Maths at Hillstone

Aim

Our aim is to equip all pupils with the skills and confidence to solve a range of problems through fluency with numbers and mathematical reasoning. Children are encouraged to see the mathematics that surrounds them every day and enjoy developing vital life skills in this subject.

Carefully planned activities encourage children to work mentally, observe patterns, make predictions and discuss relationships. Mathematics skills are also used in other subjects such as science, computing and art.

Mastering Maths at Hillstone

At Hillstone Primary, we have adopted a mastery approach in order to deliver the three aims of the National Curriculum, fluency, reasoning and problem solving. Underpinning this pedagogy is a belief that all children can achieve in maths. We believe in promoting a sustained and deep understanding by employing a variety of mastery strategies, with teaching for conceptual understanding at the heart of everything we do. We aim to create independent mathematicians who are well equipped to apply their learning to the wider world. Our approach aims to provide all children with full access to the curriculum, enabling them to develop independence, confidence and competence – 'mastery' in mathematics in order to be independent mathematicians who are well equipped to apply their learning to the wider world.

The mathematical journey that children undertake at Hillstone Primary aims 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Key features of our curriculum include:

- High expectations for every child
- Greater depth of topics
- Real life number sense and place value
- Application of skills learn to solve problem
- Calculating with confidence– understand why it works

We place emphasis on the cumulative mastery of essential knowledge and skills in mathematics. It embeds a deeper understanding of maths by utilising a concrete, pictorial, abstract approach so that pupils understand what they are doing rather than just learning to repeat routines without grasping what is happening.

J. Bridges 2021

EYFS

Maths in the Early Years is evident in daily activities, independent learning and taught sessions. Children are exposed to maths at all times and mathematical vocabulary and cross curricular opportunities are seized upon daily. Children use a range of concrete resources to explore maths practically. Subitising is a crucial skill which we aim to develop in the early years as this key area provides the roots for a child to become a competent and fluent mathematician. We are currently involved in the Mastering Mathematics project with the NCETM and Central Maths Hub which aims to build up children's subitising skills through a rich variety of activities (including Numberblocks) taught through a program which supports ten minutes of daily practice.

Key Stage One

In KS1 we follow Maths No Problem which is a scheme based on the Singapore approach to the teaching of mathematics. All children have a work book, textbook and a Maths Journal to complete maths learning. Lessons start with a problem which the children investigate as a class using concrete equipment. Children are actively involved in this and physically manipulate resources themselves and explore outcomes and investigations. When children have a secure understanding of this they move on to the pictorial stage of the lesson where their learning is presented in different ways. This may be through the part part whole model or the bar model but many other pictorial representations for all areas of maths will also be evident in their Journal's. It is only when a child has fully understood this concept that they move on to the abstract stage and actually write number sentences and show their learning in different ways. Questioning is used very effectively throughout the lesson to ensure that the children can explain reasons for their answers and therefore show a mastery understanding of the topic.

Key Stage Two

Maths No Problem is also followed in years three, four and five where lessons are adapted and crafted to meet the needs of our learners. Children are encouraged to show a range of journaling methods to show a deep understanding of a concept and then apply this new knowledge to a varied of problems. All children will be challenged, at their level, throughout lessons and effective use of assessment will ensure pupil progress.

In year six a variety of resources are used to ensure that high quality learning and mastery is taking place. We follow the medium term planning set out by the White Rose Hub but alongside this use resources published by the NCETM such as the mastery assessment materials and the reasoning guidance. Lessons follow a similar structure to years 1 – 5 and start with a problem or investigation which involves the use of concrete resources. In most lessons, children then demonstrate their learning pictorially before then completing the abstract tasks to develop the skills and show mastery of a concept

. A weekly arithmetic lesson is also taught across the school to develop children's knowledge and understanding of number and the associated methods.

