



## **Larkfields Junior School**

### **Mathematics Policy**



#### **Philosophy**

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, the appreciation for the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject (National Curriculum, 2013).

#### **Aims**

At Larkfields Junior School it is our aim to develop:

- a positive attitude towards mathematics as an interesting and valuable subject;
- an appreciation of mathematical structures, patterns and the ability to identify relationships;
- an ability to think clearly and logically in mathematics with confidence, independence and flexibility of mind;
- initiative and an ability to work co-operatively, collaboratively and independently;
- a confidence in mathematics which will allow children to choose an appropriate method of calculation, including both mental and written strategies;
- conceptual understanding and an ability to recall and apply knowledge rapidly and accurately;
- fluency in the fundamentals of mathematics, through varied and frequent practice using increasingly complex problems over time;
- confidence in mathematical reasoning to enable children to follow lines of enquiry, conjecture and make generalisations using proof and precise mathematical language;
- an ability to use and apply mathematical skills across the curriculum and in real life contexts through a range of routine and non-routine problems.

#### **Teaching and Learning**

At Larkfields Junior School we recognise the fact that children have a wide range of mathematical abilities and target group children across their year group. Within these groups, we provide suitable learning opportunities for all children by matching the challenge of each task to ability of the child. We achieve this through a range of strategies; in some lessons through differentiated individual or group work, and in other lessons by organising the children into pairs or groups. We also use teaching assistants to

support some children and, with the use of an additional teacher, we also aim to split children into three groups for part of the year.

Mathematics is taught 5 times per week, with an additional 100 minutes of mathematics made up from daily Big Maths sessions. This aims to strengthen whole school numeracy through varied and repeated practice as outlined in the National Curriculum.

Daily lessons are made up of a mental and oral starter, main activity and a plenary in order for teachers to fully meet the aims of the National Curriculum. However, in the weekly practice of the four operations (addition, subtraction, multiplication and division) and fortnightly problem solving, the lesson is often less structured.

Teachers at Larkfields Junior School use a variety of teaching and learning methods in mathematics to meet children's learning styles. During our lessons we aim to provide opportunities for:

- Group work
- Paired work
- Whole class teaching
- Individual work
- The development of mental strategies
- Written methods
- Practical work
- Investigational work
- Problem solving
- ICT
- Mathematical discussion to develop reasoning and mathematical language
- Consolidation of basic skills and routines

At Larkfields Junior School, a principal focus of mathematics teaching is to ensure that pupils become increasingly fluent with whole numbers and the four operations. We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts, and we follow a sequence of progression in calculation (see Parents' Guide). This progression in mental and written calculation is informed by the new National Curriculum.

Big Maths is a systematic and structured scheme of work, which is taught throughout Larkfields Junior School. It comprises of five, 20 minute sessions and is taught in addition to the 5 daily mathematics lessons. Big Maths aims to develop numeracy skills through short bursts of rigorous teaching, and incorporates an engaging weekly assessment that informs teaching.

Problem solving takes place fortnightly in each mathematics class to ensure children have the opportunity to work both independently and in groups to solve real life problems, and explore structures, patterns and relationships.

At Larkfields Junior School, calculators are not used as a substitute for good written and mental calculation. However they are used, particularly in upper key stage 2, to support conceptual understanding and exploration of more complex number problems.

## **Planning**

The key stage 2 programme of study for mathematics is set out in the National Curriculum in a year-by-year format. At Larkfields Junior School we teach to these programmes of study, but plan and work flexibly to enable us to introduce content earlier or later than is set out when appropriate.

Planning is based on the requirements of the new National Curriculum. For our medium and short term planning we incorporate the organisation and structure laid out in the Abacus Evolve or New Collins Maths Scheme (based on the revised framework) which are in use throughout the school. Consequently a planning format is followed, although flexibility is encouraged to ensure learning needs are met. At Larkfields Junior School we recognise the need to revisit topics regularly to revise and consolidate skills and to extend and support learning.

Short term planning is carried out weekly to meet emerging learning needs. These plans include learning objectives for the mental and oral starter and main activity, as well as resources and differentiation. It is displayed clearly on the classroom wall and is easily accessible in the case of staff absence or monitoring.

