



# The Forest CE Federation

'Small enough to care. Large enough to inspire

Valuing all God's children'

*All things are possible for one who believes' Mark 9 v 23*

## Maths Policy



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## Mathematics Policy (March 2019)

### Curriculum Intent

The Forest CE Federation aims to provide children with an exciting, broad and balanced curriculum that will instil a love of learning. Our approach enables all children to become lifelong learners by developing transferable skills to equip them to succeed in a competitive world. A strong **Christian** ethos permeates through our daily lives ensuring our pupils are cared for in a safe, nurturing environment within our small **community**.

We believe in the "whole child" and are committed to children's wider well-being through our **creative** inclusive curriculum, which is driven by our spiritual values.

Our curriculum is designed to spark **curiosity** in young minds through carefully planned opportunities for pupils to acquire, apply and master their knowledge and skills in a unique learning environment.

We know that a child who feels happy, safe and secure will have the **confidence** to try their best and achieve in all that they do. We endeavour to provide all children with the knowledge, skills and environment in which to thrive.

We define progress as the widening and deepening of essential knowledge, skills, understanding and behaviours. This is done through how we deliver our curriculum; Continuous Provision.

### Purpose

The purpose of this policy is to ensure that all children at the Forest Federation are offered a broad and balanced mastery curriculum which embeds the application of Mathematics with opportunities to consolidate and reinforce taught skills using a problem-solving approach. We strive for all children to reach their full potential, ensuring progression from individual starting points through carefully crafted lessons, thereby fostering deep conceptual and procedural knowledge.



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## Aims

The Forest Federation utilises a mastery approach. This consists of the following principles and features:

- ❖ Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.
- ❖ The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support, intervention and questioning.
- ❖ CPA approach - Concrete, Pictorial, Abstract (CPA) is a highly effective approach to teaching that develops a deep and sustainable understanding of maths in pupils.
- ❖ Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge, supported by the Maths No Problem scheme of work.
- ❖ Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- ❖ Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.

## **Intention**

These approaches provide all children with full access to the curriculum, enabling them to achieve confidence and competence – 'mastery' – in mathematics, rather than many failing to develop the maths skills they need for the future.

*'We believe that every child can master an understanding and love of maths with the right kind of teaching and support.'* (Maths No Problem: Mission Statement)

## **Key features of the Forest Federation's teaching for 'mastery'**

The Forest Federation's adaptation of the 5 Big Ideas (Maths Enigma Hub)

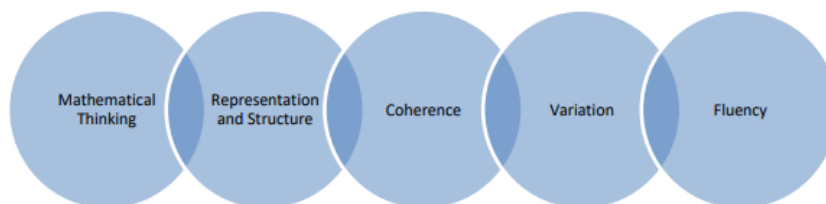


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*This document has been created using content provided by the NCETM/Maths Hub  
Mastery Specialist Programme.*

From the 5 Big Ideas, the Forest Federation has established our key features for teaching mastery. These are:

- Teachers believe in the importance of mathematics and that the vast majority of children can succeed in learning mathematics in line with national expectations.
  
- The whole class is taught mathematics together, with no differentiation by acceleration to new content. We do not group children by ability. The learning needs of individuals are addressed through careful scaffolding, questioning and appropriate rapid intervention where necessary, to provide the appropriate support and challenge.
  
- The reasoning behind mathematical processes is emphasised. Teacher/pupil interaction explores how answers were obtained as well as why the method worked and what might be the most efficient strategy.
  
- Precise mathematical language, often couched in full sentences, is used by teachers so that mathematical ideas are conveyed with clarity and precision. We value 'mathematical talk' and children get lots of opportunity to talk about and evaluate their mathematics during lessons.

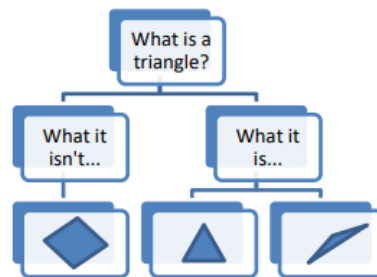


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- Conceptual variation and procedural variation are used extensively throughout teaching. This helps to present the mathematics in ways that promote deep, sustainable learning.
- Conceptual variation is where the concept is varied and there is intelligent practice. Positive variation is showing what the concept is, and negative variation is showing what the concept isn't. This clears away misconceptions at the very start. Within positive variation, both standard and non-standard representations are shown.



