




Hunnyhill Primary School

Date of Review	September 2022
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Staff Responsibility	Headteacher / Maths Lead
Notes / Source	
Signed by Chair of Governors	

Maths Policy

Introduction

At Hunnyhill Primary School, we strive to develop children holistically, enabling them to be ready to experience, understand and change the world around them. We understand the importance of mathematics and how, with a firm foundational knowledge of mathematics, a child is equipped with a uniquely powerful set of tools to understand and change the world that they live in. These tools include logical reasoning, problem solving skills and the ability to understand and manipulate numbers and mathematical concepts fluently. Mathematics is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them throughout their lives.

Aims for all children:

- To foster a positive attitude to mathematics as an interesting part of the curriculum, which is integral and purposeful in their own lives.
- To develop the ability to think clearly and strategically, with confidence, and have flexibility and independence of thought.
- To develop a deeper understanding of mathematics through a process of enquiry, problem solving and reasoning.
- To develop an understanding of the connections, patterns and relationships within the different domains of mathematics.

- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom and become aware of the uses of mathematics in the wider world.
- To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.
- To develop personal qualities such as resilience, independent thinking, co-operation and self-confidence through a sense of achievement and recognition of success.
- To have a firm conceptual knowledge of key mathematical concepts
- To apply mathematical fluency to solving calculations and problems

Learning expectations of pupils by the end of KS2

Children will:

- Have a well-developed sense of the size of a number and where it fits into the number system (place value)
- Conceptually understand and fluently recall and apply number facts to help them solve calculations
- Apply the facts that they know to mentally solve calculations using the four operations
- Calculate accurately and using efficient methods
- Draw on a range of models, images and strategies to support problem solving
- Recognise when it is appropriate to use a calculator and be able to do so effectively
- Make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- Explain their methods and reasoning, using correct mathematical vocabulary
- Judge whether their answers are reasonable and have strategies for checking them where necessary
- Suggest suitable units for measuring and make sensible estimates of measurements
- Explain and make predictions from the statistical data in graphs, diagrams, charts and tables
- Develop spatial awareness and an understanding of the properties of 2D and 3D shapes

Planning

At Hunnyhill, we use our own Long Term Plans, created by the Maths Lead and through previous support from Hampshire Maths Advisors. We use of a range of resources to ensure our curriculum is broad, balanced and offers rich opportunities for developing mental fluency, as well as reasoning and problem solving. Teachers plan for 'learning journeys' which are based on each mathematical domain. The teaching is progressive and will consolidate previous learning before introducing new learning, so as to ensure that the children are receiving the learning that they need at that time. Objectives for each learning journey are ordered by complexity and are taught in logical steps that build upon previous learning. A conceptual and deep understanding of mathematics is at the heart of our teaching and as such, teachers adapt the teaching, learning and the tasks to meet the individual needs of our children.

Differentiation

Taking a mastery approach, differentiation occurs in the *support and intervention provided* to different pupils, not *in the domains taught*. Units of maths at Hunnyhill are planned around the use of concrete, pictorial and abstract resources. This approach to teaching mathematics allows our children to manipulate resources and use these to represent numbers or concepts before moving them on to pictorial representations. A conceptual understanding is instrumental before children can grasp abstract concepts. Once children have a secure understanding of the concept being taught, they will then move on to procedural methods of solving calculations. Children at Hunnyhill will then build up a firm foundational knowledge of what numbers or mathematical concepts mean, before they learn procedural skills. Children may be using different resources to support their learning, based on their personal skills and understanding. Teachers will plan tasks that have been varied to meet the needs of individual learners in their class, and these tasks will challenge children appropriately. These are often called 'consolidate', 'core' and 'extend' tasks - with 'core' referring to the task that the majority of the class will be working on, 'consolidate' referring to the task that will revisit previous learning and 'extend' referring to the task aimed at

challenging children with a more complex problem. This method ensures that each child is receiving the teaching and learning that they need at that point in time, and that a secure foundational knowledge is gradually built upon. Where appropriate, children that are assessed to be not on track to meet the objectives of the domain are given intervention sessions to reiterate the learning and to provide them with further opportunities to practise their mathematical skills.

