MATHEMATICS POLICY

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MATHEMATICS POLICY

Contents

1. Aims

Mathematics is a core subject within the National Curriculum. This policy outlines the purpose, nature and management of the teaching and learning of Mathematics at The Redway School. The subject teaches pupils about how to make sense of the world around them by developing their ability to calculate, to reason and to solve problems. It enables learners to understand and appreciate relationships and patterns in both number and space in their everyday lives. By learning to communicate and apply mathematical ideas and concepts, learners become equipped with the tools to tackle a range of practical tasks and real-life problems.

The aims are:

- To ensure that the curriculum is balanced and broadly based with pupils engaged in all areas of learning and experience.
- To provide a learning environment which will be stimulating for all pupils and will ensure achievement, challenge and progress.
- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion.
- To continue to develop pupils' ability to communicate their knowledge using appropriate vocabulary and problem-solving skills.
- To develop confidence and competence with numbers and the number system.
- To explore features of shape and space and develop measuring skills in a range of contexts.
- To equip learners with the language and skills to communicate their mathematical ideas.
- To understand the importance of Maths in everyday life and apply mathematical skills in a meaningful way.
- To improve learners' ability to solve problems through decision-making and reasoning in a range of contexts.
- To develop knowledge of money, its function and use.
- To provide appropriate accreditation and opportunities for life beyond school.

The Redway School aims to provide an environment where mathematics is part of daily life, beyond that delivered in maths lessons. Opportunities to practice counting, as well as discussion about shape and position/direction, are encouraged in all activities throughout the school day. Through this approach, the school provides an environment that is rich in the language of mathematics.

Early Years Mathematics

In the early years, our mathematics offer follows the EYFS statutory framework. Effective early mathematics experiences involve seeking patterns, creative and solving mathematical problems with stories, songs, games, practical activities, and imaginative play. A continuous provision with planned activities is implemented throughout the EYFS department. The learning in the early years prepares students to access the KS1-5 curriculum followed by the wider school.

2. Statutory requirements

Mathematics is a statutory subject.

The composites for study are taken from the National Curriculum statutory requirements and have then been adapted to meet the needs of our pupils. During the Ofsted Maths Review (2021) it was found that "Pupils with SEND benefit hugely from explicit, systematic instruction and systematic rehearsal of declarative and procedural knowledge." https://www.gov.uk/government/publications/research-review-series-mathematics/research-review-series-mathematics#print-or-save-to-pdf [Accessed 26/3/2022]

This is supported by the National Centre for Excellence in the Teaching of Mathematics which states that “Children’s chances of success are maximised if they develop deep and lasting understanding of mathematical procedures and concepts.” ‘Mastery’ is a pedagogical approach that is mathematical and places a greater emphasis on problem-solving and on deepening pupils’ understanding.
https://www.ncetm.org.uk/teaching-for-mastery/mastery-explained/ [Accessed 26/3/2022]

3. Content and Delivery

3.1 What we teach

At The Redway School we follow the aims described within Key Stage 1 and Key Stage 2 of the National Curriculum. All areas are adapted and interpreted to meet the needs of our learners so that Mathematics is taught at a level appropriate to their ability whilst maintaining correct levels of challenge. There is flexibility within the Mathematics curriculum to meet individual requirements. Maths is split into the following areas:

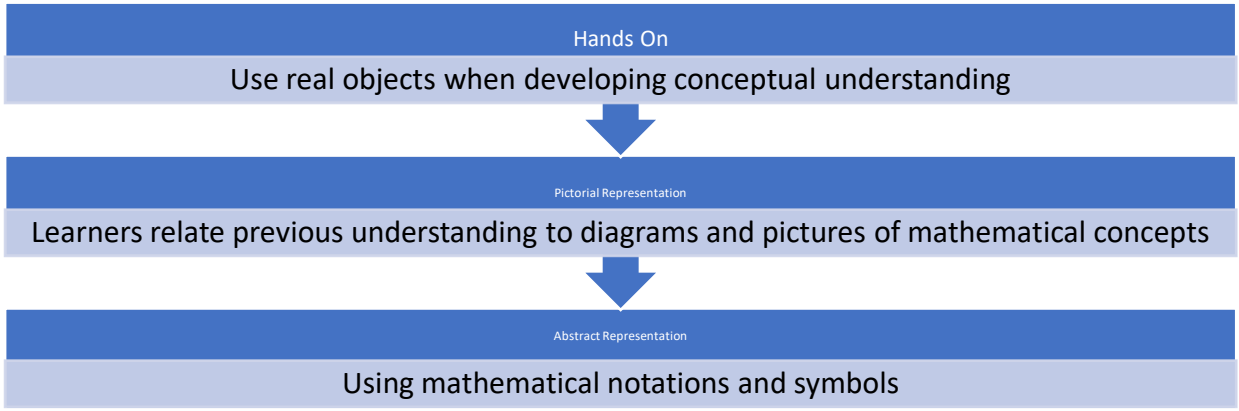
- Number – Number and Place Value
- Number – Additional and Subtraction
- Number – Fractions
- Number – Multiplication and Division
- Geometry – Properties of Shapes
- Geometry – Position and Direction
- Measurement
- Statistics

