



Heronsgate Primary School

Maths Policy

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Heronsgate Maths Policy

Vision, Aims and Underlying Principles.

Our vision for the teaching and learning of mathematics at Heronsgate Primary School is underpinned by the principles of “mastery”;

- A belief that all children are capable of understanding and doing mathematics, given sufficient time and support;
- A curriculum that gives all children access to the key ideas and building blocks in mathematical concepts, and the links between them;
- Pupils working together on the same lesson content. This includes providing support for struggling learners and challenge (rather than acceleration);
- A teaching approach that is aimed at developing pupil’s understanding of concepts in tandem with fluency (in facts and procedures) so that children are able to apply their knowledge and understanding confidently in new and increasingly complex situations.

Our aims are aligned to the aims of the NC, and we aim to ensure that all pupils:

- become **fluent** in the fundamentals of maths through varied and frequent practice with increasingly complex problems over time, so 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 maths to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

Planning

Strands of maths are ‘blocked’ so that teachers are able to focus on one area of maths in detail, over an extended period of time.

In KS1, the Maths! No Problem textbooks and workbooks are used. Teachers have access to on-line planning tools. Lessons are structured logically and progressively. Teachers supplement the Maths! No Problem scheme with Extension Tasks . Extension Tasks should not be designed to accelerate learning. Instead, they should offer further opportunities for problem solving and/or reasoning at a deeper level.

In KS2, teachers use Pupil Asset to identify NC objectives within each strand. Teachers break down objectives into a logical and progressive structure and use a range of resources from which to plan lessons and tasks, including Extension Tasks.

Teachers use PPA time to discuss and decide upon appropriate sequences of lessons.

Most children are expected to move through the curriculum at broadly the same pace.

Maths Planning Folder

Each year group has a Maths Planning Folder to keep together useful planning resources. Teachers are expected to make use of this, along with other documents/websites to aid their subject knowledge, planning, understanding of progression and assessment. Particularly useful documents/websites are shown below:

- www.ncetm.org.uk
- 'Teaching for Mastery' document (NCETM)
- NCETM spines
- www.nrich.co.uk
- White Rose hub resources

Resources

At Heronsgate Primary School, we aim to use concrete and pictorial representations alongside abstract notation in the teaching of mathematical concepts and skills. We believe that these 3 representations are important in the development of a child's understanding of a skill or concept and its application to problem solving.

Even when a child is seemingly confident with abstract notation, concrete and pictorial representations can be used to reinforce, deepen and assess understanding of mathematical structures.

We believe that children develop a deep understanding of the maths they are learning when they are given opportunities to use concrete materials and diagrams to develop understanding along with continual opportunities to communicate their mathematical explanations, reasoning and ideas. This communication of pupil's mathematical thinking is given high value in lessons.

ICT

ICT is an important tool in transforming learning. Teachers are able to use a range of apps to model, explain and uncover mathematical structures. Children are encouraged to use ICT to explore and record maths learning. ICT should support and enhance the important hands on experiences that children should encounter.

Feedback on Learning

Feedback on Learning in Maths should be in line with our Feedback on Learning Policy. This can be found on the school website.

Assessment

Teachers carry out formative assessments every lesson in line with the Feedback on Learning Policy. Teachers also use quizzes and/or tests to inform them about pupils' progress and competence against NC objectives.

Wherever possible, pupils who encounter a difficulty with the learning on a particular day are given a same-day intervention which aims to remedy the difficulty and thus enable the child to begin the next lesson at the same starting point as their peers. We also aim to offer targeted interventions to pupils who would benefit from support in strengthening their conceptual understanding and/or fluency. These usually take place in addition to the daily maths lesson.

Structure of Lessons and Differentiation

Pupils receive an hour long maths lesson daily and a half hour 'Fluency' lesson per week. A daily maths lesson should comprise of mental and oral objectives at the start of the session, followed by a main learning objective. Series of lessons should show clear progression in children's knowledge and understanding as they move through the year group objectives.