- Procedural variation is where different procedures and/or representations are used to bring about understanding. For example, teachers may collect several solutions for a problem (some right, some wrong) before guiding the class towards the most efficient method. It also involves highlighting the essential features of a concept or idea through varying the non-essential features. Variation is not the same as variety – careful attention needs to be paid to what aspects are being varied (and what is not being varied) and for what purpose.
- Sufficient time is spent on key concepts to ensure learning is well developed and deeply embedded before moving on.



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## Recording of work

### Journals

Journaling helps pupils focus on their learning and take ownership of it. By providing opportunities to record or reflect at different points in the lesson, learners begin to shift the focus from the 'how' of mathematics (what tasks to perform), to the 'why' (reflecting on their own understanding).

### Workbooks

Maths No Problem workbooks provide a structured and tailored approach to the mastery scheme of work.

### Maths Practice and Challenge Book

To be used for any additional work, separate from the Maths No Problem scheme.

## Questioning

Within the Forest Federation, we use a high level of questioning to encourage advanced cognitive thinking. These questions enable children to apply, analyse, synthesize, and evaluate information instead of simply recalling facts.

Pupils are coaxed to think beyond literal questions, thus promoting critical thinking skills that are transferable across the curriculum.

## School Curriculum - Programme of Study

### Foundation Stage



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The programme of study for the Foundation stage is set out in the EYFS Framework. Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shape, spaces and measures.

## **Key Stage 1 and 2**

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

## **Key Stage 1**

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 (e.g. concrete objects and measuring tools).

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.



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## **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 with 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.

## **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.





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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.

## Cross-curricular

Throughout the whole curriculum, opportunities to extend and promote Mathematics should be sought. Nevertheless the prime focus should be on ensuring mathematical progress delivered discretely or otherwise.

## Calculation Policy

The calculation policy is attached.

## Inclusion and equal opportunities

All children are provided with equal access to the mathematics curriculum. We provide suitable learning opportunities regardless of gender, ethnicity or home background.

All children benefit from participating in modelled and guided sessions. However, a pupil whose difficulties are severe or complex may need to be **supported** with an individualised programme in the main part of the lesson, but will fully access the Maths No Problem scheme.

## Resources/Display

Each classroom has a dedicated maths resources base. The children are allowed to access this as and when is necessary.

Classrooms may have display space dedicated to mathematics as and when the opportunity arises.

## Assessment

From the EYFS to Upper Key Stage 2, children are assessed continuously on a formative basis where teachers conduct in-process evaluations of pupil



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comprehension, learning needs and academic progress during a lesson, unit or course. These are tracked using Classroom Monitor which enables patterns and correlations to be spotted and analysed, where action can be taken if necessary.

On a summative level, children from across the federation sit two half-yearly Maths No Problem assessments. The depth of understanding shown, feed into final assessments and highlight misconceptions to be addressed in further teaching.

Finally, Standard Attainment Tests (SATs) take place in Years 2 and 6 during the Summer Term.

As an overview of assessment, the Mathematics subject leaders, Executive Headteacher and Governors work closely together in analysing school data to identify trends and areas for improvement.

## **Marking & Presentation**

Teachers are expected to adhere to the schools marking policy when marking books and presentation policy when guiding children as to how to present their work.

Work maybe peer/self/intervention marked by children or staff within lessons in order to enable rapid verbal feedback/addressing of misconceptions.

## **Monitoring and Evaluation**

The Curriculum leaders, alongside SLT, are responsible for monitoring and evaluating curriculum progress. This is done through book scrutiny, planning scrutiny, learning walks, lesson observations, pupil interviews, staff discussions and audit of resources.

## **Review**



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The mathematics policy will be reflected in our practise. The policy will be reviewed annually.

**This policy will be reviewed in March 2020.**

Signed:

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Mrs Eliza Hollis

Executive Headteacher

March 2019

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Mr Michael McLoughlin

Maths Coordinator

March 2019

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Mrs Caroline Howe

Maths Coordinator

March 2019



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