

Our school nurtures curiosity and creativity through an inspiring, broad and engaging curriculum, where learning is at the heart of all that we do.

Children at Reedley learn to become resilient and self-assured in a safe environment where challenge is key. Team Reedley are encouraged to thrive and achieve as individuals, preparing them for their role as caring and active citizens in modern Britain.

Reedley Primary School

Curricular Policy for Mathematics



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How Pupils Learn Mathematics

Mathematics helps children to make sense of the world around them through developing their ability to calculate, to reason and to solve problems. Mathematics enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of Mathematics.

At Reedley Primary School, staff aim to:

- develop a positive attitude to Mathematics as an interesting and attractive subject in which all children gain some success and pleasure.
- develop resilient learners in Mathematics through structured tasks which increase in challenge.
- develop children's concrete understanding of Mathematics using apparatus in order to prepare children for more abstract concepts.
- develop children's pictorial understanding of Mathematics in order to further prepare children for more abstract concepts.
- develop understanding through a teaching approach that puts conceptual variation – a carefully managed approach to moving from one interpretation to another - at its core.
- encourage the effective use of Mathematics as a tool in a wide range of activities within school and, subsequently, adult life.
- develop an ability in the children to express themselves fluently and explain their learning, to talk about the subject with assurance, using correct mathematical language and vocabulary.
- develop children's ability to solve Mathematical problems, with confidence, that relate to everyday life.
- develop ability to think clearly and logically with independence of thought and flexibility of mind.
- develop mathematical skills and knowledge and quick recall of basic facts.

Planning the Mathematics Curriculum

Mathematics is a core subject in the National Curriculum. The *Mathematics Programmes of Study: Key Stages 1 and 2 National Curriculum in England (2014)* and the *Mathematics Planning National Curriculum documentation – Lancashire County Council (2014)* are used as the basis for implementing the statutory requirements of the programme of study for Mathematics in Year 6.

Reedley has adopted the LCC Red Rose Mastery (RRM) programme of work from Reception to Year 6, which leads the pupils through lessons, but also makes them think carefully and deeply about what they are doing using the skills of variation, fluency, reasoning and problem solving. In Reception, we use RRM alongside Development Matters and aim to ensure that all children develop a firm mathematical foundation in a way that is engaging, and appropriate to their age. This planning is adapted to also include NCEM activities where appropriate.

A mastery curriculum rejects the idea that a large proportion of people 'just can't do maths' (NCETM 2016) and instead focuses on the idea that all pupils can achieve depth in their learning which can be accomplished by using key principles including:

- Representation and structure (effective pedagogies for modelling, concrete-pictorial-abstract approaches, effective use of manipulatives and transition between them).
- Coherence (curriculum design, progression of objectives, sequencing learning, small steps, contextualising learning between different areas of mathematics).

- Mathematical thinking (effective questioning, identifying patterns and relationships, deep understanding through reasoning and problem solving, supporting children to achieve deeper learning where appropriate).
- Variation (progression through representations using conceptual variation, progression through questioning using procedural variation)
- Fluency (efficiency, accuracy, flexibility, developing unconscious competence).

Red Rose Maths is based on revisiting learning regularly and using knowledge and skills across the curriculum to help embed learning in children's memory. The KS1 and KS2 curriculum satisfies the requirements within the National Curriculum. Year group expectations are broken down into smaller manageable steps around which to build individual lessons. Staff are aware of the need for flexibility within this approach for children to access breadth and depth of a concept.

Staff frequently upskill staff through continuous professional development including insets from the Lancashire Mathematics Team and guest speakers. Being part of the Abacus North West Maths Hub, both teachers from the year groups Reception, Year 1 and Year 2 will be trained in Mastery in Number. The aim is that children will develop 'good number sense,' and over time, they will leave Key Stage 1 with fluency in calculations and a confidence and flexibility with number.

Classroom Organisation, Time Allocation and Teaching Styles

Although the programmes of study of the National Curriculum (2014) are organised into distinct domains, we believe, as the National Curriculum states '*that pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasing sophisticated problems*' (DFE, 2013:3) Staff aim to teach a curriculum which encompasses all areas of Mathematics such as logic, reasoning and using and applying, making links where appropriate to embed conceptual understanding.

Staff believe that conceptual variation is key for children to master concepts and become stronger mathematicians. Variation is not simply "variety" in lessons but is a carefully managed approach which exposes children to different representations in order to deepen understanding. As the Lancashire approach advocates, "*variety involves illustrating the concept in various ways that are randomly organised. This might include showing two-digit numbers using too many different representations without allowing the children to identify what is the same and what is different about each way of showing the numbers.*" For example, the number 43 can be shown using many different practical resources such as those shown below.



In all classes, there are children of differing starting points in Maths. Teachers recognise this fact and provide suitable learning opportunities for all children by scaffolding learning in order to achieve age related outcomes. They achieve this through a range of strategies e.g. varying the teacher and/or TA input within a lesson so all children can access learning and encouraging children to ask, as well as answer, mathematical questions.