3.2 How we teach it

Our Mathematics Programme of Study is drawn from the National Curriculum but is divided into pre-formal, semi-formal and formal steps.

Our curriculum pathways recognise that pupils working at pre-formal level are not ready for subject specific learning and therefore these skills are taught through a cross curricular approach albeit linked to national curriculum subjects.

We use a concrete, pictorial, and abstract approach as recommended by the NCETM Maths mastery approach. The following chart shows how knowledge is developed.



Pre-Formal: Maths forms an integral part of learning to understand the world around them, and their sense of self. The curriculum reflects the ability and needs of these pupils and the prerequisite skills needed to engage with formal mathematics. Pupils who have not yet reached concrete stage are supported in their learning through sensorimotor activities (Piaget’s: Theory of Child Development, typically from birth to 2). The sensorimotor stage is where we learn about the world using our senses to interact with their surroundings and includes six areas:

- Reflexive - respond reflexively to touch or other stimulation, often by sucking and grasping. These actions will eventually become intentional.
- Primary Circular Reactions
- Secondary Circular Reactions
- Coordinating Secondary circular reactions
- Tertiary Circular Reactions
- Early Symbolic Thought

Semi-Formal: Pupils continue to develop their understanding of Maths through problem solving in play and real-life situations. Semi-formal learners develop mathematical thinking through focused learning opportunities that are adapted according to pupils' needs. Pupils are encouraged to develop problem solving skills. As part of our semi-formal curriculum, many of the pre-key stage standards are incorporated. It is in this pathway that pictorial representation is used.

Formal: The formal curriculum builds upon and extends the knowledge, skills and understanding introduced in the semi-formal curriculum. Symbolic representation is used although both concrete and pictorial can still be used for support particularly when re-enforcing or introducing new topics. As part of our curriculum design, it is developed to ensure that pupils:

- Can become fluent in the fundamentals of mathematics and problem solving and develop conceptual understanding.
- Can use mathematical language to explain their thinking and to reason mathematically
- Can solve problems by applying their mathematics to relevant real-life situations and in seeking solutions.

Planning

Planning is based on having a thorough understanding of the pupils' needs, gained through effective and rigorous assessment and tracking, combined with high expectations and a strong ambition for all children to achieve. We carry out curriculum planning in Mathematics within several timeframes: long-term (programmes of study), medium-term (medium term plans) and short-term (activity plans).

Our Programmes of Study give a detailed view of what is to be taught and supports teachers in sequencing learning.

Our medium-term plans, which are adopted from the programmes of study, give details of the main teaching objectives for each unit and details of what is to be taught. These medium-term plans are submitted to the senior management and governing curriculum panel for approval at the beginning of each term. Planning is guided by detailed rolling Schedules of Teaching for each subject, which ensure teaching remains broad and deep, and all learning composites are covered with no narrowing of curriculum.

Class teachers complete weekly plans for the teaching of Mathematics. These give specific learning objectives for each lesson and details of how the lesson will be taught, how support staff will be utilised and how adaptation will take place within the lesson in order to support pupils.

We endeavour at all times to set work that is challenging, motivating and which encourages the pupils to talk about what they are learning.

