HIPPINGS METHODIST PRIMARY SCHOOL

Mathematics Policy

'As a family we do our best with God in our hearts'
I can do all things through Christ who strengthens me: Philippians 4 verse 13

Our loving school endeavours to provide the best possible all-round education in a Christian setting. We will be a family that does our best with God in our hearts understanding that we are all His children. We aim for all within our school to develop spiritually, morally, academically and culturally.

The 2014 National Curriculum states that, "Mathematics is a creative and highly interconnected discipline that has 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."

This policy details how Hippings Methodist Primary School achieves the aims of the National Curriculum.

Aims - Intent

At Hippings Methodist Primary School, we endeavour to make maths exciting, enjoyable and stimulating by providing high quality teaching that is engaging, interactive and builds upon children's prior learning.

Our aim is for children to use their knowledge and understanding of mathematics confidently in day-to-day life. We work hard to foster children's mathematical understanding and help all pupils develop a confident, skilled and resilient approach to all aspects of mathematics. By offering flexible groupings, providing engaging activities and an environment that embraces mistakes as opportunities for further learning we enable children to succeed as mathematicians.

We strive to:

- promote a positive attitude towards mathematics in all pupils
- ensure all pupils are engaged in and enjoying exploring mathematics
- enable all pupils to find links between mathematics and other areas of the curriculum, including Science
- ensure all pupils progress in mathematics and are challenged appropriately through an in depth understanding
- use a wide range of concrete, pictorial and abstract representations to develop all pupils' relational understanding of mathematics
- ensure all pupils are confident using mathematical vocabulary when reasoning about mathematics
- promote a growth mindset in all pupils, particularly when problem solving

Through the teaching of key mathematics skills we will enable our children to:

- Be **fluent** in the fundamentals of mathematics
- **Reason** mathematically by following a line of enquiry
- **Solve** problems by applying their mathematical understanding and knowledge

Curriculum - Implementation

At Hippings Methodist Primary School, we seek to provide our children with engaging lessons, mathematical opportunities and experiences to create a sense of enjoyment and curiosity about the subject.

We understand that our pupils come from a wide variety of backgrounds with different experiences and exposure to mathematical concepts. This means that they require robust and clear progression, in small steps, to become confident mathematicians.

As a school we have invested in the **Red Rose Mastery Maths** scheme.

Red Rose Mastery Maths is a comprehensive scheme offering full coverage of the National Curriculum and Early Years Framework from EYFS to Year 6. Built on the NCETM's Five Big Ideas of Teaching for Mastery, the core ethos of the scheme is to develop children's mathematical understanding through carefully crafted modelling and questioning and children actively thinking and learning.

Unlike most other schemes, Red Rose Mastery Maths uses a spiral curriculum approach which reduces cognitive load, supports retention and enables children to make connections across the different strands of mathematics. Objectives are broken down into smaller steps of progression and revisited and built on throughout the year.

Please refer to the Hippings Mathematics Overviews

To promote the development of our children's fluency and mental maths skills, we have introduced KIRFs (Key Instant Recall Facts) throughout school as a way of helping them learn by heart, key facts and information which they need to have instant recall of. Instant recall of facts helps enormously with mental agility in maths lessons and is particularly useful when calculating, adding, subtracting, multiplying or dividing. Number facts such as number bonds and times tables need constant practise and rehearsal, so children can recall them quickly and accurately. Each half term, children focus on a Key Instant Recall Fact (KIRF) to practise and learn at home as a means to support the development of mental maths skills being taught in school.

Please refer to the KIRFs documents for each year group.

We provide each child in school with a log-in to NumBots/Times Table Rockstars. In EYFS and Key Stage 1, NumBots focuses on improving children's understanding and automaticity of key number facts. In Key Stage 2, children access TTRS to support their fluency and recall in multiplication and division.