Teaching assistants are appropriately involved in the planning and delivery of the Mathematics curriculum. Their knowledge, skills and understanding is constantly updated through involvement in school-based and LA led Inset.

Throughout the lessons, there will be a strong focus on vocabulary. Vocabulary will be taught explicitly so that children have a good understanding of the definition of key words. Stem sentences

will be used for children to orally represent what they have learnt. These will be modelled by adults and displayed within the classroom. Children will be taught how to articulate themselves so that they can talk about the mathematical procedures they are using the carry out calculations and justify their chosen methods.

Resources

There are a range of resources to support the teaching of Mathematics across the school. Staff understand the importance of using concrete, pictorial and abstract models to support children's learning in Mathematics. All Phases have a wide range of appropriate practical apparatus. A range of audio visual aids are also available and a range of software is available to support work. Teachers encourage children to access Mathematics at home and subscribe to recognised websites that foster children's love of the subject e.g. Times Tables Rock Star®, Numbots® and Maths Whizz®.

Equal Opportunities including Special Needs

Staff endeavour to maintain an awareness of, and provision for, equal opportunities for all the pupils in Mathematics. They aim to consider cultural background, gender and additional needs, both in our teaching attitudes and in the published materials we use with the pupils.

Teachers use a variety of first quality teach strategies to meet the needs of all pupils and Teaching Assistants support pupils to achieve the outcome, extending to deeper learning where appropriate. A pupil whose difficulties are severe or complex will be supported with an individualised programme. Very occasionally, arrangements will be made for an exceptionally gifted pupil, e.g. they may follow an individualised programme with support from TAs/Teachers.

Developing Spiritual, Moral, Social and Cultural Education within Mathematics

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside of structured lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourages them to work together and respect each other's views.

Staff recognise the importance of responding to children's work, whether orally or in writing. They seek to encourage children by acknowledging positive achievements. This includes praise for use of a viable method, even if the results were incorrect. Children are frequently provided with next steps to support and enhance their understanding and make links between previous and future learning. Children are given opportunities and are actively encouraged to explain their work to others, and to display their work when it seems appropriate. They are encouraged to value and respect the work of others.

Assessment and Record Keeping

At Reedley Primary School, staff recognise that Assessment for Learning (AfL) lies at the heart of raising standards of attainment. They further recognise that effective AfL depends crucially on using the information gained to identify next steps in learning and supporting the needs of the pupil.

Assessment is on-going, and pupil progress informs planning on a daily basis. Summative data is collated on 'Insight' at the end of the Autumn Term, Spring Term and Summer Term to determine whether children are 'Below', 'Expected' or 'Above' within which year group. If children are not working at their age related expectations, support and scaffolding are provided as necessary. The use of guided sessions, outside of the maths lesson, can support the accelerated learning of key outcomes from a lower year group or the application of greater understanding by explaining reasoning of Maths subject knowledge.

The assessment procedures within our school encompass:

- responding appropriately to pupils during 'day-to-day' teaching. These 'immediate' responses are mainly verbal and are not normally recorded.
- effective marking and feedback in line with school policies.
- using knowledge of pupils (prior learning) drawn from on-going pupil tracking records, the progression documents and key questioning to inform planning and teaching.
- adjusting planning and teaching in response to pupils' performance.
- use of the AfL questions within the assessment section of the *Lancashire Interactive Planning tool* (National Curriculum 2014) to check learning against the end of year objectives. Future planning is adapted in response to assessment outcomes.
- use of on-going teacher assessment and formative assessment to identify children who have specific needs and use guided sessions to address barriers to learning and help children progress.
- use of information gained from statutory and optional tests. Analysis is done at both a quantitative and qualitative level. Information gained is used to set focused curricular targets (what to teach) and also to determine which strategies or methods are particularly effective in respect of specific areas of Mathematics (the how and why).

Monitoring arrangements

Monitoring of the standards of children's work and of quality of teaching in Mathematics is the responsibility of the Headteacher and link governor supported by the Subject Leader.

The work of the subject leader also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

- Ensuring continuity and progression from year to year.
- Providing all teaching staff with guidelines, long-term planning and materials to show how aims are to be achieved and how the variety of all aspects of Mathematics is to be taught.
- Completing an analysis at the end of each term to inform the SDP and report to Governors.
- Producing an action plan to meet the outcomes of the analysis as they appear on the SDP.
- Leading the teaching of Mathematics by example and supporting colleagues in the opportunity to share good practice.
- Leading professional development of all staff in Mathematics in accordance with staff development needs and supporting and guiding staff by encouraging the sharing of ideas.
- Advising and supporting colleagues in the implementation and assessment of Mathematics throughout the school.
- Assisting with the requisition and maintenance of resources required for the teaching of Mathematics.
- Keeping the written policy up to date and keeping under review the key objectives for Mathematics in line with the requirements of the National Curriculum.
- Monitoring standards in Mathematics across the school through classroom observation, learning scrutiny, teachers' planning, discussion with teachers, pupil interviews and data analysis.
- Being aware of national developments in Mathematics through reading relevant materials and attending courses where appropriate.

Reviewed: July 2024

This policy will be reviewed each year to accommodate changes.