



Pilgrims' Way Primary School Mathematics Policy

Reviewed: Autumn Term 2021

Next Review Date: Autumn 2022

Intent

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real-life problems. It also provides the materials and means for creating new imaginative worlds to explore.

Aims and Objectives

- An in-depth understanding of mathematical concepts through teaching a mastery curriculum
- A positive attitude towards mathematics and an awareness of the fascination of mathematics.
- Competence and confidence in mathematical knowledge, concepts and skills.
- To 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.
- Initiative and an ability to work both independently and in cooperation with others.
- An ability to communicate mathematics.
- An ability to use and apply mathematics across the curriculum and in real life.
- An understanding of mathematics through a process of enquiry and experiment.

Teaching and learning style

The school uses the teaching for mastery framework, which encompasses the 5 Big Ideas from the NCETM. These are:

- Coherence (small and connected steps that help unfold new learning)
- Representation and Structure (consistent representations that expose mathematical structure)
- Mathematical thinking (new concepts are not merely taught, but thought about and reasoned with)
- Fluency (quick and efficient recall of mathematical facts)
- Variation (how the teacher represents the concept being taught, often in more than one way to draw attention to critical aspects)

We teach to these 5 Big Ideas through a daily mathematics lesson where children are given opportunities for:

- Practical activities and mathematical games
- Problem solving
- Open and closed tasks
- Individual, group and whole class discussions and activities
- A range of methods of calculating e.g. mental, pencil and paper and using a calculator
- Working with computers as a mathematical tool
- Using a wide range of support resources e.g. number squares, digit cards and number lines
- Using and applying their learning in everyday situation
- Working in mixed ability groups

As a school, we use a dialogic teaching approach to check pupils understanding. This involves teacher led questioning that is designed to draw as much information as possible. Furthermore, probing questions are asked to deepen children's understanding. These could include questions such as "what if.." "will it always work that way?" and "how does this work?"

Mathematics curriculum planning

Mathematics is a core subject in the 2014 National Curriculum. Teachers use White Rose and White Rose Premium resources to plan for progress and coverage. These are used across the school to ensure consistency of teaching methods and of representations.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). Our whole school long term curriculum plan details the objectives to be taught across the year. This is detailed on the school website and is available to parents and children online. Medium term plans show where different maths topics are taught each term. Teachers personalise these based around materials provided from White Rose Premium.

Short term plans are personalised by teachers and show how they will teach maths across the week. It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught.

Contribution of mathematics to teaching in other curriculum areas

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, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

Science

During science lessons, children can use and apply their data handling skills when creating tables and graphs of scientific measurements. Whole class discussion of data also highlights the importance of clear recording of information. Children are also able to use a wide range of measuring devices in a real-life context. Children are required to read the scales on Newton meters, measuring cylinders, weighing scales and a variety of other instruments.

Computing (ICT)

Children use and apply mathematics in a variety of ways when solving problems using ICT. When working on control, children use standard and nonstandard measures for distance and angle. They use simulations to identify patterns and relationships.

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. We present older children with real-life situations in their work on the spending of money.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results. The study of famous mathematicians around the world contributes to the cultural development of our children.

The teaching of mathematics to children with SEN

We enjoy teaching mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Work in mathematics considers the targets set for individual children in their EHCP (Education and Health Care Plans) or as detailed on their provision maps.

Children who show considerable need follow the Pilgrims Way Functional Skills curriculum. This ensures that children are taught the skills that teachers have deemed most imperative to that year group. This allows children who are not working on the age expected maths curriculum to continue to learn alongside their peers, while focussing on key skills in depth in each area of maths. These skills are then built on each year to ensure progression.

Assessment and recording

We assess children's work in mathematics regularly using both formative and summative assessment techniques. Teachers make short-term formative assessments both during and after lessons, which they use to help adjust their daily plans. Our dialogic teaching approach also allows for a large proportion of our assessment to be completed live during lessons.

Summative assessment tests are used formally three times a year to measure progress and to help teachers plan the next unit of work from gaps identified in the tests. These assess both arithmetic and reasoning skills. We use termly assessments as a way of recording children's progress in objectives covered across that specific (long) term. Teachers may choose to use informal summative

assessments during and after discrete units of work to gauge children's understanding and inform next steps in learning.

Formal statutory tests (SATs) take place in May each year in Year 2 and 6. Outcomes from these tests are used to assess progress against school and national targets. We can then set targets for the next school year (in consultation with secondary colleagues as necessary) and make a summary of each child's progress before discussing it with parents

Teachers meet regularly with colleagues both inside and outside of school (DLA) to review individual examples of work against the national exemplification materials available nationally.

Resources

There is a range of resources to support the teaching of mathematics across the school. These are generally stored in the maths cupboards located outside the library. Maths displays are used primarily to support children's learning. Teachers use maths learning walls to clearly demonstrate progression and deepening of learning through a topic of work. The CPA (Concrete, Pictorial and Abstract) approach is used regularly across the maths curriculum, meaning that resources play an important role in all that the children learn.

Monitoring and review

Monitoring of the standards of children's work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader – supported by the maths team. The work of the mathematics 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. The mathematics subject leader gives the head teacher an annual summary and annual action plan in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. Progress in maths is analysed at regular points during the year and in the principal's report to the governing body which is produced three times per year. Challenge is provided through feedback meetings to SLT and governor monitoring visits as appropriate – including external support from an educational advisor who works closely with the maths subject leader.

Equality statement

The governors and staff are committed to providing the full range of opportunities for all pupils, regardless of gender, disability, ethnicity, social, cultural or religious background. All pupils have access to the curriculum, and the right to a learning environment, which dispels ignorance, prejudice or stereotyping