Early Years Foundation Stage

Mathematics in the EYFS is guided by the requirements and recommendations set out in the Statutory Framework for the Early Years Foundation Stage, the non-statutory Development Matters document and the Red Rose Mastery Maths scheme. Maths is developed through purposeful, play based experiences which are both adult led and child initiated, throughout indoor and outdoor provision, enabling all children to use, enjoy, explore, practise and talk confidently about maths. Mathematical understanding is also developed through stories, songs, rhymes, games and imaginative play. The children are given regular opportunities to practise their counting and subitising skills and revisit prior learning. Mathematics is taught both as a discrete subject and across the whole curriculum to give EYFS children opportunities to use their numeracy skills in real life situations. For example, using ten frames containing the children's photographs to notice how many pupils are in class each day or exchanging ten cubes for one stick of ten in order to count the team points more efficiently. Staff also provide incidental learning opportunities through quality interactions with children. For example, encouraging children to count aloud during their play or to sort objects and explain their reasoning.

Key Stages 1 and 2

The Red Rose Mastery Maths scheme is used to support mathematical learning in Years 1 to 6.
A yearly overview provides a long term plan for each year group and is split into six week blocks incorporating time for half termly learning checks and end of term assessments. Topics (Units) are revisited throughout the year enabling children to develop a deeper understanding of mathematical concepts.

Year 2 example:

Red Rose Mastery Maths Scheme: Year 2 Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Week 1	**Unit 1** Place Value	**Unit 5** Counting, Multiplication and Sorting	**Unit 11** Place Value	**Unit 16** Length	**Unit 21** Place Value and Statistics	**Unit 28** Addition and Subtraction
Week 2		**Unit 6** Statistics	**Unit 12** Mass and Volume and Capacity	**Unit 17** Addition and Subtraction	**Unit 22** Addition and Subtraction	**Unit 29** Multiplication and Division
Week 3	**Unit 2** Length and Mass	**Unit 7** Fractions	**Unit 13** Addition and Subtraction	**Unit 18** 2-D and 3-D Shape	**Unit 23** Capacity and Volume **Unit 24** Temperature	**Unit 30** Statistics and Calculation
Week 4	**Unit 3** Addition and Subtraction	**Unit 8** Capacity and Volume **Unit 9** Money	**Unit 14** Money	**Unit 19** Fractions and Position & Direction	**Unit 25** Fractions	**Unit 31** Measurement
Week 5		**Unit 10** Time	**Unit 15** Multiplication and Division	**Unit 20** Time	**Unit 26** Position & Direction and Time	Assess and review then address significant gaps
Week 6	**Unit 4** 2-D and 3-D Shape	Assess and review week		Assess and review week	**Unit 27** 2-D and 3-D Shape	

Half termly overviews provide an outline for every lesson within each unit of work. For example:

Red Rose Mastery Maths Year 2 Unit Overviews: Autumn Term 1

Autumn 1 Unit 1 *(Weeks 1 & 2)*: Number and Place Value		
Lesson	**Starter**	**Lesson Focus**
1	Count in steps of ten from 0 forwards using base 10 equipment	Identify and make a two-digit number up to 50 using concrete materials (straws, base 10, arrow cards) (straightforward representations)
2	Sort shapes according to their properties	Identify and make a two-digit number up to 100 using concrete materials (straws, base 10, arrow cards) (straightforward representations)
3	Recognise and use language related to dates	Identify and make a two-digit number up to 100 using concrete materials (straws, base 10, arrow cards) (more complex representations)
4	Make number in words when given in numerals	Exchange 10 ones for 1 ten and vice versa Exchange 10 tens for 1 hundred and vice versa
5	Exchanging ones for tens and tens for ones	Identify and make a two-digit number up to 100 using concrete materials (PV counters, abacus, arrow cards) (more complex representations)
6	Recognise and name 2-D shapes	Partition a two-digit number in different ways where one group is a multiple of 10
7	One more and one less/fewer with no bridging	1 more and 1 less/fewer with bridging 10 more and 10 less/fewer with bridging
8	Exchanging ones for tens and tens for ones	Compare two numbers Include numbers represented in block graphs and tables
9	Sort numbers according to properties	Identify most/least, greatest/least value from a selection Include numbers represented in block graphs and tables
10	Counting in tens	Identify the multiple of 10 either side of a number and which is closest

For every lesson within a unit, detailed teacher guidance provides objectives; a short starter activity and initial problem; guided, independent and deeper learning tasks; key outcomes and a list of resources needed.

Year 2 Autumn 1
Unit 1: Number and Place Value
Lesson 1: Place Value in Numbers to 50

Lesson Objectives:

Make and identify a two digit number up to 50 using con
10 apparatus and arrow cards).

