



# MATHEMATICS POLICY

## 1. Introduction

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 provides the materials and means for creating new imaginative worlds to explore.

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.

## 2. Guiding Principles

At Lewes New School the emphasis is on children learning as much as possible through their own first-hand experience, in order to properly understand and acquire this knowledge and skills.

Mathematics at Lewes New School is guided by the National Curriculum. Rather, than adhering strictly to the curriculum, teachers use their experience and creativity to building cross-curricular links and respond to students' interests and needs.

## 3. Our Aims

Through our mathematics curriculum, we aim to provide children with:

1. The means to analyse and communicate mathematical ideas and information
2. Useful tools for solving everyday problems
3. A means of working flexibly, using initiative, being rigorous and accurate and developing systematic and logical thinking

We aim for each child to develop:

1. A sound understanding of broad and balanced mathematical concepts, as laid down in the National Curriculum
2. Confidence and competence with numbers and the number system
3. A positive and confident approach, with the ability to see mathematics as a playful, enjoyable experience, which offers interest as well as challenge
4. Enjoyment of learning through practical activity, investigation, exploration, mental exertion and discussion

5. The ability to solve problems through connecting ideas, decision-making and applying mathematical skills in a range of contexts, including other subjects such as Science
6. Flexibility of thinking using creativity, initiative and imagination in their approach
7. The ability to reason mathematically by following a line of enquiry, developing an argument and making justifications using mathematical language
8. A practical understanding of the ways in which information is gathered and presented
9. An understanding of the importance and relevance of mathematics in everyday life, especially in relation to essential life skills such as telling the time and handling money

## 4. Teaching Mathematics

Children experience mathematics both as a subject in its own right and as a tool for practical application.

Our approach to teaching and learning supports the development of maths concepts, through the application and practice of problem-solving and investigative skills.

Specific maths skills are also taught and practiced discretely, with careful attention to developmental scaffolding of understanding.

Children are encouraged to develop a love of pattern and number and learn that there are a range of interesting non-practical applications for mathematical skills and enquiry.

Students are offered a range of opportunities to practice and apply the skills, knowledge and understanding acquired through maths to project work and other areas of the curriculum.

This approach set out above is described in more detail in the ***Teaching and Learning Policy***.

Mathematics takes place in some shape or form in all classrooms every day during the week.

In Early Years, opportunities are exploited as they arise to develop children's mathematical skills, gradually moving towards more focussed and planned activities.

In Year's 3 to 6 teachers plan for timetabled maths sessions and regular mental maths activities.

### 4.1 Teaching Strategies

A range of teaching strategies are used for the teaching of mathematics. Approaches are related to the topic itself and to the abilities and experience of both teachers and children and include:

- Teacher exposition
- Discussion

- Consolidation and practice of fundamental skill and algorithms
- Problem solving
- Memorising and recall of facts
- Investigative work
- Individual, group and class-work

Students engage in:

### **Practical work**

Mathematical activities are introduced to the children through concrete experiences. At all levels abstract work is reinforced with practical activities. Teachers capture evidence of much of this practical work through photography, recording and documentation of observations.

### **Mathematical Discussion**

This includes discussion with peers and teaching staff, describing, explaining, clarifying ideas, predicting and reporting outcomes and asking questions. All of this fosters the development of mathematical language.

### **Mental maths**

All children are encouraged to develop mental methods of calculation, recall of number facts and mental imagery.

### **Recording and Presenting of Work**

In the early stages of mathematical competence, mental, oral and practical work take precedence.

As children develop, they are encouraged to:

- record work in a variety of ways,
- develop personal methods of recording work,
- compare and discuss alternate methods,
- refine and practise useful methods.

Methods for recording work will vary according to the type of activity and may include symbolic, statistical, diagrammatic, pictorial, verbal reporting or the construction of a model.

As children become more involved in investigative activities the onus is on them to decide the most appropriate methods of recording.

### **Consolidation of basic skills and routines**

## **5. Developmental Approach**

### **5.1 Early Years Foundation Stage (EYFS)**

Teachers support children 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.

Teachers offer opportunities for these skills to be practised, in order to give children confidence and competence in their use. The mathematics includes seeking patterns, making connections, recognising relationships, working with numbers, shapes, space and measures, and counting, sorting and matching.

Mathematics development involves providing children with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems, and describing shapes, spaces, and measures.

Children use their knowledge and skills in these areas to solve problems, generate new questions and make connections across other Early Learning Goals.

Mathematical understanding is developed through stories, songs, games and imaginative play.

## 5.2 Years 1 and 2

The principal focus of mathematics teaching in Year 1 and 2 is to ensure that students develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

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

Key concepts include:

- Number and Place Value
- Addition and Subtraction
- Multiplication and Division
- Fractions
- Measures
- Geometry - properties of shapes
- Geometry - position, direction and motion
- Data
- Time

## 5.3 Years 3 and 4

The principal focus of mathematics teaching in Years 3 and 4 is to ensure that students become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This will enable students to develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, students develop their ability to solve a range of problems, including simple fractions and decimal place value. Students are encouraged to draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. They

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

Key concepts include:

- Number, Place Value and Rounding
- Addition and Subtraction
- Multiplication and Division
- Fractions (Year 4 Decimals)
- Measures
- Geometry - properties of shapes
- Geometry - position, direction and motion
- Data
- Time

## 5.4 Years 5 and 6

The principal focus of mathematics teaching in Years 5 and 6 is to ensure that students extend their understanding of the number system and place value to include larger integers. This will develop the connections that students make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, students develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation.

With this foundation in arithmetic, students are introduced to the language of algebra as a means for solving a variety of problems. Geometry and measures consolidate and extends knowledge developed in number. Students classify shapes with increasingly complex geometric properties and they experience and learn the vocabulary they need to describe them.

Key concepts include:

- Number, Place Value and Rounding
- Addition and Subtraction
- Multiplication and Division
- Fractions and Decimals (Percentages Year 6)
- Ratio and Proportion (Year 6)
- Algebra (Year 6)
- Measures
- Geometry - properties of shapes
- Geometry - position, direction and motion
- Data

## 6. Resources for Mathematics

We encourage children to select and use a range of resources and equipment as much as possible.

Opportunities to use ICT to support teaching and learning in maths are planned for and used as appropriate.

## 7. Maths Intervention & Additional Support

We aim to provide for all children so that they achieve as highly as they can according to their individual abilities. We will identify which pupils or groups of pupils are under-achieving and take steps to improve their attainment.

Support may take place within the class, in small groups or individually.

For more information see the ***Special Educational Needs & Inclusion Policy***.

## 9. Monitoring and Assessment

Teachers keep continual, dated notes about how a child's maths is developing. These notes are usually made during or after interactions that take place in class and are used for annotating **Portfolios**; the compiling of **annual reports** and the marking of the child's **APP (Assessing Pupil Progress) grids**.

For more information see the ***Assessment Policy***.