Newton Tony Primary School's CE VC Maths Policy	
Policy agreed :	17/10/2024
Policy published (including on website) **:**	17/10/2024
Next review :	17/10/2025 or as required

Our School Vision

Our school is a safe, welcoming and nurturing school that offers a sense of belonging. We are situated in a small, rural village and we pride ourselves that we know each and every child. Our strength lies in putting the needs of the child at the heart of everything we do. We offer an exciting and stimulating curriculum, with high quality teaching that provides a rich, rewarding and enjoyable learning environment for all. Through a solid partnership working with parents, our church and His Majesty's Armed forces, we encourage children to become confident, caring and independent young learners. We believe that 'Everyone cares and Everyone counts'. In our school our vision is underpinned by the bible verse **'Love One Another As I Have Loved You' (John 15:12)** ; it shapes all we do.

Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of Mathematics at Newton Tony Primary School. Mathematics is a core subject and this policy has been written in accordance with its statutory requirements. All pupils can achieve in mathematics! At Newton Tony Primary School, it is our belief that pupils are not learning to be mathematicians but that they are mathematicians. 'Mathematics is a creative and highly inter-connected discipline…a high-quality mathematics education should provide 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.' (National Curriculum for Mathematics, 2014).

Intent

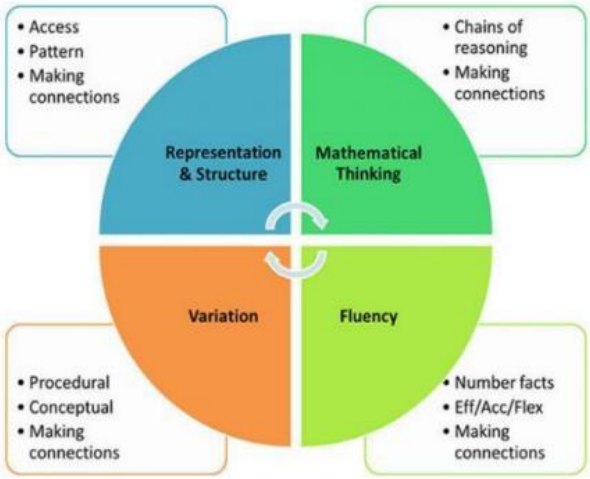
We aim to equip pupils with the tools to understand Maths. These tools include reasoning, problem solving and the ability to think in abstract ways. Mathematics is integral to all aspects of life; with this in mind, we strive to ensure that our children develop a healthy and enthusiastic attitude towards mathematics that will stay with them and support them in the next stage of their education and beyond. At each stage of learning, children are actively supported to reach their full potential as mathematicians.

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. I

Implementation

All teachers follow a termly overview plan and are encouraged to design lessons using a range of resources, including, but not limited to, the White Rose Maths Scheme of Learning from the White Rose Maths Hub. A typical Maths lesson provides the opportunity for all children, regardless of their ability, to become confident and capable learners. We are committed to building on prior learning and enabling our children to demonstrate a deep, conceptual understanding of each topic that they can develop over time. They are encouraged to develop fluency in their recall of key facts and a whole school approach to the teaching of calculation strategies is deployed across the school. This ensures a consistent and progressive approach and prepares our children for the upper key stage 2 curriculum. Reasoning and problem-solving skills are explicitly taught to enable children to become independent learners who are prepared to take risks. Additional time is allocated to arithmetic to ensure key skills in calculation are retained. The teaching of multiplication facts continues to be a discrete focus, where the applications of these skills are essential for accessing other areas of mathematics. To make the learning relevant, cross-curricular links are made wherever possible and children are encouraged to apply skills from all areas to complete real-life challenges and give learning a sense of purpose.



Coherence	Representation & Structure	Mathematical Thinking	Fluency	Variation
Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children that enables them to apply the concept to a range of contexts.	Representations used in lessons expose the mathematical relationships and structure being taught.	Ideas are worked on by the children: thought about, reasoned and discussed with 'talk partners'.	We promote quick and efficient recall of facts and procedures and the flexibility to move between different contexts & representations.	We aim to represent the concept being taught in more than one way. We encourage children to pay attention to what is kept the same and what changes.

