Panshanger Primary School
Mathematics Policy

Intent of the Maths Curriculum

Why do we teach this? Why do we teach it in the way we do?

Rationale

Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, reason and solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives.
We foster a positive can do attitudes and we promote the fact that 'We can all do maths!' We believe all children can achieve in mathematics, there is no ceiling to learning and teach for secure and deep understanding of mathematical concepts through manageable steps. We use mistakes and misconceptions as an essential part of learning and provide challenge through a broad range of activities and problems.

Our Aims

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- To develop logical thinking and reasoning skills through a natural curiosity and investigative approach
- To promote confidence and competence
- To develop a thorough knowledge and understanding of 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 mathematical skills in everyday life

Implementation

What do we teach? What does this look like?

We teach Mathematics through the National Curriculum using a Mastery Approach supported by the White Rose Scheme of Work. Unit sequences have been designed to benefit our teachers and pupils, to deliver carefully planned progression that ensures consistency. Teachers'plans at Panshanger are produced to reflect the individuality of each class and this can mean making considered changes to the order of units and length of time spent on them. Every year, cohorts are different and teachers use their knowledge of their class and its needs to provide a sequence of learning that is the most beneficial for that class. As a result, teachers also use Nrich, HfL Essentials and NCETM to support planning.

Characteristics of lessons to promote **Teaching for Mastery** are:

- Teachers adopt strategies to ensure all children access the whole curriculum.
- Teachers and children emphasise number facts, precise mathematical language and full sentences.
- Lessons develop children's fluency and reasoning together.
- Teachers plan maths lessons by mapping key mathematical concepts in a topic, then breaking them down into small steps.
- Children are taught the skills and content from their own year group.

Children are taught Mathematics daily through a main teaching session lasting approximately ¾ hour and a fluency session for approximately 10-15 mins. Support is provided during each lesson by all

staff including our Teaching Assistants and Learning Support Assistants (LSAs) to ensure secure understanding based on the needs of the child. These adults are deployed to add value to what the teachers do and say and to help pupils develop independent learning skills and manage their own learning.

Planning
Mathematics is a core subject in the National Curriculum. The National Curriculum is used as the basis for implementing the statutory requirements of the programme of study for Mathematics.

The curriculum planning in Mathematics is carried out in three phases (long-term, medium-term and short-term). The National Curriculum Framework for teaching details what is taught in the long-term. Yearly teaching overviews identify the key objectives in Mathematics that are taught in each year. Medium-term plans, which are also based on the National Curriculum, give details of the main teaching objectives for each term. These plans define what is to be taught and ensure an appropriate balance and distribution of work across each term.

Class teachers complete a weekly (short-term) plan for the teaching of Mathematics. This lists the specific learning objectives for each lesson, the success criteria for the lesson and gives details of how the lessons are to be taught. Plans are stored centrally on the school server and the class teacher and subject leader can discuss them on an informal basis. The plans are working documents and are amended and added to showing a flexible approach to maximize lesson and learning time and opportunities.

The Foundation Stage
Mathematical development is one of the six areas of learning identified in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. Mathematical teaching in the Foundation Stage follows the guidance and objectives set out in the Early Learning Goals. Children are given the opportunity to develop their understanding of number, measurement, pattern, shape and space through planned play and varied teacher led activities. By the summer term in Reception all children take part in a full daily mathematics lesson.

Impact
What will this look like?
By the end of KS2 we aim for children to be fluent in the fundamentals of mathematics with a conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. They should have the skills and have the resilience to solve problems by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios. Children will be able to reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

Contribution of Mathematics to teaching in other curriculum areas
The skills that children develop in Mathematics are linked to, and applied in, every subject of our curriculum.

The development of SMSC in Mathematics
<u>Spiritual development</u>
During their maths learning children are encouraged to be reflective about their learning and enjoyment of maths and to be tolerant about other people's ability, feelings and values that might be different to theirs. They are offered opportunities to develop a fascination in learning about maths concepts and how maths can be a useful tool in the world.

Moral development

The moral development of pupils is evident in much of the curriculum where Maths is used in real life contexts and the students are able to apply the skills required to solve various problems. Through work on money and finances children discuss topics such as: *whether children should have pocket money, is it better to be a saver or a spender? Do we actually need money – what about barter? Is being rich important? Why are footballers paid so much?*

Social development

Group and paired activities in Mathematics learning encourage the children at Panshanger School to communicate mathematically when discussing, explaining and presenting ideas. This promotes a sense of tolerance and acceptance of the range of levels within a class thus helping them to understand, accept and celebrate their own strengths and weaknesses as well as those of their peers.

