



# Hunnyhill Primary School

Date of Review	19 <sup>th</sup> December 2017
Next Review Due	December 2019
Staff Responsibility	Maths Lead
Responsibility FGB/Committee	FGB
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 think in abstract ways. 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.

### Aims for all children:

- To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum and their own lives.
- To develop the ability to think clearly and strategically, with confidence, 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 perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.
- To have a firm foundational knowledge of key mathematical concepts.
- To have fluent recall of mathematical facts for their year group.

### Learning expectations of pupils by the end of KS2

- have a well-developed sense of the size of a number and where it fits into the number system (place value)
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use the facts they know to mentally solve calculations with the four operations in
- calculate accurately and efficiently, both mentally and in writing and on paper
- drawing on a range of calculation strategies and models to support these
- 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 terms
- 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 numbers in graphs, diagrams, charts and tables

- develop spatial awareness and an understanding of the properties of 2D and 3D shapes

### Planning

Hunnyhill uses the Hart and Rushmore planning format for each year group (Years 1-6). The planning focuses on key questions that are vital to the core mathematical learning in each domain of mathematics. Teachers plan for 'units' which are based on each domain. These units are not prescriptive with timings but instead allow for the individual differences of each cohort, and as such, the teaching of each domain will last as long as it needs to so that most children are secure in that domain before moving on to a new one. The 'key questions' outlined in Hart and Rushmore are ordered from foundational knowledge to deeper thinking skills and children will move on to the next key question only once they have secured the question they are working on.

### Differentiation

Taking a mastery approach, differentiation occurs in the *support and intervention provided* to different pupils, *not in the domains taught*, particularly at earlier stages. Units of maths at Hunnyhill are planned around the use of concrete, pictorial and abstract resources. This approach to teaching mathematics allows children manipulate resources and use these to represent numbers or concepts before moving them on to pictorial representations. 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 actually mean, before they learn procedural skills. Children may be using different resources to support their learning, based on their personal skills and understanding. This method allows Hunnyhill to ensure 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 not on track to meet the objectives of the domain are given 'catch up' sessions subsequent to a maths lesson 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 much of it is done informally as part of each teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear learning objectives, effective feedback and response in their teaching and marking. Findings from these types of assessment are used to form the basis of their groupings for the subsequent lesson. Through doing this, the teachers are able to see which part of the learning journey, or which 'key question', each child is on and where they need to progress to next.

#### Summative

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

**Termly Assessment Weeks:** We use termly assessments as a way of recording children's progress in mathematics objectives covered across that specific term. This information is then updated onto SIMS Programmes of Study and can be used alongside formative assessment to inform judgements against Age Related Expectations (ARE). Children in years 1-6 also complete a mathematics assessment called Progress in Understanding Mathematics Assessment (PUMA) every term, which provides teachers with a maths age and an age standardised score and this data is also recorded on SIMS.

**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 ARE, working at ARE or working at Greater Depth. 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.

Please see the school's Assessment Policy for further information.

### Staff Development

Staff at Hunnyhill are provided with training and support from a number of people and agencies, where necessary. The mathematics co-ordinator, as well as members of SLT and advisors from outside agencies will provide staff with up-to-date policies and approaches to mathematics in staff meetings and training 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 conceptual understanding of mathematical principles. Resources available to each class include:

- Numicon
- Dienes

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

Moderating of the standards of children's work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader alongside members of the senior leadership team. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. Hunnyhill hosts termly internal moderations where teachers are given the opportunity to share their work and evaluate it against a parallel (or close to) year group. By doing this, teachers become well informed about 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 will be represented throughout the indoor and outdoor provision. The learning will be based on pupils' interests/schemas or current themes and will focus on the expectations from Early Years Outcomes. As the pupils progress through, more focus is placed on representing their mathematical knowledge through more formal experiences. Pupils will be encouraged to record their mathematical thinking when ready and this will increase throughout the year. Early Years maths is continuously assessed on SIMS Programmes of Study (please see Assessment Policy).