



William Penn Mathematics Policy

Aims and Objectives

Mathematics teaches children how to make sense of the world around them by developing their abilities to calculate, reason and to solve problems. Mathematics enables children to understand and appreciate relationships and pattern in their everyday lives.

The aims of Mathematics are:

- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- to promote confidence and fluency with numbers and calculation
- to develop the ability to solve problems through decision-making and reasoning in a range of real life contexts
- to develop a practical understanding of the ways in which information is gathered and presented
- to explore, identify and describe the features of shape and space, and develop measuring skills in a range of contexts
- to understand the importance of mathematics in everyday life

Teaching and Learning Strategies

We use a variety of teaching and learning strategies in mathematics lessons. Our principal aim is to develop children's fluency, reasoning and problem solving skills in mathematics. We do this through a daily maths lesson that has a high proportion of whole-class and group-direct teaching and a 10 minute 'Magic Maths' session which continually revises maths skills and concepts. During maths sessions, we encourage the children to develop the language of mathematics through talk for learning. Children have the opportunity to access a wide range of resources which are enactive (manipulatives), visual (pictures and diagrams) and symbolic (words and numerals) to support their work. Computing plays a dominant part in the teaching of mathematics and is used by teachers and children alike to develop skills and understanding.

In all classes there are children of differing mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children, although our expectation is for all children to master their year group expectations. We aim to achieve this through a range of strategies – in some lessons through differentiated group work and in other lessons by organising the children to work in pairs on open-ended problems or games. We use classroom assistants to support, assess and augment the learning. We ensure that work is matched to the needs of the individual children within the class.

Mathematics Curriculum Planning

Mathematics is a core subject in the National Curriculum, and we use the National Curriculum for England Mathematics Programme of Study 2014 as the basis for implementing the statutory requirements for Mathematics.

We carry out the curriculum planning in mathematics in three phases which are:

1. Long term
2. Medium term
3. Short term planning.

At the Foundation stage, we use the long term and medium term planning from the 'Numicon' 'Firm Foundations' scheme.

In Year 1, we use the long term and medium term planning from the 'Numicon' Year 1 implementation guides for number, pattern and calculating plus geometry, measurement and statistics.

In Year 2, we use the long term and medium term planning from the 'Numicon' Year 2 implementation guides for number, pattern and calculating plus geometry, measurement and statistics.

In Key stage 2, we follow the long term and medium term planning from the Paul Broadbent units of learning documents for each year group which incorporate the 'Numicon' approach and the White Rose Maths Hubs problem solving objectives.

From these units, the weekly short-term plans are constructed for each year group. Appendix A gives an outline of our long and medium term planning.

The yearly medium-term plans for the Foundation stage, KS1 and KS2 show the structure and development of the maths topics throughout the year for the whole school. They ensure coverage of the National Curriculum Programmes of Study for mathematics and careful progression within each maths topic. Our medium-term mathematics plans are divided into units for number, calculations, data handling, geometry and measures. They give details of the main teaching objectives for each term and define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are reviewed by the maths subject leader.

The designated class teacher completes weekly plans from the medium term units of learning for mathematics in the Foundation stage, Year 1, Year 2, Years 3 & 4 and Years 5 & 6. 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 stored in paper format and are also on the school computer system in the staff shared area. They are monitored by the Senior Management Team on a termly basis.

The Foundation Stage

Children in the foundation stage are supported in developing their understanding of mathematics in a broad range of contexts in which they can explore, enjoy, learn, practise and talk about their developing understanding. Children are provided with opportunities to practise and extend their skills in these areas and to gain confidence and competence in their use. Objectives and learning opportunities adhere to the guidance for the Statutory Framework for the Early Years Foundation Stage.

Children engage in focus led activities and self-initiated play to apply new skills with independence. There is a strong emphasis on using manipulatives such as 'Numicon' to help children develop their sense of number, counting and early calculation. The environment is set up to allow children to engage with mathematical resources both indoors and outdoors.

Contribution of Mathematics to Teaching in other Curriculum Areas

Our school runs a flexible, creative theme-based curriculum, and although much of the mathematics is taught during a daily mathematics lesson, we constantly seek to make meaningful cross-curricular links through our themes in order to embed mathematics into the bigger picture of each child's learning, and to provide real life relevance to the concepts and skills that they are acquiring. This is a two-way process, so sometimes the mathematics objectives may be taught as part of another topic, and other times the other curricular objectives may be taught as part of the mathematics. Opportunities to do this may be identified at either the long-term, medium-term or short-term planning stage.

Mathematics and Computing

Computing technology enhances the teaching of mathematics and it offers ways of impacting on learning which are not possible with conventional methods. Teachers use websites, software and apps to present information visually, dynamically and interactively, so that children understand concepts more effectively. Children may use technology in order to learn or apply mathematical concepts and skills either within mathematics lessons or in other curriculum areas.

Personal, Social and Health Education (PSHE) and Citizenship

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views.

The children are able to develop their economic understanding through real-life situations in their work on the spending of money. For example the younger children may have a role-play shop in their classroom; the older children may advance their skills through project work such as running an imaginary business.

Teaching Mathematics to Children with Special Needs

It is part of our school curriculum policy to provide a broad and balanced education to all children and therefore we teach mathematics to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties and use the 'Numicon' teaching resource handbooks to plan individual schemes of work. Work in mathematics takes into account the targets set for individual children in their school based support plans to address their specific needs.

Assessment and Recording

With the new curriculum and the focus on 'Mastery' we have moved away from a system that matches tracking to levels. Progress is assessed against the success criteria identified within each unit for each year group. The progress of each child is monitored against these criteria to help determine if they have 'mastered' the skill, concept or procedure. Teachers use formative assessments during the teaching of a unit along with periodic, end of unit or end of half-term summative assessments (as per the school assessment policy) to make accurate decisions on progress made and whether a child has begun, is working at or is secure in national curriculum objectives. This enables the children's progress to be tracked effectively in 'Target Tracker' throughout the year.

We make long-term assessments of all children towards the end of the school year using a combination of the unit planning and summative assessments for each child. We use this data to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. National testing takes place in the summer term for children in Year 2 (internally marked) and Year 6 (externally marked), plus optional tests for children at the end of Years 3, 4 and 5.

Resources

There are a range of resources which include 'Numicon' teaching and implementation guides for the Foundation stage and all other year groups. In addition to this, each class is supplied with sets of 'Numicon' and 'Cuisenaire' manipulatives to support the teaching requirements set out in the 2014 National Curriculum Mathematics Programme of Study.

Each classroom has a 'Maths Zone' which supports and develops the children's learning through displays and activities. There is also a store of common shared resources located in 'Blue 1'. All classrooms, as well as the hall, are equipped with an interactive whiteboard and internet access.

Monitoring and Review

Monitoring of the standards of children's work is undertaken by the whole staff and during 'Weald Locality' moderation meetings. The quality of teaching in mathematics is monitored by the senior management team. The subject leader for mathematics is responsible for identifying current subject needs, including the monitoring and review of teaching and learning and resources.

Signed:

Date: