

## **NSWL Primary Phase Teaching of Maths**

At Nishkam West London, we aim to foster a life-long love of Maths that will help children build a positive and resilient attitude to problem solving. We teach Maths through the use of Maths Mastery which helps pupils develop a deep, long-term and adaptable understanding of Maths. Maths Mastery enables students to think deeply and really understand concepts at a relational level rather than as a set of rules or procedures.

We base our teaching on the Concrete-Pictorial-Abstract (CPA) model of learning. This is an essential technique of Maths Mastery that builds on a child's existing understanding and provides a highly effective framework for progressing pupils to abstract concepts such as fractions. CPA involves the use of concrete materials and pictorial/representational diagrams including bar models.

This approach links closely to our curriculum aims. Pupils will demonstrate Creativity in their approach to tackling new and unfamiliar problems, Resilience in their pursuit of excellence in this subject; understanding that hard work and diligence are core components of mathematical mastery. These core virtues are interwoven in all successful mathematicians, and it is our aim at Nishkam School West London to encourage these in every pupil who enters our classrooms.

### **Early Years Foundation Stage:**

In Reception, children focus on two main mathematical areas – Number and Shape, Space and Measure. Maths activities are placed throughout the outdoor and indoor provision to make maths learning as purposeful and engaging as possible. This may include price lists, number lines, writing scoreboards, and opportunities to compare size and shape. There are also weekly carpet sessions delivered to the class relating to a mathematical topic.

In the Autumn term, children learn to recognise and order numbers, use positional language, make patterns and describe shape properties. In the Spring term, children are introduced to adding and subtracting, money talk, weight and time. In the Summer term, they focus on numbers beyond 20 and are introduced to halving, doubling, sharing and problem solving.

Following whole class learning, pupils then work with an adult in a directed task which helps the teacher assess the child. Activities in the classroom also link to the topic of the week so that children can consolidate their learning and apply it to their play.

### **Key Stage One**

In Key Stage One, pupils will begin to build foundations of number and place value. Pupils start Key Stage One using concrete objects which allow children to physically experience mathematical concepts.

Pupils will then move on to learning using pictorial representations alongside practical methods. Here, visual representations of concrete objects are used to model calculations. This stage encourages children to make a mental connection between the physical object and the abstract pictures, diagrams or models that represent the objects from the problem. Building or drawing a model makes it easier for children to grasp difficult abstract concepts (for example, fractions).

Once pupils have demonstrated that they have a solid understanding of the concrete and pictorial stages of a problem, they will move on to the abstract stage. Once confident with mathematical fluency children will work towards being able to reason mathematically and apply their understanding to solve a range of problems.

By the end of KSI, children will be able to go beyond the use of concrete equipment to access learning using either pictorial representations or abstract understanding.

## **Key Stage Two**

In Key Stage Two, pupils will be confident in using the CPA approach and be able to make effective use of this with a variety of mathematical concepts. Teachers will encourage pupils to independently use a range of practical resources and pictorial methods. By systematically varying the resources and methods used to solve a problem, children will make strong mental connections between the concrete, pictorial, and abstract phases.

In order to deepen understanding, all pupils will have the opportunity to engage in a range of tasks which focus on developing their problem solving and reasoning skills. This will equip pupils with the skills to solve non-standard problems in unfamiliar contexts.

## **Schemes of Learning**

Lessons in all phases are structured using White Rose 'small steps' and we follow the progression of skills as outlined in the Mathematics Mastery 'Progression in Calculations' document. Previous topics are also revisited through Knowledge Reviews which are interleaved throughout the year.

## **Assessment of Maths**

Pupils from Year One upwards will complete White Rose 'End of Block Assessments' at the end of every topic. These allow teachers to formatively assess pupils' understanding of what has been taught and if there are any misconceptions or gaps in knowledge these will be addressed in future Knowledge Reviews.

Teachers also assess against age related expectations in an ongoing process. These are recorded on 'Insight Tracker' with a main teacher assessment judgement awarded each term. Statutory year groups use the Teacher Assessment Frameworks to track progress as well. Teacher assessments are also informed by a termly standardised Mathematics test (NTS).