Cultural development

Children are supported to understand and appreciate the wide range of cultural influences that have shaped the maths we use:

- Learning about number **systems** such as Arabic and Roman
- Understanding that mathematical language is universal e.g. the use of symbols
- How exchange rates are used for foreign travel

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example in the Using and Applying Strand of Mathematics there is a strong emphasis on reasoning, justifying and proving both oral and in written form.

Science

During Science lessons, children are able to use and apply their data handling skills to read, interpret and present results. They also develop their measuring skills in meaningful contexts.

Computing

Mathematics occurs within computing. This enables teachers to present mathematical problems and activities in dynamic, visually exciting ways that engage and motivate learners. It helps to introduce, explore and represent concepts, structures and processes in new and revealing ways and to enable children to experience real life and fantasy scenarios that involve mathematical thinking. Often, dynamic images will permit insights and understandings that are difficult to convey in other ways.

Older children use it to produce graphs and tables and to manipulate models and images to support a range of learning situations.

Personal, social and health education (PSHE) and citizenship

PSHE contributes to the teaching of personal, social and health education and citizenship. The work that they do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities they do in the classroom encourage them to work together and respect each other's views. Children are presented with real-life situations in their work on finances and money and promotes their financial awareness.

Inclusion

There are children of differing ability in all classes. Suitable learning opportunities are planned for all children by matching the challenge of the task to the ability and experience of the child. This is achieved through a range of strategies including:

- setting common tasks that are open-ended and can have a variety of responses;

- setting tasks of increasing difficulty (varied and intelligent practice) where not all children complete all tasks;
- providing appropriate resources, visual and manipulative;
- using additional adults to support the work of individual children or small groups.

Special Educational Needs
As an inclusive school, we strive to remove barriers to learning so that all children can achieve and make progress. This is promoted through the teaching of Maths Mastery. When progress falls significantly outside the expected range, a child may have a special educational need. When assessing this, a range of factors is considered including classroom organisation, teaching materials, teaching style and differentiation so that additional or different action can be taken to enable the child to learn more effectively. This ensures a child centered approach linked to the SEND Code of Practice.

Identification of special educational needs may lead to the creation of a target specific Learning Plan (LP). The LP will include specific targets created by the teacher and the child and will outline the support, strategies and resources required, this is then shared with parents / care givers.
Targets are reviewed at least twice a year and new strategies are developed using the ***Assess, Plan Do, Review*** process. The LP involves the child in their own learning (age appropriately.) They are asked to identify their own strengths and areas for development and the steps they feel will support them to achieve.
This process is under the direct management of the SENDCo.

Gifted and Talented
Children who are identified as Gifted and Talented are listed on the whole School register. Within a Maths Mastery lesson, careful planning for variation and intelligent practice offers all pupils breadth and depth rather than accelerating through the curriculum.

Assessment and recording
Children's work in Mathematics is assessed in different ways. The short-term (formative) assessments that teachers make as part of every lesson help teachers to adjust their daily plans. Teachers match these short-term assessments closely to the teaching objectives. Teachers make long-term (summative) assessments during the school year on a termly basis, and they use these to assess progress against school and national targets. With the help of these long-term assessments, teachers are able to set targets for the next school year and summarise the progress of each child before discussing it with the child's parents. The next teacher also uses these long-term assessments as the basis for planning for the new school year. These long-term assessments are completed using end-of-year tests and teacher assessments. Teachers also make annual assessments of children's progress using the level descriptions of the National Curriculum.

Teachers meet regularly to review individual progress in pupil progress meetings.

Resources
There is a range of resources to support the teaching of Mathematics across the school. All classrooms have a wide range of appropriate small apparatus. Children and teachers make good use of a range of resources to cater for all learning styles (VAK). Whilst adopting a Mastery approach, there is continuity in the manipulatives, visual and kinaesthetic, as well as in the language, questioning and use of stem sentences.

Monitoring and review
Monitoring of the standards of the children's work and of the quality of teaching in Mathematics is the responsibility of the Mathematics subject leader. The work of the subject leader also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in

the subject, and providing a strategic lead and direction for the subject in the school. Each term the subject leader writes an action plan and submits a review to the Head teacher at the end of that term celebrating achievements / developments. The leader has specially-allocated regular non contact time to enable the monitoring of Mathematics teaching and learning across the school to ensure continuity and progression. The governing body is responsible for the monitoring of Mathematics.

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