Rose workbooks.
- Reception-Individual Learning Journey
- Tapestry recordings

This may take the form of photographs, pictures, notes or written work, and may be worksheet-based or fully independent.

Resources

Textbooks and other equipment - The Mathematics curriculum at The Rackham is closely follows the National Curriculum. This is achieved through the use and adaption of the White Rose for Mathematics scheme of work and accompanying resources.

Inclusion

Teachers set high expectations for all pupils in Mathematics. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with special educational needs (SEN)
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so pupils with SEN and/or disabilities can study Mathematics, wherever possible, and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in Mathematics.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

Links to other policies

This subject policy links to the following policies and procedures:

- Curriculum policy
- Assessment policy
- Marking policy
- SEN policy

Monitoring and review

This policy will be reviewed by staff and governors every two years.

This policy will be reviewed and agreed in line with Government guidelines by the Governing Body.

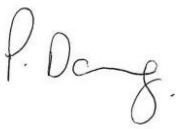
Approved and signed by:

Headteacher

Signed:

Date: 7th September 2023

Chair of Governing body



Signed:

Date: 7th September 2023