



Diocese of Norwich
Education and
Academies Trust

Hopton Church of England Primary Academy

MATHEMATICS POLICY

Our Mission Statement

Team work: Together we aim to achieve the extraordinary
and an excellent education within a caring
Christian environment.

Formulated by Mathematics Coordinator June 2019
Reviewed and Amended by all staff June 2019
Monitored and agreed by Governors
To be reviewed June 2021

Introduction

“Mathematics is a creative and highly inter-connected 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 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.” National Curriculum 2014

At Hopton CE Primary Academy we follow the guidance of the 2014 National Curriculum and aim 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.

Our Aims

At Hopton Primary Academy we aim to:

- promote enjoyment and enthusiasm for mathematics, encouraging children to take risks and ‘have a go’.
- develop a thorough knowledge and understanding of numbers and the number system so all children become fluent in mathematics.
- instil confidence and a ‘can do’ attitude towards mathematical learning.
- develop logical thinking and reasoning skills through a range of problem solving and investigative activities.
- develop an understanding of the importance of mathematical skills in everyday life.
- encourage the understanding and use of mathematical vocabulary through paired work, discussion and group work.
- develop a deeper understanding of mathematics through a process of enquiry and investigation.
- Address misconceptions through the celebration of ‘Marvellous Mistakes’ and next steps marking.
- to ensure all pupils make good progress in mathematics to achieve their potential.

Planning

Teachers plan using the 2014 National Curriculum for mathematics with support from the Herts for Learning Scheme. Long-term planning is set-out for each year group, week by week for an academic year but adapted as necessary through the term to cater for the needs of the pupils.

Medium-term plans are derived from the long-term planning, detailing the objectives to be covered each week. Individual lesson plans set out in more detail each lesson including objectives, differentiation, vocabulary, key questions and specific tasks. Teachers further use Question Level Analysis (QLA) from recent assessments to inform their planning. The teaching sequence follows a Concrete, Pictorial and Abstract (CPA) approach with fluency, reasoning and problem-solving challenges integrated to provide a rounded 'daily maths diet'. The planning is regularly monitored by the Maths Subject Leader and Senior Leadership Team.

Maths Moments

Teachers plan daily fifteen-minute 'Maths Moments' that focus on specific areas of mathematics and provide opportunities to consolidate and apply previous learning. These sessions focus on Arithmetic and fluency with elements of reasoning and problem-solving.

Maths Moments work on a half-termly cycle. There are 6 slides with an activity on each slide. The activities remain the same over the half-term with only the numbers changing, therefore children have the opportunity to become fluent in areas they find challenging.

Written calculations

Children are taught written calculations according to the school's Calculation Policy which was formulated with involvement from all staff. The policy outlines how children will be taught and will record written methods of addition, subtraction, multiplication and division and is laid out in year groups. Teachers plan lessons using the calculation policy which ensures continuity and progression through all classes. Although it sets out an average expectation by the end of each year, teachers use it to aid differentiation by referring to year groups above or below as necessary. A Parent's Guide to Calculations has been sent to all parents and is available on the school's website. This explains in clear detail the different written methods that the children will be learning at each stage of their mathematical development and is directly linked to the school's Calculation Policy.

Problem Solving and Reasoning

At Hopton Primary Academy, we regularly plan for problem solving to encourage children to investigate and reason mathematically. We focus on setting mathematical tasks that encourage children to apply the skills they have learnt in a relevant context, often linked to other areas of learning within the topic. Children are encouraged to explore and investigate problems, discussing and sharing their ideas in pairs, groups and as a whole class. Children are taught to explain their reasoning using mathematical vocabulary. To show their reasoning, children use 'I know/convince me' speech bubbles (green) to provide explanations in to their thinking. To show that they are linking concepts and spotting patterns, children use 'I think/conjecture' bubbles (yellow/orange). In KS1, these bubbles are completed as a class, in small groups or with adult support. Once children are confident, they are then encouraged to use our reasoning bubbles independently.

Assessment

Assessment of mathematics at Hopton CE Primary Academy is both formative and summative. Pupils are tracked during mathematics lessons, across a mathematical strand, throughout the term and throughout the year. Children are given an opportunity each session to self-assess their own learning against the aims of the lesson and this is then agreed by the teacher. Children are assessed every half-term in line with the school Assessment Policy. Teachers then complete Question Level Analysis of the paper to analyse the impact of teaching and areas for development through Maths Moments and interventions. Once the data is analysed, 'Key Marginal' children are identified for additional support either in class or through catch-up

sessions. As well as Arithmetic and Reasoning papers, children also undertake a Times Table assessment. The assessment of children is then tracked by the subject leader and senior leadership team through pupil progress meetings, book looks and lesson observations. In EYFS, assessment is undertaken through observations which is reported on Tapestry.

Use of Technology

Children and teachers use technology in mathematics lessons where it will enhance their learning and to assist with modelling ideas and methods. The school subscribes to 'Mathletics', a web-based mathematics program which pupils can use at school and at home to develop their key mathematical skills, and teachers set weekly homework to consolidate the learning in class. Children also have access to the PIXL Times Table App to enhance their fluency.

