Mathematics Policy

This school is an inclusive school and all children, irrespective of social background, culture, race, gender, differences in ability and disabilities have an entitlement to this area of the curriculum.

Rationale

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve 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.

Aims

These are:

- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- to promote confidence and fluency 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 develop measuring skills in a range of contexts;
- to understand the importance of mathematics in everyday life.
- to reason mathematically

Teaching and learning in Mathematics (see Teaching and Learning Policy)

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics through:-

- whole class direct teaching with clear and progressive modelling of concepts and procedures with sequences of varied examples
- the consistent use of practical equipment and visual resources to support ability to access learning and to deepen children's understanding
- rehearsal of core facts and strategies through the development of short but frequent and intelligent rehearsal
- rich mathematical talk is given high status and supported by the learning environment and teachers' questioning
- emphasis placed on 'learning' through reasoning, developing multiple strategies and concepts towards understanding
- a few areas of learning covered more deeply in a half term
- opportunities to reason and problem solve as a part of every maths lesson
- differentiation through reasonable adjustments to allow access to whole class learning or an increase in challenge
- use of marking, including peer marking, to accelerate learning (see Marking Policy)

Teaching mathematics to children with special needs (see SEN Policy)

Teachers and support staff work with pupils to support those having difficulty to catch up or to deepen understanding for those who have grasped the concept. Teachers make resources available to support and/or challenge conceptual understanding depending on the needs of the pupil Intervention for mathematics is short-term and sharply focussed upon specific needs (see Whole School Provision Map). These are regularly assessed and the impact monitored.

Staff understand that stretch and challenge are achieved through increasing opportunities for pupils to work deeply and broadly within each area of mathematics.

Mathematics curriculum

The Foundation Stage

Mathematics is one of the 4 specific areas of learning in the Early Years Framework and involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures.

We give all the children ample opportunity to develop their understanding of number, shape, space and measures through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics through adult led activities, independent activities and child initiated learning.

In planning, staff should consider the individual needs, interests, and stage of development of each child in their care, and must use this information to plan a challenging and enjoyable experience for each child in all of the areas of learning and development, including Mathematics. In planning and guiding children's activities, practitioners must reflect on the different ways that children learn and reflect these in their practice.

Primary Stage

Mathematics is a core subject in the Primary Curriculum, and we use this as the basis for implementing the statutory requirements of the programme of study for mathematics. The programmes of study for mathematics are set out year-by-year for key stages 1 and 2 and schools are required to teach the relevant programme of study by the end of the key stage. The school curriculum for mathematics set out on a year-by-year basis is available on the school website.

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We use the medium term planning availabe on the Herts Support for Learning website. This defines what we teach and ensures an appropriate balance and distribution of work across each year.

It is the class teacher who completes the weekly plans for the teaching of mathematics based on the medium term plans and on-going class

assessments. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. These plans are considered a working document to be annotated and amended as necessary. The class teacher keeps these individual plans and will give the subject leader access to them as part of the monitoring process.

Key stage 1 – years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower key stage 2 – years 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure

that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Mathematics as a Cross Curriculum Element

Children are given the opportunity to develop their understanding of mathematics through topic work, which provides different contexts in which to practise mathematical skills. Links are made with other subjects where relevant and meaningful.

Social, Moral, Spiritual and Cultural

In Maths lessons pupils are always encouraged to delve deeper into their understanding of Mathematics and how it relates to the world around them. Sequences, patterns, measures and ultimately the entire study of Mathematics was created to make more sense of the world around us. This develops deep thinking and questioning of the way in which the world works. Through Maths children have the opportunity to work in different social groups, develop a sense of fairness and appreciate the contribution of different cultures to Mathematics.

Learning resources, including display

Lessons are structured so every child has the opportunity to move from physical application to abstract understanding therefore an appropriate toolkit of resources are made available to all pupils at the start of every lesson. In Key Stage 1 these toolkits consist of coins, tens frames, bead strings, number lines, number cards and place value cards. In Key Stage 2 these toolkits consist of coins, place value counters, bead strings, number lines, number cards and place value cards. Additional resources are available centrally.

All classrooms should have a dedicated Working Wall which will promote strategies to be used and allow pupils to refer to prior learning as relevant. These should be updated as the lesson sequence progresses.
Written work as a way of recording understanding is introduced in Reception. In Years 1, 2, 3 and 4 work is recorded in yellow A4 1 cm squared books. Work should be dated and given a WALT as a title that reflects the lesson objective. (see Presentation Policy)

Hilary Coxon
Subject leader
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