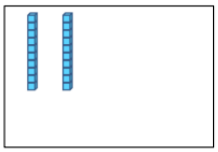
Read and write numbers up to 50.

Lesson Focus:
Children should understand that two-digit numbers can b
number; that the group of ten is represented by the first
second digit of the number. Children should be able to m
number using different apparatus, identifying what is the

Starter *(No more than 10 minutes)*

Count on in steps of 10 from 0.

Show page 1 of the SMART Notebook file showing 20 represented in base 10.
- *What does this represent?*
- *How do you know?*
- *How many tens rods are there?*

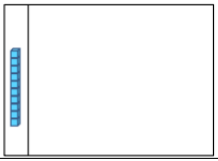


Move the base 10 rods as they are counted, i.e. 10, 20
- *What are we counting in? Do we need to count in ones? Why not?*

Repeat with pages 2 and 3 of SMART Notebook file showing 50 and 90 represented in base 10.
- *How many are here?*
- *How can we check?*
- *What do you notice about the numbers we are counting in?*

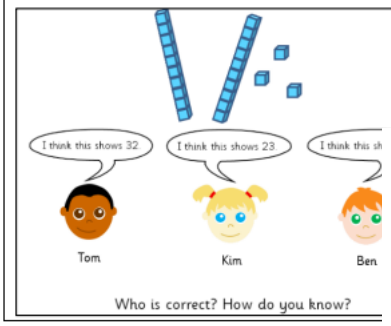
Children to discuss in pairs and identify that the numbers are all multiples of 10 / in the ten-times table / all have no ones.

Show page 4 of the SMART Notebook file.
The tens rod is on 'infinite cloner'.
Drag tens rods onto the main part of the screen for the children to count in 10s as they are moved.



Initial Problem

Show page 5 of the SMART Notebook file with the initial problem.



Scaffold

What do the different pieces of base 10 represent?
How many tens are there?

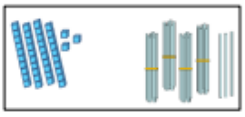
Misconception

Children may think, like Ben, that 5 pieces of equipment represents 5. Ensure that children can recognise the pieces of base 10 as representing ten and one respectively. Encourage them to count the individual markings on the tens rod if required.

Take feedback of children's responses. Ask questions such as:
- *Who is correct? How do you know?*
- *How do you know Ben is not correct?*
- *How do you know Tom is not correct?*

Guided Learning

Show page 6 of the SMART Notebook file, showing 43 represented in base 10 (structured equipment) and straws (unstructured equipment).
Ask the children (in pairs) to make the numbers.



Independent Learning

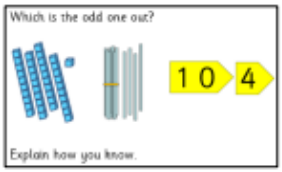
The first group of representations draws on children's knowledge of straws to represent two-digit numbers.

…?
…s?
…our tens and three ones.
…e straws, but can't with the base 10 (although the ones

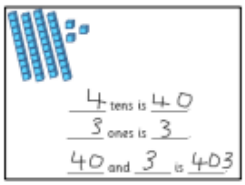
Deeper Learning

Children should consider the number representations shown and identify the odd one out, explaining their reasoning.

Children can record their answers to this in their maths book. They may represent it using jottings, pictures, words or symbols, modelling it first with equipment if required.
The aim is to develop children's understanding of patterns and relationships in place value.

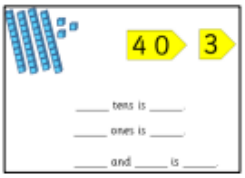


…ase 10.



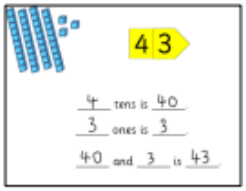
Write '3 ones is 3'.
On the last line write '40 and 3 is 403'.
- *Is this correct?*
- *How do you know?*

Show page 8 of the SMART Notebook file.
This shows 43 represented in base 10 and place value cards.
Drag the '3' card over the '40' card to show how '43' is written.
Discuss that '43' is written as '4' in the tens place and '3' in the ones place.
- *How many tens are there?*



Key Outcomes

Children recognise two-digit numbers as a group of tens and a group of ones.
They can represent numbers from 10 to 50 using unstructured and structured apparatus.
They understand that the tens and ones are not always represented in that order.
They can read and write numbers from 10 to 50.