The daily maths lesson generally follows the structure set out below and should provide varied opportunities for children to develop depth of understanding, which can include the use of practical equipment, diagrams, mathematical reasoning and tasks. Ability or mixed ability groupings will be used as deemed appropriate:

Fluency	An opportunity to learn or over-learn previously taught objectives.
Problem and Discussion	<p>Often, a problem is presented to the whole class. Children work collaboratively to explore and attempt to solve, drawing on existing knowledge. Practical equipment (where appropriate) is provided to support and challenge all learners. Children may be challenged to think of more than one method and show representations.</p> <p>A whole class discussion follows. Children explain how they solved the problem, using words, diagrams and/or equipment. The discussion may involve</p> <ul style="list-style-type: none">- recapping previous learning- developing children's ability to communicate mathematical ideas

	<ul style="list-style-type: none"> - enabling those listening to access ideas they may not themselves have thought of. - evaluating the strengths and weaknesses of different solutions
Teach	The teacher teaches the objective. Understanding can be developed using concrete and/or pictorial representations alongside the abstract and teacher explanations. AfL is used to assess before children practice independently.
Practice & Apply	<p>The children practice and apply the new learning.</p> <p>Often one worksheet is provided for the whole class. Tasks should aim to be varied so that children practice and engage in thinking and applying the new learning. An Extension Task can be provided for pupils who grasp the learning rapidly and can further demonstrate understanding at a deeper level.</p> <p>The Extension Task may take a range of forms and is focussed at the higher end of Blooms Taxonomy strands. For example:</p> <ul style="list-style-type: none"> - answering open questions / questions with a range of possibilities - creating their own problem for a friend to solve (creating) - writing or recording an explanation on how to solve a problem or calculation (understanding with evaluating) - examining what is the same and different about two methods, calculations or problems (evaluating) - suggesting improvements to their solution (creating and evaluating) - asking and answering 'what if' questions (creating) - further application of learning to a problem they have not yet have encountered (applying)

Maths in EYFS

In the EYFS, children have access to a wide range of opportunities to explore mathematical concepts that are both planned and child initiated in the indoor and outdoor learning environments. Children learn by playing and exploring, and through creative and critical thinking. Teachers and practitioners ensure that the continuous provision is challenging and supports children in their mathematical understanding across other areas of learning. Opportunities for mathematical understanding is developed through stories, songs, games, imaginative play, child-initiated learning and structured teaching. In Nursery, adult led group activities are timetabled and planned. In Reception, children take part in daily whole class and group activities that develop mathematical vocabulary and concepts as outlined in the early learning goal. In the summer term children record their learning in books in preparation for Year 1. Staff

record observations and assessments in children's online learning journeys and these observations are used to inform planning and next steps.

Parents

We strongly believe in a firm partnership with parents and are committed to help them support their children to master mathematical skills and concepts. We do this in a number of ways.

Firstly, we aim to publish termly leaflets for each year group titled "Helping Your Child with Maths in Year ___". These leaflets detail the end of year expectations for learning. More importantly, they offer advice and ideas for games and everyday activities that parents can do with the children to help develop their mathematical understanding and further help them to see the relevance of maths in everyday life.

In addition, we hold Maths Workshops to engage with parents and aim to do so termly in at least one Key Stage. The content of these workshops is varied. The ultimate aim of the workshops is to help parents understand how maths is taught at Heronsgate School and share advice and ideas so that parents feel confident to support and engage their child with maths at home. We invite parents who attend these workshops to suggest further workshops that might be of interest and benefit to them.

Training and Support for Staff

The Maths Team at Heronsgate School aims to deliver INSET to teachers at the school once each term. The purposes of INSET are to evaluate and refine current practice, update staff on new initiatives, develop pedagogy and subject knowledge, and, ultimately, inspire teachers to offer an engaging and exciting maths curriculum which can be mastered by all.

Planning and coaching support is also given on a regular basis by year group and phase leaders.

Calculation Policy

Mental and written calculations are taught in line with the Heronsgate Calculation Policy document. The Calculation Policy aims to ensure that teaching of methods is consistent across the school and that all children have the opportunity to learn the same methods as their peers.

All staff are required to teach the calculation methods outlined in the Calculation Policy and provide ongoing, regular opportunities for children to practice and apply them. Teachers are also required to provide children with opportunities to evaluate the suitability of their chosen method and opportunities to reason and discuss the most appropriate method for a particular calculation.

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