## **Cross-curricular Links**

The teaching of mathematics contributes significantly to children's understanding of English in our school by actively prompting the skills of speaking and listening, reading and writing. Children develop oracy skills, for example, when they explain their reasoning and present their work to others.

Mathematics contributes to the teaching of PSHCE. The work that children do outside of their normal lessons encourages independent study and helps them to be increasingly responsible for their own learning. Planned activities encourage children to work together to solve real-life problems, developing economic well being.

ICT enhances the teaching and learning of mathematics significantly, because ICT is particularly useful for mathematical tasks. Teachers use software on the interactive whiteboard to present information visually, dynamically and interactively. Children are also given opportunities to produce graphs and tables in the ICT suite, and access MyMaths when appropriate.

## **Assessment**

Teachers assess children continuously in mathematics and record progress. We see assessment as an integral part of the teaching process and endeavour to make our assessment purposeful, allowing us to match the correct level of work to the needs of the children, thus benefitting the children and ensuring progress.

Formative assessment is used daily to help adjust daily teaching. This may include discussion, observation, marking or questioning and information obtained may be annotated on weekly planning or recorded on children's work.

Termly tests or teacher assessment are used to track children's individual progress. These results are recorded on the school tracking system which allows teachers to identify trends or patterns in individual's attainment. Results of these termly assessments are discussed at Pupil Progress meetings so that correct intervention and support can be put in place for those children failing to make sufficient progress.

Long term assessments are carried out towards the end of the school year when pupils' attainment is measured against school and national targets. This is done by drawing on QCA test results and also on teacher assessment.

## **Reporting**

Parents receive an annual written report on which there is an indication of whether their child is working below, at or above year group expectations. End of year summative test results are also included in the report alongside particular strengths or concerns which are discussed in the general comments.

Parents have the opportunity to discuss their child's progress in mathematics at Parent's Evening which takes place twice throughout the academic year. Teachers are also available to meet with parents either before or after school.

The school is endeavoring to set up a series of afterschool workshop events for parents of children in some of our lower ability target groups. The target groups that we are focusing on are those where the children benefit from a little extra practice when approaching mathematics. The aim is to provide parents of these children with ideas and resources to enable them to help their children at home, and in turn, improve confidence in the children.

## **Resources**

Resources for the delivery of the mathematics curriculum are stored both centrally and in classrooms. Everyday basic equipment is kept in classrooms and additional equipment is stored centrally for teachers to collect when appropriate.

Resources are updated regularly, as new and relevant items become available. The Maths Co-ordinator orders new resources after consultation with staff and the resources stock list is updated to include the new items.

Larkfields Junior School uses a wide variety of published materials to support teaching. Abacus Evolve, New Collins, BEAM and Nrich are used frequently throughout school to support teaching and learning, although flexibility is encouraged.

### **Mathematics and Equality of Opportunity**

At Larkfields Junior School we provide equal opportunities for all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make good progress. We endeavour to meet the needs of those children with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language.

Wherever possible we aim to fully include children with special educational needs in the daily mathematics lesson so that they benefit from the emphasis on mental and oral work. It is vital that they listen and participate with other children when demonstrating and explaining their methods.

Where necessary teachers will, in consultation with the SENCo, set individual targets for a child linked to the Primary National Strategy mathematics framework. Work is differentiated to ensure that the full range of pupils' requirements are met.

For those children who have difficulties in Literacy, we aim to ensure that these difficulties do not prove to be a barrier to accessing the mathematics curriculum.

Children who need specific support may be included in the group intervention programmes which include the teaching of basic skills and the use of Rapid Maths. We also use Wave 3, Plus 1 and Power of 2 where appropriate.

The school endeavours to make practical tasks accessible to all, including those with fine or gross motor skill difficulties. Apparatus is used to challenge, rather than reinforce, gender and racial stereotypes.

Mathematics is incorporated into a wide range of cross curricular subjects and we seek to take advantage of the many multicultural aspects of mathematics, for example, Islamic patterns in RE, Indian origins of mathematics.

### **The Governing Body**

The Maths Link Governor is invited to visit the school to talk with teachers and the Maths Co-ordinator. Where possible, the Governor is able to observe mathematics teaching. They act as a critical friend, closely monitoring progress towards objectives set out in the School Improvement Plan.