- *How do we write forty-three?*

Write '43'.

Resources

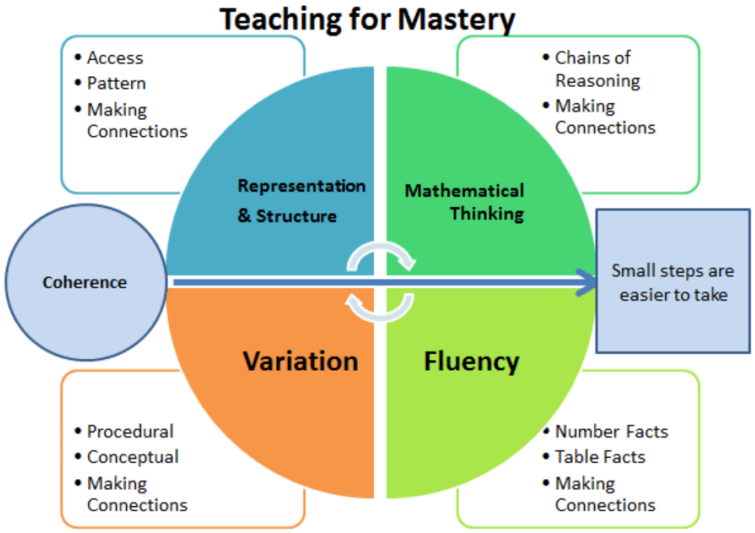
Base 10 apparatus (tens and ones)
Bundles of straws (tens and ones)
Place value cards (10, 20, 30, 40, ones)
Children's task sheets copied (one per child)

Interactive teaching tools take the form of SMART Notebook files and are accompanied with detailed notes. There are daily task sheets for both guided and independent learning and children are challenged to complete deeper learning tasks when appropriate. There are half-termly short learning checks and end of term arithmetic and reasoning assessments which mirror the style of the end of key stage tests.

Teaching and Learning - A 'Mastery' Approach

The mastery-learning model means spending greater time going into depth when learning a concept or procedure and not racing through the curriculum. A mastery approach means that we are taking learning at a steadier and deeper pace, trying to ensure that children are not left behind; as well as providing deeper and richer experiences for children who are above the national expectation for their age. Effective teaching for mastery is underpinned by five big ideas.

Five Big Ideas



'The expectation is that the majority of 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.' (National Curriculum)

What is Fluency?

Fluency comes from deep knowledge and practice. This is the first stage of pupils' understanding.

Fluency includes:
Accuracy – Pupils carefully completing calculations with no or few careless errors.
Pace – Pupils are able to quickly recall the appropriate strategy to solve the calculation and progress through a number of questions at an age appropriate pace.
Retention – Pupils will be able to retain their knowledge and understanding on a separate occasion to when the concept was first introduced.

What is Reasoning?

Verbal reasoning demonstrates that pupils understand the mathematics. Talk is an integral part of mastery as it encourages students to reason, justify and explain their thinking.

What is Problem Solving?

Mathematical problem solving is at the heart of the Mastery Approach. Pupils are encouraged to identify, understand and apply relevant mathematical principles and make connections between different ideas. This

builds the skills needed to tackle new problems, rather than simply repeating routines without a secure understanding.

Mathematical concepts are explored in a variety of representations and problem-solving contexts to give pupils a richer and deeper learning experience. Pupils combine different concepts to solve complex problems, and apply knowledge to real-life situations. Through problem solving, pupils are required to select their mathematical knowledge and apply this to a new concept.

Problem solving is more than just word problems but the RUCSAC approach can be applied to this style of question:

1) Read / look at the problem
2) Understand the problem by underlining or discussing: What is the problem about?
3) Choose – Choose the operation required, the number facts or the approach.
4) Solve – Solve the problem by completing jottings on the page
5) Answer – complete the answer to the problem
6) Check – have I correctly answered the given problem or is there another step?