Mental Maths

Children are encouraged to develop their mental maths skills every day throughout the curriculum. We use Mastering Number resources to embed these crucial skills in the lower year groups and follow our KIRFs progression map throughout the school. Times tables are explicitly taught with facts broken down and introduced sequentially giving children the knowledge of what they actually are and how they are formed and also the opportunity to spot patterns and make links. The MTC test, taken in year four, is the result of a build up of these crucial skills in years one to four which form the bedrock of their mathematical journey.

Times Table Rock Stars is used not only to engage pupils in their maths learning through individual games and school competitions, but also to track their progress using the testing element and to plan and adapt lessons, and provide personalised targets, as necessary.

Gifted and Talented

Gifted and talented children will be challenged further in lessons through questioning and explanations. A *'Working Deeper'* activity will also be planned for in each lesson to enable pupils to take their learning further forward. These will not involve bigger numbers or concepts from a year above, but instead will ensure that a child has fully mastered an abstract idea by asking them to explain it in a different way or look at things a little bit differently. Skills in problem solving, reasoning and fluency will be developed even further with *'Working Deeper'* tasks and will be available for **all** children to progress onto if they have achieved the objective and main task(s) in the lesson.

SEN

Personalised provision will be provided for children with SEN in maths. This may involve children spending a longer time on a concept or using concrete resources to aid understanding throughout the lesson. In some cases, children may be working on objectives from previous year groups in line with their Learning Plan and Continuum sheets. Specific interventions may need to be planned for some children in line with the SEN policy.

Assessment

Assessment in mathematics will follow the schools feedback and marking policy and will be driven by high quality teaching and with adaptations both planned for and evident in lessons to ensure progress and challenge for all. The teacher will mark children's work and fill in the assessment on Insight which will be used as a tool to inform next steps and future planning. Additionally, NTS assessments will be taken three times a year by the pupils. All of this data will

inform teachers professional judgements about pupils attainment in mathematics. Please see further assessment guidance to be used within lessons in the feedback policy mentioned above.

Planning

Medium term planning is in place across the school which broadly follows MNP and also WRH in year six. When teachers are planning individual lessons, written planning is not required, but the IWB resources will be of an exceptional quality and contain all information found on lesson plans including, timings, key questions, types of journaling assessment opportunities and next steps, as well as providing challenging activities for all to achieve at their level through differentiation. Teachers will collaborate across year groups and hold daily meetings to discuss maths lessons reflecting on practise and next steps.

Monitoring and Standards

High quality maths provision will be regularly monitored by SLT through observations, learning walks, data scrutiny, book trawls and pupil voice.

Cross Curricular

Throughout the whole curriculum, opportunities to extend and promote maths should be sought. This will be particularly evident in EYFS and STEAM subject areas, but all possibilities should be explored.

Resources and Displays

The maths area situated in KS2 houses the main maths resources which are all in boxes according to topic area. These are checked and updated annually. In classes, teachers have concrete resources appropriate to the year group they teach which will be used in daily lessons as a crucial resource to aid children's understanding.

All teachers in years one to five have access to MNP resource and training materials and all teachers can also access WRH premium resources online.

Maths working wall are maintained in all classrooms and reflect current learning.

Problem Solving

Problem solving is embedded in every maths lessons, but specific problem solving skills and investigations will be taught half termly in each year group. We are proud to be an nRich Problem Solving School and endevour to give children time to explore mathematical thinking, spot patterns, make generalisations, work logically and spend quality time fully exploring one investigation. Investigations are mapped out across the school to ensure a build up of key skills.

Where's The Maths in That?

In order to continually develop our mathematical oracy, each year group uses a visual stimulus in maths once a week to enable them to mathematise their world. The children are shown the picture and asked one simple question, 'Where's the maths in that?' Teachers will have preplanned responses, related to their vocabulary progression document, to guide children's thinking and encourage them to ' say it again better.'

Review

This policy will reflect our maths practice at Hillstone. It will be reviewed in January 2027.