Maths Policy

West Hill Primary School

Approved by:		**Date:**	
Last reviewed on:	November 2022		
Next review due by:	November 2023		

Contents

.....

1. Philosophy

The 2014 National Curriculum states that:

"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."

At West Hill Primary School we see Maths very much as a multi-discipline, cross curricular, interconnected subject which should encourage creativity. As much revolves around the discussion about Maths between talk partners as it does the completion of calculations and solving problems. We want the children to see Mathematics as being relevant to their world and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment. To that end, a high-quality, inter-related and creative Maths experience should be one that develops the children's ability to think mathematically and one which allows them to apply the tools to which they have been exposed in a variety of ways.

Following the introduction of the 2014 National Curriculum, the emphasis has been to ensure that all children:

- Become FLUENT
- REASON and EXPLAIN mathematically
- Can SOLVE PROBLEMS

This means that children need to be regularly exposed to opportunities involving increasingly complex problem solving which allows them to apply their Maths knowledge. In doing so they should be encouraged to develop an argument and line of enquiry which they can prove and justify using mathematical vocabulary. This includes the ability to break down problems, both routine and non-routine, into a series of steps.

2. Aims and Objectives

At West Hill we believe that every child can succeed in maths and we want to instil this belief in the children themselves. Through our mathematics curriculum we aspire that all learners:

- become fluent in the fundamentals of mathematics
- develop a deep conceptual understanding, and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by conjecturing relationships and generalisations, and proving their understanding using mathematical language and representations
- have the opportunity to solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication
- are guided to break down problems into a series of simpler steps and persevere in seeking solutions
- to stretch themselves and take risks in their learning within an environment that is safe for making mistakes

3. Approach

At West Hill, we are implementing the principles of Teaching for Mastery across the school. Teaching for Mastery is a product of extensive research into the highly successful teaching practice in Singapore and Shanghai.

A whole class teaching approach is adopted, keeping the class working together, with no acceleration to new content. This is to avoid superficial, surface learning and foster a deep, secure understanding of all the concepts taught. The learning needs of every child are addressed through skilful questioning and appropriate, immediate intervention – this provides the necessary scaffolding or challenge for all.

In our reception class, children work towards the Early Learning Goals for Number and Shape, Space and Measure. Teaching adopts the Teaching for Mastery principles where appropriate and builds this into the unique pedagogy for the EYFS. The Key Stage One and Key Stage Two curriculum focuses on four areas: number, measurement, geometry and statistics across the year. Within these areas, concepts are taught slowly and at great depth to ensure the learning is secure and sustainable. Included in every lesson are fluency, reasoning and problem solving tasks, giving the children the opportunity to explore the concept being taught extensively before moving on to the next. Questions are designed carefully by the teachers to provide intelligent practice, developing and embedding conceptual fluency. We believe in exposing the children to multiple representations of a concept, using concrete, pictorial and abstract examples simultaneously to support the children's understanding.

At West Hill, we place high importance on mathematical talk. As a result, lessons include regular opportunities for the children to discuss their understanding and explain their thinking, both with the adults and their peers. Accurate use of vocabulary and terminology features prominently in our lessons, with teachers both modelling and expecting it from the children. We believe this will support our children when faced with a range of mathematical problems.

White Rose and the NCETM resources are used as a starting point for our planning.

Children are given maths homework weekly at West Hill – mathematical activity will be provided, linking to the learning done in class that week and encouraging the children to practise and embed their skills further.

The use of Big Maths weekly ensures that children become fluent in recalling addition, subtraction and multiplication facts. In addition, weekly multiplication tests are carried out in Years 2 - 6 to ensure that pupils become fluent in recalling multiplication facts. Times table Rock stars and

Numbots are used in school as weekly practice for children's time table and addition and subtraction fluency.

Daily maths meetings are designed by the class teacher to cover areas of maths which require "over learning" and regular practise. These are bespoke to each year group and based upon teacher's assessment of the needs of the class.