Next Steps / Targets

Children's work in maths books will be marked following each lesson in line with the marking policy and will include relevant next steps which children will be given time to respond to in purple pen. Following assessments, all children are given feedback on their achievements and have a discussion with their teacher about their next steps/targets in a 1:1 pupil:teacher meeting. Targets and the progress of each pupil is discussed with parents during our learning conversations.

Mathematical Vocabulary

In all classes we focus on the key vocabulary needed for the learning in maths each session. Teachers introduce the relevant vocabulary at the start of each lesson and children are encouraged to use and explain mathematical words and terms. Children are encouraged to apply this mathematical vocabulary when using 'I know/Convince Me' bubbles or 'I think/conjecture' bubbles.

Resources

At Hopton CE Primary Academy mathematics is taught using a range of practical resources to develop children's conceptual understanding. During maths lessons in all classes, resources are readily available in the maths area or on the tables for the children to select and use to help them solve problems and develop deeper level understanding. Children are encouraged to access and use a range of different resources during lessons whether in the maths boxes or located in other places around the classroom.

Larger resources such as weighing scales, clocks and capacity containers can be found in the hall cupboard.

Early Years Foundation Stage (EYFS)

In the EYFS at Hopton Primary Academy, mathematics is taught based on the Early Years Outcomes, using "Development Matters" document. Children are encouraged to develop their mathematical skills through a range of practical and fun activities. Maths resources are available as part of the continuous provision provided for children to access freely which enables children to select and explore their own mathematical ideas. Mathematics is also taught through daily discrete carpet sessions to enable pupils to develop the skills necessary to further their progress and to encourage deeper-level thinking. Adult-focused maths tasks are also planned in each week (delivered daily) to ensure children are using and applying the skills they have learnt through practical and relevant tasks.

Cross-curricular links

At Hopton Primary Academy, mathematics is taught as a discrete subject, however wherever possible we link it to our topic of learning in each class, setting children relevant mathematical tasks, set in real-life situations. This encourages children's enthusiasm and confidence with mathematical learning and develops their ability to apply the mathematical skills they have learnt.

Mathematics contributes significantly to the teaching of English by promoting the skills of reading, writing, speaking and listening, including the reading of mathematical vocabulary, word problems and children being encouraged to explain their thinking or present their work to the rest of the class. We promote the link of mathematics to science, for example by using a range of measures and scales as well as collating and recording data. We also have close links between mathematics and computing through the use of programs such as Scratch, to enable pupils to apply their mathematical learning.

Home Learning

We value the importance of children's home learning to support their mathematical development. Children are set regular weekly homework, comprising of practising mental maths skills such as times tables or number bonds, a task to consolidate or support learning in class as well as tasks on Mathletics, encouraging enjoyment in mathematical learning. There is also an optional mathematics challenge than children to complete to earn a raffle ticket for a prize draw at the end of each week.

Parental Involvement

At Hopton Primary Academy, we recognise the importance that parents have in developing the mathematical confidence and ability of their children. Therefore we actively encourage the involvement of parents in their child's mathematical learning. Each class plans a termly maths café, inviting parents to find out about how their child learns in maths and giving them the opportunity to share their child's learning in the classroom. Staff are available to support parents with any queries they may have about their children's mathematical learning or homework. Information about mathematics learning in school and documents to support parents such as "A Parent's Guide to Calculations" and "Understanding Progression in Mathematics; a parent's guide" are available on the school website in the Maths section.

Spiritual, moral, social and cultural development

SMSC is encouraged in all maths lessons through use of partner and group work. A positive ethos is developed in all classrooms where children feel confident to 'have a go' at maths and they are not afraid to take risks and to challenge themselves. 'Marvellous mistakes' are celebrated and discussed with the class which aids reasoning and allows misconceptions to be addressed.

Intervention

Intervention is targeted to support children who need support with mathematics, to fill gaps in their learning, develop confidence, boost pupil progress and to challenge and extend more able pupils. We examine the progress of specific groups of children such as those with Special Educational Needs, those entitled to Pupil Premium and target intervention as appropriate. Most mathematics intervention occurs within the classroom and is planned for and supported by the class teacher, linking directly to the children's needs, identified through careful assessment. 'Key Marginal' children are identified each half-term and the targeted intervention areas identified through QLA. The impact of interventions is then monitored through Pupil Progress Meetings between the Headteacher and teacher.

Equal Opportunities

All children at Hopton Primary School, regardless of their race, sex, religious belief or ability, will be given equal opportunities to develop their knowledge, skills and understanding of mathematics. We seek to take advantage of the many multi-cultural aspects of mathematics through incorporating maths across the curriculum and within topics. We ensure that mathematical teaching and learning takes into account the interests and learning styles of both boys and girls. We recognise that children for whom English is an additional language may have specific and important needs that must be addressed, including access to bilingual resources and the learning of specific mathematical vocabulary.