Maths at The Nethersole CofE Academy Primary School

To be light (living in our community and reaching out beyond it) bringing out the God-colours in the world.'

Jesus said, 'You're here to be light, bringing out the God-colours in the world.' ***Matthew 5:16***

HOPE	COMMUNITY	DIGNITY & RESPECT	FORGIVENESS	WISDOM	THANKFULNESS
					

Summer 2025

Intent -

Our curriculum intent at The Nethersole CofE Academy is to provide a broad, exciting, and challenging curriculum of the highest quality for the children in our care; encouraging, motivating and ensuring all children develop a love of learning, in order to achieve their full potential.

Vision -

The Nethersole Church of England Academy Primary School and Nursery has a Christian foundation that inspires its life and work. Following the teaching of Jesus, we accept the challenge - *'to be light [living in our community and reaching out beyond it], bringing out the God-colours in the world.' Matthew 5:16*

At the heart of our school is the belief that everyone is a child of God, fearfully and wonderfully made in his image. Our work therefore is to nurture and love every individual, child and adult, to find and develop their gifts, overcoming barriers and growing in confidence to **flourish** - to let their light shine as the very best God version of themselves. Effective teaching and learning underpin this. We wish to inspire everyone to take responsibility for creation, civilisation, and the well-being of each of other, embracing and treasuring our differences.

Our Christ led vision is for a world of justice, respect, and love, and of people who are not afraid to love and sacrifice themselves for others. Our inspiration is Jesus, who loves us in sacrifice, forgives us and reminds us that we each have something special to do to bring out the God colours of the world. We believe that there is a space for everyone to shine brightly and differently and that this adds to the richness of our school family, our community and the wider world.

Our Christian Vision for everyone to be unique shining lights in God's world is illuminated by our biblically based **Christian Values** that we learn to radiate in our daily lives - in our attitudes, relationships, behaviour, choices and decisions.

Curriculum Design -

Our curriculum is ambitious for our children and is based on the National Curriculum. Nevertheless, we recognise that this is the minimum entitlement for our children. Each subject is taught as a discrete discipline. Whilst developing our curriculum, links were considered very carefully to build on knowledge and skills within each subject, across the school and across subjects. We also carefully considered our local context, diversity, environmental awareness and health education when designing our curriculum.

The 4R's

The Nethersole CofE Academy Primary School encourages children to display the following positive learning behaviours -

Resilient Learners - Children persevere, and they do not give up, even when a task is difficult.

Responsible Learners - Children will have their equipment ready, reading books and reading diaries in school daily. Tables tidy and organised.

Resourceful Learners - Children will use their previous learning to support their new learning. They will utilise working walls and choose appropriate equipment.

Respectful Learners - Children show kindness to all and illustrate good manners to all.

What is Mathematics?

EYFS Definition –

The objective for those working in Early Years is to ensure that all children develop firm mathematical foundations in a way that is engaging, and appropriate for their age.

There are six key areas of early mathematics learning, which collectively provide a platform for everything children will encounter as they progress through their Mathematics learning at primary school, and beyond:

Cardinality and Counting -

Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents.

Comparison

Understanding that comparing numbers involves knowing which numbers are worth more or less than each other.

Composition

Understanding that one number can be made up from (composed from) two or more smaller numbers.

Pattern

Looking for and finding patterns helps children notice and understand mathematical relationships.

Shape and Space

Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking.

Measures

Comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later.

KS1 Definition -

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

KS2 Definition – Lower Key Stage 2 -

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

KS2 Definition – Upper Key Stage 2 –

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and

ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

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 is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. The expectation is that most pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

The Mathematics National Curriculum

Maths Intent –

The overarching aim for Mathematics at the Nethersole CofE Academy is to ensure that:

All pupils will develop an enjoyment of Mathematics and a depth of understanding.

All pupils will build fluent and rapid recall of key number facts, including times tables, which will help to reduce their cognitive overload. They will be confident to use a range of manipulatives and representations, to efficiently and appropriately expose structures within maths, rather than to 'do' the maths.

All pupils will reason mathematically. They will be able to explain their mathematical thinking, using a broad range of knowledge, skills and approaches. This will enable them to identify connections and to justify or prove their lines of enquiry using mathematical language.

All pupils will have the confidence to solve problems. They will be able to approach a problem methodically, having the ability to unpick and retrieve key information, breaking the problem into manageable parts. Pupils will show their resilience and perseverance in seeking solutions.

Maths Implementation –

Mathematics is taught as a discrete subject from EYFS through to Year 6. In Reception, the NCETM Mastering Number programme forms the basis for specific teacher input, with the children afforded a range of opportunities through continuous provision, to use and apply the knowledge and skills learnt. In Years 1 to 6, the NCETM Ready to Progress criteria are used to provide the basis of the mathematics curriculum, with White Rose being used to provide supplementary resources and questions. In addition to the daily Mathematics lesson, children receive an additional daily input that focuses on number sense and mental fluency, to support the children to be able to rapidly recall key number facts.

