Mathematics Policy

Approved by Full Governing Body on 26.11.18

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Holmwood School is committed to raising the standards of Mathematics in all its students, so that they develop the ability to use Mathematic skills in all areas of the curriculum and the skills necessary to cope confidently with the demands of secondary education, employment and adult life. Our objectives in the teaching of mathematics are:

- to promote enjoyment of learning through practical activity, exploration and discussion;
- to develop confidence and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space and developing measuring skills in a range of contexts;
- to help children understand the importance of mathematics in everyday life.
- To embed and develop the teaching and learning of Mathematics throughout the curriculum.

1. INTRODUCTION

Mathematics equips pupils with the tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. The National Curriculum order for mathematics describes what must be taught in each key stage. This policy document sets out the school's aims, principles and strategies for the delivery of Mathematics. There are at least five Maths lessons per week. These sessions have been developed to suit the needs of Holmwood school pupils. In early years the curriculum is guided by the Early Learning Goals, which mirror the reception Learning Objectives in the NNS Framework.

Aims

- To enable each child to develop within their own capabilities, not only the mathematical skills and understanding required for later life, but also an enthusiasm and fascination about Maths itself.

- To increase pupils' confidence in Maths so that they are able to express themselves and their own ideas using appropriate mathematical language.
- To create a co-ordinated and consistent approach to Maths across the whole school.
- To raise the Mathematic expectations of all pupils in Holmwood School.

Entitlement
The Schemes of Work for Maths are broadly manageable within our school through a structured and consistent approach to Maths. The children work at their own stage of achievement developmentally through the progression laid out in the National Curriculum.

Contribution of Mathematics to teaching in other curriculum areas
The skills that children develop in Maths are linked to, and applied across the curriculum where possible. Curriculum work across the school uses, where relevant, Maths targets as focus within planning, teaching, marking and assessment. We seek to provide activities that are interesting and motivating in themselves and lead to worthwhile outcomes. Such activities provide the best context for increasing children's knowledge about Maths within the wider world and encourage the application of Maths skills. It is important that our pupils are immersed in Mathematics through as many subjects areas as possible.

Technology
Technology can enhance the teaching of mathematics significantly. It has ways of impacting on learning that are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. A range of software and resources are available to support work with the computers.
Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. Teachers should use their judgement about when ICT tools should be used.

Process and staffing
Mathematics is normally taught by a qualified teacher within the classroom and may be supported by Learning Support Assistants (LSA) within the class during the Maths lesson or at other times in the day through interventions. The level of LSA support is determined by the needs of the children. All children should receive focused teaching. LSA support can be used across the whole of the Maths lessons, including mental starters and plenaries. Should a teacher not teach a Maths lesson (perhaps due to PPA or professional development opportunities), the class teacher remains responsible for the effective delivery of the learning outcomes and must ensure sufficient time for the person covering to become familiar with the planning and expectations for the lesson.

Children not on line to achieve expected progress from Key Stage 1 to 2 are prioritised for additional intervention, as are those who are working below the level of expectation for their age. Class

teachers are responsible for the content of these sessions although they may be delivered by a different teacher, HLTA or LSA. Intervention may also be used, to support individual pupils, to fill gaps in understanding.

Leadership and Management

The subject leader's role is to empower colleagues to teach Maths to a high standard and support staff in the following ways:

- By keeping up to date on current issues; disseminating relevant information and providing training for staff members (either directly or through other professionals)
- Leading by example / modeling lessons or styles of teaching
- Having a knowledge of the quality of mathematics provision across the school
- Identifying and acting on development needs of staff members
- Monitoring expectations, provision and attainment across the school and providing feedback to develop practice further in order to raise standards.
- Providing necessary resources and equipment and maintaining it to a high standard.

Planning is taken at three levels:-

- Long term planning is based on the age appropriate yearly teaching targets set out in the National Curriculum for Mathematics and back tracked according to individual pupils needs.

- Medium term planning is carried out half-termly. Teachers select their main teaching objectives from the yearly teaching targets and use the relevant materials from the National Curriculum to ensure a balanced mathematics curriculum. At Holmwood we recognise the need to revisit topics regularly to revise and consolidate skills and to extend them. Every area of Mathematics in the yearly teaching programme is covered at least once by the end of the year. We use the Abacus Maths Scheme to supplement our Maths teaching.

