**Maths Policy**

**Introduction**

‘Mathematics is a creative and highly interconnected 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 mathematical education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the power and beauty of mathematics, and a sense of enjoyment and curiosity about the subject.’ (DfE 2013)

Mathematics pervades all aspects of our lives and helps us to make sense of our world. With this in mind this policy promotes the basic and wider understanding of mathematics, and hopes to instill an enjoyment in the subject by supporting children to engage with it and build upon their own understanding and promote further learning.

**School Purpose and Policy:**

Hawthorn Park Community Primary School’s Policy has been developed on the basis of the National Curriculum for England. The policy is written with consideration to our school commitment to enthuse and excite children to become lifelong learners. The National Curriculum provides a framework for mathematics but the school is aware of the need for flexibility and creativity in teaching and learning styles in response to the needs of individual children.

**Aims**

* In our school we aim to promote children’s curiosity and enable them to safely risk take and learn from first hand experience wherever necessary
* Our primary focus is to support the children to become fluent in mathematical understanding from the most basic level so that they can build upon their own understanding.
* We aim to enable our children to develop conceptual understanding, recall of number facts and patterns and apply their knowledge rapidly and accurately.
* We aim to promote children’s ability to reason through opportunities to discuss their thinking and understanding. This emphasis may result in less written work but much deeper understanding.
* We promote problem solving and solution finding. This is not only true in mathematical learning but in almost all aspects of school life.
* Provide children with the opportunity to achieve their potential in the basic skills of Mathematics
* Strive to equip our children with the skills through which to maximise modern technology
* Provide each child with experience of success achieved through appropriate challenges
* Celebrate everyone’s achievement
* Recognise and seek to meet the needs of all our children
* Provide support for children in developing tolerance and understanding of themselves, others and the rules and expectations of the societies in which they live
* Offer opportunities for all children to experience the widest range of Learning activities.
* Enthuse and motivate all our pupils to embrace lifelong learning
* Work in partnership with parents and carers.

**National Curriculum Aims:**

At Hawthorn Park Community Primary School high standards of Mathematics are delivered in line with The National Curriculum 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 non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

**Pupils’ Mathematical Experiences and Expectations**

The approach to mathematics needs to be sufficiently broad, balanced and relevant to ensure that the interests of pupils’ can be engaged and their motivation sustained. Children will be given the opportunity to work individually and in groups of varying size and abilities. A range of mathematical activities should be suited to the abilities, ages and interests of the pupil. It is of utmost importance that account is taken of the level at which a pupil is working and that appropriate work is provided for all abilities of children. A range of resources will be used to aid the learning/teaching of mathematics including books, tablets and computers. In our school, the focus will be on developing confidence and fluency with whole numbers, counting and place value. Children will develop their ability to recognise, describe, draw, compare and sort different shapes and use related vocabulary. They will be taught to use a range of measures to describe and compare different quantities including length, mass, capacity/ volume, time and money Our children will be taught to read and spell a range of mathematical vocabulary.Children will be taught arithmetic including all four operations (addition, subtraction, division and multiplication) in line with the Calculation Policy.

**Classroom Management**

In our school a variety of approaches will be used to promote efficient learning and interest and enjoyment in the subject:

1. Specific daily mathematics lesson

2. Daily Flurrish sessions

3. Mathematics topics

4. Maths play including games, role-play and solving real life problems

5. Cross curricular work and activities

Our children will be taught mathematics daily in a whole class session. On occasions children will be taken out in groups and taught separately. In Early Years this usually will be a short input session and in KS1 and KS2 the session will usually follow the format of:

* Starter Activity - mental and oral activities (including counting, chanting, rhymes and songs)
* Main Teaching Activity – teacher directed with pupil interaction and involvement
* Practise and Consolidation - children working at tasks related to main teaching input. Work may involve groups, pairs, individuals or whole class activities. During this time the teacher/TA will work with an identified group as an additional teaching opportunity
* Plenary - this can be used to review and re-teach lesson content, highlight common errors, relate work to events beyond the classroom, promote next steps in learning and/or further develop the work at a higher level. It may also be used to develop other maths skills e.g. problem solving.

Teachers will use time flexibly but must show awareness of time spent to promote optimum learning and concentration for their children. As far as possible, resources will be openly accessible for pupils to select in their learning environment: this will encourage the selection of appropriate manipulatives. Each classroom should have resources which are located and labeled to make them easily accessible to children. The use of working walls that are interactive should be consistent in each class, to reinforce and support current learning. Children have daily Flurrish sessions that are conducted on Kindle tablets. The Flurrish app is used to ensure fluency of timetable and number facts including numberbonds.

Resources in classrooms will include:

* Number fans
* Number cards
* Dice
* Timers
* Multilink/ Unifix cubes and boards
* Counters and sorting equipment
* Puzzles and maths games
* Money
* Dominoes- correctly sorted into sets
* Whiteboards and pens
* A variety of number lines and number tracks
* 3D shapes and 2D shapes
* Rulers
* 100 squares
* Counting games
* Pegs and boards
* Spinners
* Compare Bears
* Linking Elephants
* Balance pans and scales

**Planning**

Medium term planning is in place for each year group. Teachers use this to complete short term planning which is differentiate appropriately to ensure all children are provided with appropriate work for their current ability. Mastery and higher level work is provided for those more able pupils and extra intervention and apparatus is provided for those children that need them.