The CPA approach

The teaching and learning of mathematics at Hippings Methodist Primary School includes aspects of the following Mastery approach strategies in every lesson and/or over a series of lessons:

'Concrete, pictorial, abstract (CPA) is a highly effective approach to teaching that develops a deep and sustainable understanding of maths.' (Maths - no problem!)

Concrete

Concrete is the 'doing' stage, using concrete objects to model problems. Instead of the traditional method of mathematics teaching, where a teacher demonstrates how to solve a problem, the CPA approach brings concepts to life by allowing pupils to experience and handle physical objects themselves. Every new abstract concept is learned first with a 'concrete' or physical experience.

Pictorial

Pictorial is the 'seeing' stage, using representations of the objects to model problems. This stage encourages pupils to make a mental connection between the physical object and abstract levels of understanding by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem.

Abstract

Abstract is the "symbolic" stage, where children use abstract symbols to model problems. Students will not progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages of the problem.

Mathematical Talk

A mastery classroom should never be a quiet classroom! The way pupils speak and write about mathematics transforms their learning. Mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary.

To encourage talk in mathematics, teachers may introduce concepts by including sentence structures (sentence stems). Pupils should be able to say not just what the answer is, but how they know it's right. This is key to building mathematical language and reasoning skills. This gives pupils the confidence to communicate their ideas clearly, before writing them down.

Example Sentence Stems:
The denominator is 5… because the whole has been divided into 5 equal parts.
The numerator is 3… because 3 equal parts have been shaded/circled.

Teachers then maintain a high expectation upon pupils to repeat and use the correct mathematical vocabulary to explain their understanding verbally and in their reflection comments. By also displaying the vocabulary during the lesson, pupils will be able to use this independently.

When questioning and encouraging mathematical talk, teachers should provide regular, purposeful opportunities. For example:

- Show me how to complete the calculation
- Teach your friend how to complete the calculation
- How do you know which operation to use?
- Why have you chosen this method?
- How else can you represent this number?
- What have you learnt today?
- True or False
- Prove it!
- Odd one out
- Sometimes, Always, Never

Resources

We have a range of practical resources to support learning including ten frames, bead strings, Base10 and counters which are stored in individual classrooms where they are easily accessible to all children. These are used on a regular basis to ensure a solid understanding of the fundamentals of Mathematics. Additional resources are stored centrally in the Mathematics resources cupboards.

Classroom Environment

Classroom environments are mathematically rich and support current learning. Each class has a clearly visible and interactive 'working wall' featuring examples of the current topic and with an interchangeable display of mathematical symbols, numbers, times tables and vocabulary appropriate to the age range. Working walls are used throughout school to reinforce and consolidate children's knowledge and understanding of mathematical concepts.

Marking and feedback

Workbooks are to be marked on the day the lesson takes place. Good practise is to ensure that teachers and TA's monitor children's progress throughout the lesson and mark as much of their work as possible during that time. This will ensure that immediate intervention is given to pupils with misconception in their understanding. It will also give the opportunity to move on and challenge the depth of thinking of those children who have grasped the concept rapidly. Pupils are also given the opportunity to mark their own work, and that of their peers, at times. This ensures that children are aware of their own achievements and helps them to notice mistakes and misconceptions.

Please refer to the school's Marking and Feedback Policy

Homework

Maths homework tasks, either written or online, are regularly set to enhance and support the work that is taking place in class and parents are encouraged to be involved in their child's learning. Children are also encouraged to access the TTRockstars/NumBots app at least twice a week.

Assessment

There is no formal assessment for EYFS within the Red Rose Mastery Maths scheme. On-going assessment is formative, based on observations, photographs, video, things that children have made or drawn and information from parents. The Development Matters document is used as a guide to making best-fit judgements about a child's progress and attainment throughout the year. At the end of EYFS, children are assessed against the Early Learning Goals for Mathematics.

In Years 1- 6, children complete both half-termly learning checks and termly arithmetic and reasoning assessments which specifically link to the coverage for that term. Results are analysed and children are given an age related expectation from teacher assessment. This information is monitored by the Maths Subject Leader and Senior Leadership Team. Regular arithmetic and times table tests are also carried out and results recorded by individual teachers.

Formative Assessment:
Short term assessment is a feature of each lesson. Observations and careful questioning enable teachers to adjust lessons and brief other adults in the class if necessary.
At the end of each half term, the children complete end of unit learning checks. Results are analysed by the teacher to ensure that any identified gaps in understanding can be addressed promptly.

