

## What does maths look like at GLPA?

At GLPA we aim to make maths relevant, engaging and to provide children with lifelong mathematical skills. Teachers achieve this by making meaningful links between maths concepts and real-life situations and through the use of physical manipulatives and educational games in lessons as often as possible.

### Concrete, Pictorial, Abstract (CPA)

In addition to making lessons more engaging, manipulatives allow children to move through the CPA approach to secure their understanding of mathematical concepts.

**Concrete** – The “doing” stage. Children experience and handle physical objects as they attempt to grasp a new concept.



**Pictorial** – The “seeing” stage. Children see or draw diagrammatical representations of objects in order to move from physical to abstract understanding.



**Abstract** – The “symbolic” stage. Children can access problems that are modelled using abstract symbols such as +, -,  $\times$ ,  $\div$ ,  $<$ ,  $>$ .

Some of the key manipulatives used from EYFS to Year 6 include:

- Base 10, digit flips for place value
- Numicon and counters for understanding of number
- Cuisinaire rods for recognising multiples and factors

There are many other physical manipulatives that can be used in school or at home such as clocks, weights and 3D and 3D shapes.

### Framework

The statutory framework for EYFS and the National Curriculum for Key Stage 1 and Key Stage 2 are the key documents upon which teaching and learning is based. Children are assessed against the Early Learning Goal in EYFS and the Interim Assessment Framework for Key Stage 1 and Key Stage 2. To enable children to meet the expectations set out in these documents, a great deal of emphasis is put on securing basic number facts; children are given the opportunity to engage in weekly practise of counting in EYFS, number bonds and times tables and division facts in Key Stage 1, times tables with the corresponding division facts in Lower Key Stage 2 and arithmetic in Upper Key Stage 2.

It is expected that children should know their  $\times 2$ ,  $\times 5$  and  $\times 10$  by the end of KS1 and all the multiplication facts up to  $\times 12$  by the end of Year 4. We encourage all children from Year 1 upwards to learn the relevant tables facts through weekly Tiger Times Tables tests. Children need to be able to recall the facts quickly and in a random order.

## Same Day Intervention (SDI)

The Same Day Intervention programme is based on a method of teaching and developing mastery in maths that was originally devised in Shanghai schools. The programme has been proven to have high impact on children meeting Age Expected Outcomes. SDI minimises gaps in learning through rapid and focussed interventions to those pupils requiring further input whilst allowing those children with good levels of fluency to develop reasoning and problem solving skills.

Same Day Intervention is used throughout the Academy from Year 1 to Year 6. Lessons are taught in the mornings. Children are initially taught age expected objectives in mixed ability groups. There is a focus on lots of fast paced activities where pupils are asked to complete short tasks often on whiteboards in an 'I do you do format' where the teacher leads through example and the use of manipulatives

All children then complete a series of questions that independently test their level of fluency. The children are then given a break and the teacher marks the activity. Through doing this the teacher is able to assess which pupils are ready to complete reasoning and problem solving activities and those that require further fluency work. This same day intervention is led by the teacher and the children working on problem solving and reasoning do so independently.

Children requiring further support in maths will be given additional intervention work outside the maths lesson that directly links to any gaps in their learning matched to the expected outcome for their age group taken from the National Curriculum.

## Calculation policy

The GLPA calculation policy will follow.