To provide adequate time for developing key skills in fluency, reasoning and problem solving, each class teacher will provide at least five daily mathematics lessons per week. This may vary in length but will usually last for about 45 to 60 minutes. Additional mathematics may be taught within other subject lessons when appropriate. Class teachers provide high quality maths lessons ensuring that there is emphasis on direct whole-class teaching, groups/partner work and independent work. We use a range of approaches (concrete, pictorial and abstract methods) following the White Rose scheme of work, teaching mathematical concepts through small steps. Staff are expected to teach and model correct mathematical language, which scaffolds children's reasoning and explanation skills – sentence stems are used to develop this.

Maths in Early Years

In EYFS we follow the EYFS framework. Teachers 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 using White Rose Maths and Number blocks. The children have a wide range of

structured play resources available to them throughout the year - this is known as "continuous provision". The adults model the use of these resources and the appropriate mathematical language as they support the children in their play.

Our overarching aims are for children to:

- Make good progress towards the Early Learning Goals.
- Be confident in communicating their ideas.
- Develop a positive attitude towards maths and be willing to 'have a go'

Our maths sessions cover all of the number work that will support the children to meet the Early Learning Goals and the learning trajectories that build children's understanding and help them make connections between different mathematical concepts.

Maths in Years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure pupils develop confidence and mental fluency. The essential idea behind the mastery approach is that all children have a deep understanding 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 maths 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 maths. Throughout Key Stage 1, it is important children gain a secure knowledge of number and place value and become confident when using the four operations in both formal methods as well as problem solving where often the approach is not immediately evident.

White Rose mastery approach to teaching:-

- **Puts numbers first** – confidence with numbers is the first step to competency in the curriculum as a whole.
- **Puts depth before breadth**: reinforce knowledge again and again.
- **Encourages collaboration**: children progress as a group, supporting each other as they learn.
- **Focuses on fluency, reasoning and problem solving:** it gives children the skills they need to become competent mathematicians.

Maths in our Lower Key Stage 2 (Years 3 and 4)

In Years 3 and 4, the focus is to ensure the children become increasingly fluent with whole numbers and the four operations (including number facts and place value). Pupils begin to develop efficient written and mental calculations with increasingly large whole numbers. They begin to develop their ability to solve a range of problems, including simple fractions and decimal place value. The children develop mathematical reasoning to help them analyses shapes and their properties and confidently describe their relationships. By the end of Year 4, children should have memorised their multiplication tables up to and including the 12 times table and be able to show precision and fluency in their work.

Pupils in Year 4 are prepared for the Multiplication Tables Check (MTC) in the summer term.

Maths in our Upper Key Stage 2 (Years 5 and 6)

In Years 5 and 6, the focus of Maths is to ensure that children extend their understanding of the number system and place value to include larger integers. Pupils should be able to make connections between multiplication and division with fractions, decimals, percentages and ratio. Children should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems that demand the use of efficient written and mental methods of calculation. Children

are introduced to algebra as a means for solving a variety of problems. The children's understanding and knowledge in geometry and measures consolidates and extends the knowledge they have developed in number; children should be able to classify shapes with increasingly complex geometric properties, using the vocabulary they need to describe them with accuracy and confidence.

Impact

The impact of our Maths curriculum is that at the end of Key Stage 2 our pupils achieve and make progress in line with other pupils nationally, evident through:

- Fluency in their recall of key number facts and procedures
- Accuracy in the formal calculation methods for all four operations
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The ability to recognise relationships and make connections in mathematics.
- The confidence and resilience to reason mathematically and solve a range of problems.

Special Educational Needs

Children with additional needs are supported by using practical resources and differentiated activities where needed. They are also further supported by additional support staff whenever possible. Where applicable, children's provision maps will incorporate suitable objectives from the National Curriculum or the EYFS curriculum and teachers keep these objectives in mind when planning work. In addition to quality first teaching, interventions (where applicable) also take place during the afternoons and focus on those children who may need more specific targeted input.

Assessment, Recording and Reporting to parents

Assessment is an integral part of the maths curriculum and not an addition to it. Children's work in mathematics is assessed from three aspects:

1) Informal, formative assessments are made continually by questioning the children, observing and monitoring their work. These short term assessments are closely related to the learning objectives for the lesson and help inform next steps.

2) Periodic assessments take place at the end of each unit – we use White Rose Maths end of unit assessments to check progress and understanding of content covered. This information also informs interventions.

3) Summative assessment is less frequent - this is the use of tests or more formal assessments to find out what children have learnt. We use White Rose Block Assessments, which are completed at the end of each term. Results of these assessments are recorded on the Insight Target Tracker.