Summative Assessment:
Teachers administer termly arithmetic and reasoning papers, which mirror the style of the end of key stage tests. The results of these tests are used to identify children's ongoing target areas, which are communicated to the children, as well as to parents and carers at Parents Evening. They are also used alongside the end of unit learning checks and outcomes of work, to inform the whole school tracking of attainment and progress of each child.

At the end of each term, all teachers attend a Pupil Progress meeting to share data and to discuss pupils who are 'off target'. These pupils should be placed into an Intervention/Booster group with a SMART target.

Lancashire LAPs (Learning and Progression Statements) documents are often used to help monitor children who are working below year group expectations and provide a clear picture of where such children are up to with their learning for the next teacher. LAPs documents and/or other skills documents, e.g. end of year arithmetic expectations, may also be used to support the planning of any mathematics interventions.

End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

Home/school links

Parents are encouraged to support their children with the learning of KIRFS (Key Instant Recall Facts) and the completion of other mathematics homework which may be set. There are also sessions held occasionally to inform parents about how to enhance their child's learning in Maths and to inform them of some of the alternative methods of calculation.

Parents are given a formal opportunity to discuss their child's progress on two separate occasions throughout the year. Written reports are distributed at the end of the Summer term.

Teachers use the information gathered from their half-termly assessments to help them comment on the progress of individual children.

Inclusion and Equal Opportunities

The provision of maths teaching is regardless of race, gender or special educational needs and should allow all children to reach their full potential. We incorporate Mathematics into a wide range of cross-curricular subjects and teachers plan for pupils to practise and apply the skills, knowledge and understanding acquired through mathematic lessons to other areas of the curriculum.

Effective pupil tracking allows for the identification of students with additional needs and helps to close specific gaps in learning to enable all children to make good progress. Any child who is deemed to have special education needs in mathematics will have a maths target on a SEN Support Plan and be placed on the school's SEN register. They will be taught within the whole class daily Mathematics lesson and be encouraged to take part when and where possible. Pre-teaching will be used to close gaps to enable pupils to access lessons. On-the-day intervention will be given, where possible, for those children whose misconceptions have been identified within a session so that they are prepared for the next lesson.

Within the daily Mathematics lesson teachers will provide appropriate challenges for children who are high achievers in Mathematics. Children who regularly grasp concepts rapidly and have been assessed as having mastered objectives from their year group may be identified by their class teacher as Gifted and Talented. Planning for these pupils will focus on enrichment and the development of mathematical thinking rather than covering content more quickly.

IMPACT

At Hippings Methodist Primary School, our pupils will be aware of the relevance and importance of what they are learning in relation to real world concepts and be able to use their knowledge and understanding of mathematics confidently in day-to-day life. Children will demonstrate a positive attitude towards mathematics due to studying in an environment where maths is promoted as being exciting and enjoyable; a subject in which they can investigate and ask questions, in an atmosphere that embraces mistakes as opportunities for further learning. Our pupils will be fluent, competent and efficient mathematicians with the ability to recall facts and procedures, including the recollection of times tables. They will recognise relationships and make connections in maths. Pupils will be able to clearly explain their reasoning and justify their thought processes, having the flexibility to move between different contexts and representations of maths. Pupils will leave Hippings Methodist Primary School as confident, resilient, knowledgeable and skilful mathematicians ready for the next phase of their learning and future employment.

Monitoring and Evaluation

The Mathematics Subject Leader follows an annual action plan which has been prepared in line with the whole school development plan.

The Mathematics Subject Leader is released regularly from the classroom in order to monitor standards of teaching and learning, analyse data, carry out scrutinies of children's work and interview pupils. Findings from any monitoring are discussed initially with the Senior Leadership Team and also shared with teaching staff as appropriate.

The Governing Body

A governor responsible for Mathematics is identified from the governing body, currently Mrs A.M. Allonby, who often observes maths lessons throughout the school and routinely meets with the Subject Leader. Governors are invited to attend any Maths workshops or training days. The Subject Leader regularly reports to meetings of the curriculum committee of the governing body.

Subject Lead: Mrs K O'Hare
Policy reviewed: September 2025