



MATHS POLICY

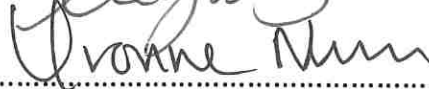
This Policy was approved at a meeting of the Full Governing Body on 21st November 2022

Chair of Governors: Mr L Shilling

Headteacher: Ms Y Nunn

Signed 

Chair of Governors

Signed 

Headteacher

Review Date: September 2024

Mathematics Policy

This policy is written with consideration of Article 28 of the UNCRC 'Every child has the right to an education' as well as Article 29 'Education must develop every child's personality, talents and abilities to the full.'

Our Whole School Intent Statement

At the forefront of Hampton's curriculum is equity for every child with every curriculum experience underpinned by our core values: understanding that children are unique in their needs and circumstances. We value each child as an individual, each with a unique potential for learning. Our aim is to prepare every child for life beyond Hampton, providing them an exciting and empowering curriculum with the skills, knowledge and values that equip them for today and tomorrow.

When children leave us to move on, their curriculum experiences at Hampton will ensure they have:

A sureness in themselves as a young person and their attitudes to learning

A sound knowledge of basic skills

An understanding of the moral, spiritual, cultural, mental and physical virtues they all possess

Aspiration and resilience to aim high and challenge themselves to achieve great things in the future

A sense of belonging, moral purpose, respect and tolerance for others

A set of core values which are life skills, fostering responsibility for learning and future success allowing them to be happy and confident adults.

Introduction

'Mathematics is a creative and highly interconnected discipline that has been 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 mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.' (DfE 2013)

As can be seen from the above introduction, mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind this policy promotes the basic and wider understanding of mathematics, and hopes to instill an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning.

Learning skills are an important aspect of mathematics but such skills are only a means to an end, and should be taught and learned in a context that provides purpose and meaning.

This policy should be read in conjunction with the following school policies:

- Calculation Policy (appended to this document)

NC Links

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are however only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

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 be based on the security of the pupils' understanding.

Our Vision

The National Curriculum provides a framework for mathematics but the school is aware of the need for flexibility and creativity in teaching and learning styles in response to the needs of individual children.

As a school, we follow White Rose Maths. Our long-term aim is to produce an ambitious, connected curriculum accessible to all pupils in schools right through from Reception to the end of Year 6. This curriculum will not only cover all the content of the National Curriculum but also provide pedagogic advice for teachers. We provide suggestions and sample materials in a structured coherent curriculum to develop pupils into mathematical thinkers which we use and adapt to meet the needs of the children at Hampton.

What is teaching for mastery?

We think mastery of anything – playing an instrument, speaking a new language, mathematics – takes a very long time. That’s why we talk about the “journey to mastery”, rather than “having mastered”. For example, children start learning to add in early years and keep developing their skills over many years – from single digit numbers, to multi-digit numbers, then decimals, then fractions, then negatives, addition in different units (such as time calculations “35 minutes after 12:45pm”) etc. It would take several years to master addition, arguably one of the most basic concepts in mathematics so what we do is break the journey down into small steps, spending time carefully considering each. Through intelligent practice and building up experience of different contexts, gradually we move towards mastery where students are fluent in the unfamiliar and can apply their skills in any new situation.

We recognise that time is an issue and it’s not easy to cover the full content of the curriculum in the depth we would wish too. The curriculum is designed to give time to think about a topic and develop understanding and also to realise that mastery will not have been achieved by the end of the unit, whatever its length. Our small step approach is designed to ensure that students will come back to topics time and time again, both within the study of the same area of mathematics and in other areas so that they will continue to deepen their understanding through this revisiting and interleaving.

EYFS

Mathematics within the EYFS is developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupil's interests and current themes and will focus on the expectations from DevelopmentMatters / Early Years Outcomes. Mathematical understanding can be developed through stories, songs, games, imaginative play, child initiated learning and structured teaching. As pupils progress, they will be encouraged to record their mathematical thinking in a more formal way.

"Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes."

Statutory framework for the early years foundation stage

Key Stage 1 Maths

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 that 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. Alongside number work, pupils begin to identify fractions using shapes, objects and quantities and make connections to equal sharing and grouping. Pupils are taught to count to ten in fractions, recognise equivalent fractions and develop their understanding of fractions on a number line. At this stage, pupils will also develop their ability to recognise, describe, draw, compare and sort different shapes. Pupils have the opportunity to use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money and are expected to use related vocabulary for all topics. Other subjects may have strong links to some maths topics allowing cross-curricular teaching. For example, shape through art or computing, measures through science or coordinates in geography. This is to ensure we continually maximise learning opportunities for all pupils across an entire curriculum.

Key Stage 2 Maths

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. 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.

Parental Involvement

At school, we encourage parents to be involved by:

- Invite parents and carers in for maths workshops
- Inviting them into school twice yearly to discuss the progress of their child.
- Providing parents with a yearly report outlining their child's achievements.
- Providing homework opportunities to be completed by or with their child
- Providing advice and support on how maths works at Hampton and the content of our curriculum on the school website

Inclusion

Our inclusive approach, and its emphasis on promoting multiple methods of solving a problem, builds self-confidence and resilience in pupils. Though the whole class goes through the same content at the same pace, there is still plenty of opportunity for differentiation. There is no differentiation in the objectives taught, but the questioning and scaffolding individual pupils receive in class as they work through problems will differ, with higher attaining children, or those pupils who grasp concepts quickly, challenged through more demanding problems which deepen their knowledge of the same content. Children from Year 2 and above are able to work in ability sets which allows the teachers to tailor the learning to the specific needs of their children and to work at a pace which best suits those children. Those children who are not sufficiently fluent are provided additional support to consolidate their understanding before moving on. Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with interventions and sets – commonly through individual or small group support with experienced staff.

Organisation

- All children receive a daily maths lesson, although mathematical skills run through many other areas of the curriculum.
- Each lesson can include elements of: **fluency**, to practise skills; **reasoning**, to deepen understanding; and **problem solving**, to apply skills depending on the objective being taught and the understanding of the children.
- Teachers use the White Rose planning and resources to aid Maths teaching within school.
- Every classroom has a range of practical apparatus to support children's learning, with additional resources stored centrally. We aim to review this and add to it each year.

Monitoring and Review.

The monitoring of maths teaching and pupil progress is the shared responsibility of teachers, subject lead, subject team and the senior leadership team. The work of the subject leaders includes supporting colleagues in the teaching of maths, keeping up to date with current developments as well as providing a strategic lead and direction for the subject.

Our observation cycle ensures monitoring of the subject, books, marking and learning environment.

The Role of the Subject Lead

To take the lead in policy development and be responsible for schemes of work that ensures progression and continuity in history throughout the school.

To support colleagues.

- Monitoring of subject area – climate walk, book looks and observations
- To suggest assessment and record keeping strategies.
- To maintain and update subject challenge display board in a communal area.
- To maintain and update subject area on school website.
- To monitor progress in maths and advise the Head teacher on any action to take or areas to develop.
- To disseminate information to colleagues regarding up to date maths curricular developments in accordance with national & local guidelines.
- To report back to staff and advise on INSET and other professional development opportunities.
- To oversee the resource needs of the subject and introduce teachers to new and appropriate materials & equipment as they become available.