Coverage is ensured by discussion at staff and team meetings and through the monitoring of planning by the Maths Lead. Teachers will keep a planning file corresponding to their teaching year group. They also use a range of other material to support their short term planning. Weekly planning is monitored regularly by the Maths Lead with feedback provided and agreed by teachers.

**Recording of Work**

Recording will take differing forms depending on the nature of the activity. Much mathematical work involves discussion and therefore will not be recorded in written forms.

Presentation of written work:-

There is a need for practise of pencil and paper methods but there should not be over emphasis of mathematical work out of context. Early Years recording will take many forms, including on whiteboards and on plain paper. For KS1 and 2, all work will be in A4 squared books, with a gradual reduction in size through to Year 6 having 5mm squares. Children should record one number in each box within their maths books. Opportunities to practise will be given to children on the mechanics of writing number symbols. In both Key Stage 1 and Key Stage 2 the Learning Objective and Success Criteria should be clearly visable at the top of each piece of work, with a margin 3 to 4 squares deep from the right side of each page.. Each activity which the children undertake will have the learning objective discussed with the children and displayed on the white board for the children to refer to throughout the lesson before they proceed with the task so that they know exactly what is expected of them.

**Parental Involvment**

Homework is given to children to support and extend the work taught in school, with each class teacher identifying the day of allocation and return for the homework. Early Years children are given tasks to complete with parents / carers as appropriate.

**Special Educational Needs**

Within the National Curriculum, children of all ages and abilities are catered for. Those with special mathematical needs will be provided with appropriate work at their own level of ability, which will facilitate an extended learning process. Having determined the child’s needs, appropriate learning steps will be presented and achievement of these will promote good progress. Liaison will take place with the SENDCo if particular provision is required in an individual learning plan with reference to the new SEN Code of Practice. Particular reference should be made to the School SEN Policy. The More Able and Talented Co-ordinator will monitor provision for our most able children, ensuring that they have access to challenging and thought provoking tasks which will enhance their mathematical knowledge and understanding. At the start of each academic year teachers project expected progress for each child in their class. Assessments confirm the progress they have made each term towards their predicted targets. Children who are not making expected progress will be identified and provided with support in particularly weak areas to boost their learning.

**Assessment**

Assessment in Mathematics will reflect the overall school Assessment Policy. Assessment will include formative, diagnostic, summative and evaluative elements to enable effective planning. In Early Years, assessment is continual through adult observation and recorded on the 2 Simple Build a Profile software. In Key Stage 1 and Key Stage 2 teacher assessment will be continuous and evaluative to ensure any problem areas are addressed through the planning and delivery of maths: this is done through the use of assertive mentoring. Gap analysis’ are conducted through the use of Assertive Mentoring through Key Stage 1 and Key Stage 2 half termly so that any areas of development can be addressed. At the end of Key Stage 1 and Key Stage 2 assessment will incorporate Teacher Assessment and End of Key Stage Assessment in line with National Curriculum requirements.

**Cross Curricular**

Mathematics is a subject that has links with a wide range of subjects. By adopting a cross curricular approach mathematics can have a real relevance to everyday life. Approaches to cross curricular work include:-

* A mathematics event for parents/ carers and children to share
* ICT involves many mathematical concepts
* Use of mathematical concepts in Science lessons
* Topic work e.g. Food involves sorting and classifying
* Art work involves shape and pattern
* Dance and PE develops spatial awareness, sequences and pattern
* Music involves counting, patterns and rhythms - Measuring is often linked to Geography and Science outdoor work

Many mathematical concepts are developed in the Foundation Stage outdoor classroom such as counting, measuring when working with structures, shapes and space when building and constructing materials. At Hawthorn Park Community Primary School every effort is made to ensure that learning is meaningful and makes sense to the child. Whenever possible we promote cross curricular learning.

**Equal Opportunity**

All work is planned to ensure equal access and opportunity for all children.

**Staff Development**

Each teacher is responsible for the delivery of mathematics in their class. If any teacher feels a need for particular INSET, discussion should take place with the Maths Lead / Head Teacher. The responsibility for the overall mathematics curriculum and resource management is designated to the Maths Lead.

**The Role of the Maths Lead and Monitoring**

As Mathematics is involved in many aspects of the learning which takes place in school, the Maths Lead needs to ensure close liaison with other Subject Leaders to ensure that children are provided with appropriate opportunities and resources to enable them to engage in mathematical activities in a cross curricular way. The role of the Mathematics 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
* Ensure continuity and progression from Nursery to Year 6
* 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 inservice training
* Keep a Monitoring file which is informative and relevant including book scrutinies, gap analysis, Learning Walks, Lesson Observations.
* 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
* With the Head Teacher track the progress of identified groups of children and be involved in a thorough evaluation of Mathematics looking at trends over time, value added from baseline predictions to end of Key Stage Assessment results

**Policy Review and Evaluation**

Evaluation of this policy will be ongoing and will be carried out through team meetings, planning meetings, lesson observations and evaluations. Resources will be audited on a regular basis and proposals for new resources will be discussed with the Head Teacher and Maths Lead.

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