



*St. Saviour's Church, Coalpit Heath.*

## ***The Manor C of E Primary School***

### **Policy: Mathematics**

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Chair of Governors

# The Manor Primary School

## Mathematics Policy

### 1 Aims and objectives

1.1 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 enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

1.2 The aims of mathematics are:

- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- to promote confidence and competence 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.

### 2 Teaching and learning style

2.1 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. We do this through a variety of methods which includes whole-class, group-direct and individual teaching. During these lessons we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards, small apparatus and their own personal whiteboards to support their work. Mathematical dictionaries are available in all classrooms. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. Where appropriate the interactive whiteboard will be used by both staff and children. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

2.2 In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We 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 some children and to ensure that work is matched to the needs of individuals.

### **3 Mathematics curriculum planning**

- 3.1** Mathematics is a core subject in the National Curriculum, and we use the National Numeracy Strategy as the basis for implementing the statutory requirements of the programme of study for mathematics. At present the Collins Scheme is used in Key Stage 2 and Abacus is used in Key Stage 1 to support the strategy but schemes are always under review.
- 3.2** Most weeks an investigation or problem solving activity takes place in every Key Stage 2 class in order to promote the skills required to develop this area.
- 3.3** We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The National Numeracy Strategy Framework for Teaching gives a detailed outline of what we teach in the long term, while our yearly teaching programme identifies the key objectives in mathematics that we teach in each year.
- 3.4** Our medium-term mathematics plans, which are adopted from the Framework and give details of the main teaching objectives for each term, define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are kept and reviewed by the subject leader.
- 3.5** 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. The class teacher keeps these individual plans plus puts a copy of the weekly plans into a central file. The class teacher and subject leader can discuss these plans on an informal basis as appropriate.

### **4 The Foundation Stage**

- 4.1** We teach mathematics in our reception class through the area of learning "Mathematical Development". As the class is part of the Foundation Stage of the National Curriculum, we relate the mathematical aspects of the children's work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. This approach also takes place during the transition period between Year R and Year 1.

### **5 Contribution of mathematics to teaching in other curriculum areas**

#### **5.1 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.

## **5.2 Information and communication technology (ICT)**

Children use and apply mathematics in a variety of ways when solving problems using ICT. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. The advent of the interactive whiteboard also enables the teacher to enhance maths lessons.

## **5.3 Science**

Science provides many opportunities to include mathematics through the analysis and interpretation of data and presenting data via tables and graphs from evidence gained.

## **5.4 Personal, Social and Health Education (PSHE) and citizenship - SEAL**

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.

## **5.5 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.

## **5.6 History and Geography**

These subjects allow children to use mathematics via information about dates, times and data. This information can be interpreted or collected and represented in a variety of ways.

## **5.7 Art and PE**

These subjects provide very good links with shape and space and are used accordingly.

## **5.8 Modern Foreign Languages**

We teach the children to count in other languages.

# **6 Teaching mathematics to children with special educational needs**

**6.1** At our school we teach mathematics to all children, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

- 6.2** When progress falls significantly outside the expected range, the child may have special educational needs – both the lower and higher ability children. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.
- 6.3** Intervention through School Action and School Action Plus will lead to the creation of an Individual Education Plans (IEP) for children with special educational needs. The IEP may include, as appropriate, specific targets relating to mathematics.
- 6.4** Intervention includes programmes such as Springboard, Wave 3 (Years R, 2, 4 and 6) and Max's Marvellous Maths Group (Yr 1)
- 6.5** Children who perform very well in maths are identified and put on the school's G&T register and are catered for accordingly, using such resources as Brain Academy in Key Stage 2.
- 6.6** We enable pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom, for example, a maths trail, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## **7 Assessment and recording**

- 7.1** We assess children's work in mathematics from three aspects (long-term, short-term and medium-term). We make short-term assessments which we use to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives.
- 7.2** We make medium-term assessments to measure progress against the key objectives, and to help us plan the next unit of work. We use the class record of the key objectives as the recording format for this.
- 7.3** We make long-term assessments towards the end of the school year, and we use these 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. We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in Year 2 and Year 6, plus the optional national tests for children at the end of Years 3, 4 and 5. We also make annual assessments of children's progress measured against the level descriptions of the National Curriculum. During Year R children's mathematical development is recorded in individual foundation stage profiles.
- 7.4** In October children from Yr2 to Yr6 take the NFER test and the results are tabulated so that children's progress can be tracked. Children who are not making sufficient progress or who have special needs (SEN and G&T) are then targeted.

**7.5** The end of Key Stage tests and the optional maths tests are analysed in detail via a gap analysis. From this data the strengths and weakness of each cohort are monitored and targets are set accordingly. The progress of these targets is then monitored.

**7.6** At present we are building up a school portfolio. This will demonstrate an agreed understanding of what levels children are working at. Teachers meet regularly to review individual examples of work against the national exemplification material produced by the QCA and the DfEE.

## **8 Resources**

**8.1** There is a range of resources to support the teaching of mathematics across the school. All classrooms have a number line and a wide range of appropriate small apparatus. Mathematical dictionaries are available in all Key Stage 2 classrooms. Calculators and a range of audio visual aids are available from the central storage area. The library contains a range of books to support children's individual research. A range of software is available to support work with the computers.

## **9 Monitoring and review**

**9.1** Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader. 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 headteacher an annual summary in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The headteacher allocates regular management time to the mathematics subject leader so that s/he can review samples of children's work and undertake lesson observations of mathematics teaching across the school. A named member of the school's governing body is briefed to oversee the teaching of numeracy. This governor meets regularly with the subject leader to review progress.