4. Planning and Assessment

Teachers work in pairs within each year group to plan and deliver lessons that suit the particular learning styles of the children within the year group. They use their own judgement and use of formative assessment to ensure a flexible approach is adopted which recognises the pace of learning within the classroom. Individual, paired and group work will be used across a series of lessons. Reasoning opportunities are included in each lesson which ensures that pupils can use their mathematical vocabulary to talk in depth about the mathematical concepts they are being taught.

Planning will demonstrate the various challenges available to children, together with AfL (Assessment for Learning) opportunities (speaking and listening and self/peer assessment) and teacher assessment.

Across a range of lessons children should be allowed to engage in mathematical discussion (talk partner or group work), investigations, problem solving, practical experiences and written methods, as well as allowing for time to demonstrate their understanding.

Children will be provided with feedback either verbally or through written marking. Misconceptions and common errors should be addressed as a whole class in the next lesson. When marking work teachers should adhere to the school's Marking Policy.

Assessment in Mathematics will reflect the overall school Assessment Policy. Assessment will include formative, diagnostic, summative and evaluative elements to enable effective planning.

Opportunities to practise will be given to children on the mechanics of writing number symbols. Throughout school, children will find it necessary to record and present their work in their own books / paper. In order to develop presentation skills we envisage that children at different stages of development will have different needs and requirements.

5. Resources and Displays

At West Hill we embed the CPA approach to teaching maths- concrete, pictorial and abstract.

When teaching different concepts in maths we ensure concrete manipulatives are used to aid the children's learning and understanding. These can be key in providing effective, active, engaging lessons in the teaching of mathematics. Resources help students learn by allowing them to visualise, explore and manipulate them, giving easier access to mathematical knowledge and resulting in higher retention of the concept. Visual representations of concrete objects are then used to model problems. This stage encourages children to make a mental connection between the physical object they just handled and the abstract pictures, diagrams or models that represent the objects from the problem.

Therefore at West Hill, each classroom is resourced with materials to support the delivery of Maths; such items might include number lines, Numicon, Dienes rods, multiplication tables, 100 squares, 2D and 3D shapes, multilink cubes, dice and other smaller items. Larger materials such as scales, trundle wheels and measuring cylinders will be held centrally. These resources should be carefully chosen by teachers so that they effectively aid children's learning of a mathematical concept. Children should be confident in using different resources to aid their learning.

Each classroom should have Maths working wall which should be relevant to the unit of work they are currently working on.

6. Inclusion

In line with the School's Inclusion Policy each child will have an equal entitlement to all aspects of the Maths curriculum and to experience the full range of Maths activities. Therefore, in delivering Maths, care will be taken to ensure that a variety or learning styles are accessed and teaching methods adopted.

Intervention groups will take place both within the Maths lesson and outside; these sessions may be delivered by the teacher or teaching assistant and may involve individual or small group work, accessing both ends of the learning spectrum.

7. Role of the Maths Lead

The role of the Maths lead is to:

- Organise in-service training for staff in Mathematics
- Ensure that appropriate resources are available
- Provide 'expertise' to assist staff in the delivery of the curriculum
- Provide support for NQT's and Teaching Students in Mathematics
- Know and understand how children become numerate and communicative
- Evaluate on a regular basis the policy and scheme of work and ensure they form the basis of practice of Mathematics within the school
- Keep updated in Mathematical developments through appropriate in-service training
- Keep a Coordinator's file which is informative and relevant
- Audit provision for mathematics across the school in terms of teaching and learning, resources, standards on a regular basis
- Prioritise improvements for the teaching and learning of mathematics across the school and contribute to the school improvement plan
- Track the progress of identified groups of children and be involved in a thorough evaluation of Mathematics looking at trends over time
- As Mathematics is involved in many aspects of the learning which takes place in school, the Coordinator needs to ensure close liaison with other Coordinators to ensure that children are provided with appropriate opportunities and resources to enable them to engage in mathematical activities in a cross curricular way.