Whole School Long Term Plan –

<table>
<tr><th>Year Group</th><th>Autumn 1</th><th>Autumn 2</th><th>Spring 1</th><th>Spring 2</th><th>Summer 1</th><th>Summer 2</th></tr>
<tr><td>EYFS</td><td colspan="2">Subitising and counting skills.
Composition of numbers within 5.
Compare sets of objects.
Use the language of comparison.</td><td colspan="2">Subitising and counting skills.
Composition of numbers within 5 and beyond 5.
Two sets are equal or unequal.
Connect quantities to numerals.</td><td colspan="2">Develop counting skills and counting larger numbers.
Wider range of counting strategies.
Secure knowledge of number facts.</td></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Number and Place Value - Previous Reception experiences and counting within 100</td><td>Number and Place Value - Comparison of quantities and part-whole relationships</td><td>Geometry - Recognise, compose, decompose and manipulate 2D and 3D shapes</td><td>Addition and Subtraction - Additive structures</td><td>Number and Place Value - Numbers 0 to 20</td><td>Number Facts - Unitising and coin recognition</td></tr>
<tr><td>Number and Place Value - Numbers 0 to 5</td><td>Number and Place Value - Numbers 0 to 10</td><td rowspan="2">Number Facts - Addition and subtraction facts within 10</td><td>Number and Place Value - Numbers 0 to 20</td><td rowspan="2">Shape, Space and Measure - Position and direction / Time</td></tr>
<tr><td>Addition and Subtraction</td><td>Addition and Subtraction - Additive structures</td><td>Number Facts - Unitising and coin recognition</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Number and Place Value - Numbers 10 to 100</td><td>Number Facts - Fluently add and subtract within 10</td><td rowspan="2">Multiplication and Division - Introduction to multiplication / Introduction to division structures</td><td rowspan="2">Geometry - Shape</td><td>Money</td><td rowspan="2">Multiplication and Division - doubling, halving, quotitive and partitive division</td></tr>
<tr><td>Addition and Subtraction - Addition and subtraction of two-digit numbers</td><td>Fractions</td></tr>
<tr><td>3</td><td>Addition and Subtraction - Adding and subtracting across 10</td><td>Addition and Subtraction - Numbers to 1,000</td><td>Geometry - Right angles</td><td>Addition - Column addition</td><td>Fractions - Unit fractions</td><td>Fractions - Non-unit fractions</td></tr>
</table>

	Number Facts - Adding and subtracting across 10			Multiplication - 2, 4, 8 times tables		
	Number and Place Value - Numbers to 1,000	Number Facts - Numbers to 1,000 Other	Addition and Subtraction - Manipulating the additive relationship and securing mental calculation	Number Facts - 2, 4, 8 times tables		Shape, Space and Measure - Parallel and perpendicular sides in polygons / Time
	Addition and Subtraction - Numbers to 1,000			Subtraction - Column subtraction		
4	Addition and Subtraction - Review of column addition and subtraction	Geometry - Perimeter	Number Facts - 3, 6, 9 times tables	Multiplication and Division - 7 times table and patterns	Fractions - Review of fractions / Fractions greater than 1	Geometry - Symmetry in 2D shapes
		Number Facts - 3, 6, 9 times tables		Number Facts - Understanding and manipulating multiplicative relationships Number Facts		Shape, Space and Measure - Time
	Number and Place Value - Numbers to 10,000		Multiplication and Division - 7 times table and patterns			Number Facts - Division with remainders
	Number Facts - Numbers to 10,000			Geometry – Coordinates		
5	Number and Place Value - Decimal fractions	Number Facts - Negative numbers	Geometry - Area and scaling	Multiplication and Division - Calculating with decimal fractions / Factors, multiples and primes	Number and Place Value - Fractions	Shape, Space and Measure - Converting units / Angles
	Money					
		Multiplication and Division - Short multiplication and short division	Multiplication and Division - Calculating with decimal fractions		Fractions	
6	Addition and Subtraction - Calculating using knowledge of structures	Number and Place Value - Numbers up to 10,000,000	Addition and Subtraction - Multiplication and division	Fractions and Percentages -	Statistics Key Stage 2 SATs	Ratio and proportion / Calculating using knowledge of structures / Solving problems with two unknowns / Order of operations / Mean average
			Multiplication and Division			
	Multiplication and Division - Multiples of 1,000	Geometry - Draw, compose and decompose shapes	Shape, Space and Measure - Area, perimeter, position and direction			

Examples of Links –

- **Number Facts – 1 to 10 apply to 10 to 100.**

(Vertical Link – small steps within year groups or classes.)

- **Representing Data.**

(Horizontal Link – same subject across the whole curriculum.)

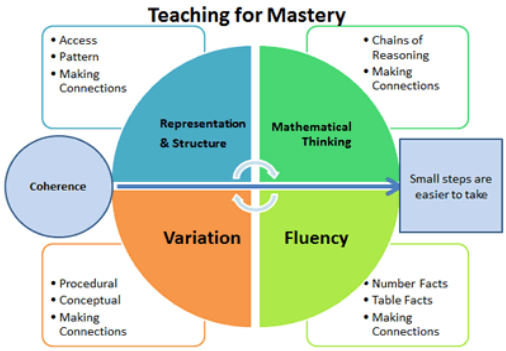
- **Position and direction linked to Geography – North and South Poles / Equator / Continents.**
- **Negative Numbers linked to Geography – Climate and Climate Zones.**
- **Statistics linked to Science – reprsenting data sets.**

(Diagonal Link – between subjects – how learning something in one subject supports the children to learn something similar in another subject.)

Impact -

The National Council for Excellence in Teaching Mathematics (NCETM) promotes a 'Mastery' approach in the learning and teaching of Mathematics.

The key principle is that 'mastering maths means acquiring a deep, long-term, secure and adaptable understanding of the subject' (NCETM, 2017.)



At the Nethersole CofE Academy we are determined that our children will develop a deep, long-term, secure and adaptable understanding of Mathematics through our use of the mastery approach.

Coherence - Lessons are broken down into small, connected steps, providing access for all children.

Representation and Structure - expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation.

Mathematical Thinking - If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student, thought about, reasoned with and discussed with others.

Fluency - Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

Variation - is twofold. Firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. Second the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure.