

Mathematics – Curriculum Design Intent



National Curriculum

Purpose of study - 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 for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims - The national curriculum for mathematics aims to ensure that all 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.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- 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.

Mathematics Intent at Rodbourne Cheney Primary School

At Rodbourne Cheney Primary School, we want Mathematics to be an important creative discipline that helps us to understand and change the World. We want all pupils at Rodbourne Cheney Primary School to experience the beauty, power and enjoyment of mathematics and develop a sense of curiosity about the subject.

At Rodbourne Cheney Primary School, we foster positive 'can do' attitudes, believe all children can achieve in mathematics, and teach for secure and deep understanding of mathematical concepts. We use mistakes as an essential part of learning and provide challenge through rich and sophisticated problems before acceleration through new content. We endeavour to provide an exciting and stimulating environment for the children to learn maths, fostering positive, confident attitudes.

Our timetable will allow for the delivery of two maths session per day. The main maths lesson will be around 45 minutes long and deliver the curriculum using specific key learning objects. The second session will be approximately 20 minutes and will allow pupils to review previous learning (particularly arithmetic skills and knowledge), keeping it alive for the children.

We aim for all pupils to:

- Enjoy learning mathematics and develop a ‘can do’ attitude and belief in their mathematical ability.
- Understand how mathematics relates to real life, everyday experiences.
- Become fluent in the fundamentals of mathematics so that they develop secure and deep understanding of mathematical concepts which they can rapidly recall and apply.
- Solving problems by applying their mathematical knowledge to a range of problems from a variety of contexts.
- Use mathematical reasoning and vocabulary to develop knowledge so that they can rationalise, justify or prove their understanding.

Mathematics Implementation at Rodbourne Cheney Primary School

Maths in Early Years:

In the Foundation Stage, maths is taught through a carefully sequenced combination of whole class input, small group adult-led activities alongside continuous provision. At the start of Year 1, this approach is used initially in a way that builds on EYFS practice in order to meet the appropriate National Curriculum objectives.

Maths in Key Stage 1 and 2:

Mathematical learning, in each year group, is planned from the relevant National Curriculum objectives. These are blocked into themes or units and then divided into small manageable steps to create a clear mathematical journey through the learning. New learning is taught through the daily maths lessons, while regular review session enables further practicing, consolidation and revisiting of prior learning.

Daily Maths Lesson
New manageable step of learning
Teach (learning together) – learning together with modelling, representing, use of vocabulary and language to develop conceptual understanding.
Teach (Practice together) – assessment for learning opportunities.
Independent practice.

Maths Review Session
Practicing, consolidating, and revisiting
Practise to make skilled
Intervention
Arithmetic
Developing fluency

Typical Lesson design:

- Hook – Introduction
- Teach – Modelling using mathematical vocabulary, representations and misconceptions to develop concepts.
- Practice together – challenge, support and assessment for learning to identify that children are ready to move on to independent practice, as well as identifying those children who may need additional support.

Independent Practice

- Up to 5 examples including 'Standard' and 'Non-standard' examples to develop procedural fluency (Do it).
 - Mistakes or misunderstandings (true or false, spot the mistake, reason and explain) to challenge and develop conceptual fluency (Secure it).
 - Apply learning to new problems to challenge and deepen mathematical thinking.
- Review learning.

Typical Review coverage:

- Pre-teaching
- Interventions
- Arithmetic fluency
- Deliberate Practice of prior learning
- Fact session (Friday): Y1 Bonds
Y2 Multiplication and Division
Facts 2,5,10 KS2 Multiplication
and Division Facts

Maths Impact at Rodbourne Cheney Primary School

What you will see in our classrooms is:

- Children who feel like they can be successful in mathematics
- Children developing conceptual understanding of the mathematics they are learning
- Children explaining their mathematical thinking using appropriate mathematical language and representations.
- Equitable provision to meet the needs of individuals and groups within each setting

Assessment of endpoints

In addition to the ongoing formative assessment in lessons, in the Foundation stage, pupils are ultimately assessed against the Early Learning Goals, but this does not constitute the full Educational Programme of Study. To this end, termly 'Ready to Progress' criteria are used to

ascertain if pupils are 'on track' with reference to the Educational Programme and these are assessed on a termly basis.

In KS1 & 2, Key Performance Indicators identify the essential learning that all children need to have a secure understanding in, to successfully progress to the next stage of learning and meet at least expected standards by the end of key stages 1 and 2. These are assessed regularly to support teacher judgments.