Statutory Assessment Tests (SATs) are used for children in Year 2 (optional) and 6, plus children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term. The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics.

A whole school tracking system (Insight) is used to closely monitor children's progress throughout the school. Teacher assessments are entered termly and are closely analysed by the Maths Lead to identify children working at greater depth or who are at risk, appropriate intervention is then put in place to close gaps.

We see the relationship with parents as very important in supporting their children's mathematical skills. There is a dedicated maths page on our school website with provides specific documents for parents outlining what is covered in each year group and ways they can support at home. Parents also receive an end of year report which provides information on their child's outcomes and progress.

Routes through Calculation

Our routes through calculation have been devised to meet requirements of the National Curriculum 2014 for the teaching and learning of mathematics, and are also designed to give pupils a consistent and smooth progression of learning in calculations across the school.

Many of these examples also derive from the White Rose calculations policy and tie in with the White Rose schemes of learning used across the school. Children have access to a wide range of counting tools and apparatus throughout. It is important that any type of calculation is given a real life context or problem solving approach to help build the children's understanding of the purpose of calculation, and to help them recognise when to use certain operations and methods when faced with problems - this is a priority within our lessons.

Children are taught and encouraged to use the following processes in deciding what approach they will take to solve a calculation; to ensure they select the most appropriate method for the numbers involved: "Can I do it in my head using a mental strategy?" "Could I use some jottings to help me?" "Should I use a written method to help me work it out?" Mathematical vocabulary is important with each operation so this is a key part of their learning, for example, we will use the term 'ones' and 'units'. E.g. Th, H, T, U /Th H T O or 1000s 100s 10s 1s. Vocabulary specific to each method is shown within each route through calculation. Stem sentence starters are visible in all classrooms to help children use full sentences when explaining mathematically. Teachers are encouraged to model the use of Stem Sentence starters when giving feedback.

Times Tables

At Newton Tony Primary School, we believe that through a variety of interactive, visual and engaging techniques, all children can achieve the full multiplication tables knowledge by the time they leave Primary School.

The National Curriculum (2014) states that by the end of year 4, pupils should be able to recall multiplication and division facts for multiplication tables up to 12x12. Children in Year 4 are also required to take a multiplication tables check (MTC) in the Summer Term.

The purpose of the check is to determine whether pupils can fluently recall their times tables up to 12, which is essential for future success in mathematics. This means it is important for the children to learn their multiplication tables facts and to be able to recall them quickly and accurately.

Information about the MTC check can be found here:-
https://www.gov.uk/government/collections/multiplication-tables-check

We teach times tables using the following progression:

	NC Times Table expectation
Year 1	Count in multiples of 2, 5 and 10.
Year 2	To remember and use multiplication and division facts for the **2, 5 and 10** multiplication tables, including recognising odd and even numbers.
Year 3	To remember and use multiplication and division facts for the **3, 4 and 8** multiplication tables, including recognising odd and even numbers. **(Uses the Wiltshire County daily tables check)**
Year 4	To remember and use multiplication and division facts for the **6,7,9,11,12** multiplication tables.

	(Uses the Wiltshire County daily tables check)
Year 5	Revision of all multiplication and division facts for the multiplication tables up to **12 x 12**. **(Weekly tables check in challenge).**
Year 6	Revision of all multiplication and division facts for the multiplication tables up to **12 x 12**. **(Weekly tables check in challenge).**

To support children's learning of multiplication tables children have a access to Mathletics and to Times Tables Rockstars (TTRS). This is an online resource that Years R-6 use to aid the teaching and fluency of Multiplication and Division facts. Year 5/6 have access to IXL for homework tasks.

Monitoring

The Maths Lead and SLT are responsible for monitoring the standard of pupil's work, the quality of the teaching and evaluating impact. The work of the team involves supporting colleagues in the teaching of mathematics, being aware of current developments in the subject. The school leadership team (+ maths lead) will observe mathematics lessons and give feedback, staff will be directed to relevant CPD to develop their skills and support and improve their practice. Work scrutiny takes place termly to monitor progress, coverage and standards for the purpose of moderation. The school is currently involved in a Developing Mastery in Maths Working Group, so will receive termly whole school support and external monitoring visits to support our continued journey into Mastering Maths at Newton Tony Primary School.