- Short term planning is carried out weekly. These plans include learning objectives for the mental and oral starter and the main activity, resources to be used, any differentiation, key vocabulary and key questions. Furthermore, the short term planning focuses upon the targets of each individual child to ensure teaching is differentiated to the correct level of ability and progress is being made.

In KS1 mathematics lessons are held on a daily basis and last for approximately 45 minutes. In KS2 the daily Maths lesson lasts for approximately 1 hour. In the Reception these elements may be

across the day, the aim is to have prepared the children by the end of the year for a daily 45 minute Maths lesson. The teaching of mathematics at Holmwood provides opportunities for:-

- Group work
- Paired work
- Whole class teaching
- Individual work

Pupils engage in:-

- The development of mental strategies
- Written methods
- Practical work
- Investigational work
- Problem solving
- Mathematical discussion
- Consolidation of basic skills and routines

Spoken Language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions. At Holmwood School we use the **Rising Stars Mathematical Vocabulary Booklet** when planning to help determine the appropriate vocabulary to use in our teaching.

Assessment

Assessment for Learning is fundamental to raising standards and enabling children to reach their potential. Assessment in mathematics takes place daily using a range of strategies such as marking and feedback of work and verbal discussions with children. This information informs subsequent planning and next steps in teaching and learning. Planning is annotated to demonstrate adaptations and provide feedback about children's individual/group progress. To ensure children are assessed at a stage suitable for their learning teachers plan, teach and assess to individual Maths targets. Throughout the school children are actively encouraged to assess their own abilities against their own targets using self assessment and peer assessment. Pupils have the opportunity to give feedback to staff about their work through our Pupil Voice. The children take great pride in achieving their targets and visually seeing their own development across the subject. Pupils are regularly assessed by Teacher Assessment using the Learning Ladders Descriptors. Furthermore, termly Maths targets within each child's IEP are assessed and used to inform planning as well as set appropriate targets for the next half term. This information is used in end of year assessments and school reports. All pupils will also be assessed termly using an external test supervised by SMT.

Marking.
Marking is an implicit part of assessment, complementing and assisting teaching and learning. It is an integral part of the National Curriculum statutory procedures. Marking is a positive strategy that can make significant contribution to constructive feedback and enables pupils to develop their knowledge and skills. All written pieces of Maths work will be marked referring directly to the individual targets or success criteria, it will then identify the next stages for learning for that individual child. The level of independence will also be reflected through the marking using A/I (achieved independently), A/H (achieved with help), P/I (partially independent). Where oral feedback has been given to a child this will be indicated using O/F. Where a child gives an incorrect answer a dot or question mark is placed next to it. No work is to be marked negatively with a cross. When the child has corrected the work a "c" will be placed next to it.

Development of Mathematics across the school.

Progression towards a standard written method of calculation
The National Curriculum for Mathematics provides a structured and systematic approach to teaching Mathematics. All staff are aware of and use our new Calculations Policy to identify the stages of progress of written calculation methods and as an aid to the planning and teaching of written methods of calculating.

REASONS FOR USING WRITTEN METHODS
• To aid mental calculation by writing down some of the numbers and answers involved
• To make clear a mental procedure for the pupil
• To help communicate methods and solutions
• To provide a record of work to be done
• To aid calculation when the problem is too difficult to be done mentally
• To develop and refine a set of rules for calculations

WHEN ARE CHILDREN READY FOR WRITTEN CALCULATIONS?

Addition and subtraction

• Do they know addition and subtraction facts to 20?
• Do they understand place value and can they partition numbers?
• Can they add three single digit numbers mentally?
• Can they add and subtract any pair of two digit numbers mentally?

• Can they explain their mental strategies orally and record them using informal jottings?

Multiplication and division

• Do they know the 2, 3, 4, 5 and 10 time table
• Do they know the result of multiplying by 0 and 1?
• Do they understand 0 as a place holder?
• Can they multiply two and three digit numbers by 10 and 100?
• Can they double and halve two digit numbers mentally?
• Can they use multiplication facts they know to derive mentally other multiplication facts that they do not know?
• Can they explain their mental strategies orally and record them using informal jottings?
The above lists are not exhaustive but are a guide for the teacher to judge when a child is ready to move from informal to formal methods of calculation