Newnham St Peter's C of E Primary School Mathematics Curriculum

School Vision

Cherish Everyone ~ Flourish Together ~ Serve Others

Newnham St Peter's School Intent Statement

We aim to work in partnership with parents, governors, the Church and the community to provide a broad and balanced curriculum that enables all our children to develop into well rounded individuals and life-long learners. As a church school our curriculum is built upon a strong Christian foundation, with our core values of hope, perseverance, respect, friendship, forgiveness and thankfulness at the heart of all we do.

Curiosity underpins lifelong learning, from pre-school up our curriculum is based upon asking questions and exploring. Reading is the gateway to sustainable learning. We have a structured approach to reading to ensure children develop skills that are applied across the curriculum. Vocabulary is a key focus and our curriculum is designed to ensure children develop both rich creative and subject specific vocabulary.

To ensure knowledge is retained and learning 'sticks', our curriculum is carefully mapped out across all phases, providing continuity, supporting transition and revisiting / building on key concepts.

Our curriculum is centred on our Forest of Dean setting by the River Severn whilst also ensuring that pupils are outward looking with planned opportunities to gain experience of the wider world.

We aim for children to leave our school not only achieving their full academic potential, but with the skills to keep themselves physically, mentally and spiritually fit. The confidences to push themselves outside of their comfort zone and the moral compass and drive to be active global citizens.

Intent

Mathematics is an important, creative discipline that helps pupils to understand and change the world. We believe that it is important that our pupils are able to recongise the importance of Mathematics in the wider world so that they can confidently and independently apply their mathematical skills and knowledge in their lives to a range of different contexts.

At Newnham St. Peter's we want all pupils to enjoy mathematics and be able to experience the beauty and power of it through success.

We aim for all pupils to:

- Become fluent in the fundamentals of mathematics.
- Solve problems by applying their mathematics to a variety of problems.
- Reason mathematically by following a line of enquiry.
- Have an appreciation of number and number operations.

We deliver our Mathematics lessons through small step progression so that pupils become fluent in the fundamentals of mathematics (see Year by Year Curriculum Maps). This allows for them to develop a conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. The curriculum has been designed so that pupils can linger longer over key concepts that have been proven to cause challenges if not fully understood.

Year by year curriculum maps reflect the National Curriculum statements. These curriculum maps are broken down into termly overviews and are then carefully structured into progressive daily learning objectives. Alongside the daily learning objective, the pupils also complete a fact check. Ongoing fact checks give pupils an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately.

We believe that pupils need to be able to preform number operations, mental calculations and written procedures efficient, fluently and accurately in order for them to secure other concepts within mathematics. Because of this, pupils have one arithmetic focussed lesson a week. This provides pupils with the opportunity to secure these fundamentals of mathematics.

At Newnham St Peter's Primary School, we use mistakes and misconceptions as an essential part of learning. There is a particular emphasis on this within the reasoning section of the lessons. 'Twist it' questions allow the pupils to reason mathematically by following a line of enquiry. Furthermore, it gives them the opportunity to develop and present a justification, argument or proof using key mathematical language. Within this part of the lesson, pupils are taught to reason accurately through the use of key mathematical vocabulary to explain mathematical concepts. Stem sentences are used daily in order to support the pupils to verbalise their learning.

Implementation

EYFS

Key Stage 1 and Key Stage 2

Pupils in Key Stage 1 and Key Stage 2 have daily Mathematics lessons. This consists of one arithmetic lesson and four lessons based on the learning objectives from the Can Do Maths scheme. Every lesson focusses on a new manageable step of learning that build upon the last step. Each new step of learning is based on the National Curriculum statements.

At the beginning of each new unit, pupils are introduced to the new mathematical concepts through a unit hook. Each unit hook is based on a mathematical story which illustrates how mathematical knowledge and skills can be used by characters to help solve a problem or a crisis. It provides the pupils with a meaningful context in which they can apply their learning. Furthermore, it provides them with the opportunity to complete hands-on mathematical investigations. This is an essential part of the learning journey and helps to stimulate pupils' curiosity about the new mathematical concepts.

A typical Mathematics lesson from the Can Do Maths scheme is made up of the following structure:

Fact Check – Ongoing fact checks give pupils an appreciation of number and number operations, which enables mental calculations and written procedure to be performed efficiently, fluently and accurately.

Teach It – Pupils are exposed to the new learning through live modelling. This usually adopts a pictorial, abstract approach. There is also explicit use of modelling potential misunderstandings. Use of manipulatives allow for pupils to make meaningful connections with abstract Mathematical concepts. Manipulatives allow for pupils to construct an understanding of ideas that they can then connect to mathematical vocabulary and symbols. Manipulatives are freely available for all pupils to access.

Practise It – All pupils practise their new learning together.

Do It – Pupils apply their new learning to five fluency style questions.

Twist It – Pupils demonstrate their conceptual understanding through the use of identifying mistakes, odd one out and true/false style questions.

Solve It – Pupils apply their new learning to problems encouraging pupils to think mathematically.

Review It – Pupils reflect on and review their new learning including the use of new key mathematical vocabulary and the stem sentence.

Apply It (KS2) – Pupils independently apply their new learning to test-based questions.

The impact of Mathematics is measured through 'Remember its' which assess the pupils' understand at the end of each unit. The questions are carefully crafted to give the teachers a diagnostic understanding of fluency, reasoning and problem solving.

Impact- What we want the outcomes to be

- Enjoy mathematics and experience the beauty and power of it through success.
- Have an appreciation of number and number operations, which allows for pupils to perform mental and written calculations efficiently, fluently and accurately.
- Be able to reason mathematically using precise mathematical vocabulary when following a line of enquiry.
- Show perseverance when applying mathematical concepts to a variety of sophisticated problems.
- Be able to apply their knowledge of mathematics to a range of concepts in the wider world.
- Be confident in using a range of manipulatives to make connections with mathematical concepts.