Method of Delivery
Each teacher is responsible for the delivery of Mathematics in their class. The school uses a variety of teaching and learning styles in Mathematics lessons. Daily mathematics lessons offer the opportunity for:

- Whole class teaching
- Group work
- Paired work
- Individual teaching
- Experiential and sensory work

As part of the mastery maths programmes there is a clear emphasis on a secure and deep understanding of foundation concepts. Therefore, we recognise the importance of establishing a secure foundation in practical and mental maths as well as the recall of number facts before standard written methods are introduced. We offer opportunities for pupils to apply and develop their mathematical skills across the whole curriculum through provision of quality, concrete and active experiences. This allows pupils to revisit, practice and consolidate different areas of Mathematics and apply them within different contexts. Teachers' expectations will ensure that all tasks have clearly identified learning outcomes and are matched to pupils' abilities.

Assessment
Teachers and support staff observe and record progress throughout the school year. Ongoing observation of this nature tends to focus on small achievements or changes in mathematics and problem solving.

Evidence for Learning allows teachers to upload photo/videos of pupils' learning and specific pieces of work. Evidence for Learning is used to record a student's learning journey. This also links to their specific EHC targets. These targets have been agreed by parents and carers and are part of a long-term goal specific to the pupil.

The pupil's annual EHC review report summarises the progress in Mathematics mainly within the Cognition & Learning section of the EHC plan. During this meeting, previous targets are discussed and new targets are set depending on the progress over the academic year.

Our bespoke Insights assessment framework provides summative assessment in mathematics, updated as pupils progress during an academic term. This assessment system closely reflects the small steps of expectation detailed in our curriculum programmes of study.

The end of year report summarises the child's progress throughout the year and reflects on achievements and progress made in all areas of the pupils' learning. Communication with parents is ongoing throughout the school year, in home schoolbooks and parents' evening each term. This allows feedback to be given for updates on pupils learning.

Assessment occurs throughout lessons through questioning, observation of pupils at work and marking of work. Daily assessment by the teacher in consultation with TA staff enable weekly plans to be adjusted if required; these short-term assessments are closely matched to the teaching objectives and pupil's progress towards meeting their individual targets.

4. Roles and responsibilities

4.1 The governing board
The governors and staff are committed to provide the full range of opportunities for all pupils regardless of gender, disability, ethnicity, social, cultural or religious background. All pupils

have access to the curriculum and the right to a learning environment which dispels ignorance, prejudice or stereotyping.

Governors, meeting as a curriculum committee and through classroom visits to school and liaison with parents, will monitor closely the quality of our mathematics teaching and learning and progression of pupils.

4.2 The headteacher

The headteacher is responsible for ensuring that mathematics is taught consistently and to a high quality across the school.

4.3 Staff

Staff are responsible for:

- Delivering the Mathematics curriculum reflecting the diverse needs of the pupils
- Modelling positive attitudes to Mathematics
- Monitoring progress
- Responding to the needs of individual pupils

Mathematics Co-ordinator

- Specific responsibilities (Carried out in consultation with the Head of Learning and in co-operation with colleagues and Governors):
- To have shared responsibility for the development of mathematics maintaining/improving standards.
- Successfully implement the Mathematics Action Plan.
- Be responsible for the regular review of whole school Maths policy in consultation with staff and Head teacher.
- Development of the Mathematics Study Programme to ensure continuity and progression of mathematical skills and knowledge
- Advise and work alongside colleagues in the classroom, to support, monitor and develop Mathematics.
- Organise Mathematics training as appropriate. This could be in-house or external.
- Advise about useful numeracy activities, resources, courses and reading.
- Attend training and keep up with current developments in the teaching of Mathematics.
- Liaise with teachers on assessment and progress within Mathematics.
- Organise and review resources and advise staff on their use and storage.
- To analyse assessment data to measure children's progress in mathematics.

4.4 Pupils

Pupils engage in:

- Practical work
- Investigation Work
- Problem Solving
- Mathematical Discussion
- Development of mental strategies
- Written Methods
- Consolidation of Basic Skills

5. Monitoring arrangements

The delivery of maths is monitored by the Mathematics lead and SLT through:

- Medium Term Plan Scrutiny
- Learning Walks
- Observations
- Subject Review

- Review of progress

This policy will be reviewed by the Mathematics Subject Lead and the Head of Learning on an annual basis.

6. Links with other policies

This policy links to the following policies and procedures:

- Teaching, Learning and Curriculum Policy
- Assessment and Moderation Policy