Assessment

Formative

Assessment is an integral and continuous part of the teaching and learning process at Hunnyhill and Assessment for Learning is what we use to ensure that children are receiving the teaching and learning that they, as an individual, needs at that point in time. Teachers integrate the use of formative assessment strategies such as: cold tasks, diagnostic assessments, effective questioning, effective verbal feedback and responses in their teaching and marking. Findings from these assessments are used to form the basis of the teachers' groupings and planning for subsequent lessons. Through doing this, the teachers are able to see what the children already know, as well as any gaps or misconceptions that need addressing, which enables them to plan for progress.

Summative

More formal methods are used to determine the levels of achievement of children at various times during the school year:

Termly Assessment: Every term, teachers assess where each child is on their journey to achieving Age Related Expectations (ARE) by the end of the year. This information is then updated onto SIMS Programmes of Study.

These assessments present which children are making good progress towards ARE and which children will need targeted interventions. Discussions in Pupil Progress Meetings will determine what their precise learning gaps are, using a combination of formative and summative assessments.

Statutory End of Key Stage Assessment. The National Curriculum requires that each child is assessed at the end of each key stage to determine whether they are Working Towards Age Related Expectations (WTS), Working at the Expected Standard (EXS) or working at Greater Depth Standard (GDS). Children in years 2 and 6 sit both arithmetic and reasoning tests. At the end of Key Stage One, these results work alongside teacher judgements to determine whether a child has met ARE. At the end of Key Stage Two, these results are used to assess whether a child has met ARE in maths and are compared to national results and are published.

Staff Development

Staff at Hunnyhill are provided with maths training and support from a number of people and agencies, based on the school's current Raising Attainment Plan (RAP), which has identified where support and what targets are most needed to improve the outcomes in mathematics for that year. The mathematics co-ordinator, as well as members of SLT and HIAS advisors, provide staff with up-to-date pedagogy in mathematics in staff development meetings and development days. Where appropriate, staff are given the opportunity to attend training courses to support their own subject knowledge or pedagogy.

Resources

A bank of essential mathematics resources are kept in each classroom. These resources are used to develop and support the conceptual understanding of mathematical principles. Resources available to each class (as appropriate) include:

- Numicon
- Dienes
- Counting equipment (appropriate to year group)
- Fraction cubes
- Number lines

Further resources relating to key whole school topics are kept in the resource room. Teachers should use their judgement about when ICT tools should be used, including the use of calculators.

Monitoring and evaluation

It is the role of the mathematics lead, as well as members of the school's SLT, to monitor the quality teaching and learning in mathematics and to support teachers in using up-to-date and first quality pedagogy in teaching mathematics. Frequent monitoring, including book looks and learning walks, provide a strategic direction as to where quality teaching and learning is happening and the areas for further development in the school. Timely feedback is given and appropriate support is provided, allowing any adjustments to be made promptly.

Hunnyhill hosts internal moderations where teachers are given the opportunity to share their work and evaluate it against a parallel year group. By doing this, teachers are well informed about the good practise happening within the school but can also compare expectations and assessments of different children. As a school, we are also enthusiastic about external moderations with other schools and will often use these to support our judgements against ARE.

EYFS

Mathematics within the EYFS is developed through purposeful, play-based experiences and is represented throughout our indoor and outdoor provision. Children in EYFS develop the foundational knowledge and understanding of our number system, therefore mathematics teaching and learning is rigorous and integrated into daily routines and practises. The learning environment, including the daily use of 'concrete' resources, provides extensive opportunities for children to develop their foundational knowledge of numbers and mathematical vocabulary. The planning will be based on a combination of the pupils' interests and objectives from the Early Years Curriculum, aiming for all children to reach a 'Good Level of Development' (GLD) by the end of the year. Learning is varied to meet the needs of all learners by the use of the Development Matters guidance, which sets out the pathways of children's development in broad ages and stages. Staff in Early Years are well-trained in closely observing children playing and interacting and using these observations to accurately assess what children already know, what they need to work on further and how to enable this to happen. When the children are developmentally ready, they will move on to the next stage. Early Years maths is continuously assessed on SIMS Programmes of Study as well as Tapestry (please see Assessment Policy).

Calculations:

Please see our calculations policy for information about how we progressively teach strategies for mental and written calculations across years 1-6.