Mathematics

Helen Allison School began a full implementation of Inspire Maths across our school, for those students accessing the National Curriculum, in January 2020. It is a whole-school primary mathematics programme, based on the Singapore method of mathematics. Inspire Maths utilises a mastery approach to mathematics and meets the increased expectations of the 2014 National Curriculum.

What does it look like in your child's classroom?

Apart from using Pupil Textbooks, pupils will be provided with opportunities to develop skills using Practice Books and use challenge questions from an Assessment Book to further deepen understanding. Inspire Maths builds firm foundations and understanding of mathematical concepts through a concrete-pictorial-abstract (CPA) approach. Children will work with concrete resources such as counters, use pictorial representations such as drawings and pictures and abstract representations such as numbers and symbols.

The Pupil Textbooks provide a scaffolded introduction to each new learning objective, with guided practice activities and games to help support understanding of concepts. The children's Practice Books provide carefully structured questions to reinforce methods introduced in the Pupil Textbooks

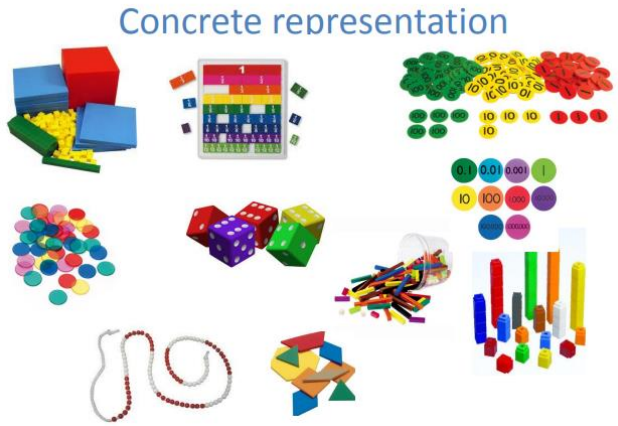
The CPA Approach

Children and adults can find maths difficult because it is abstract. The CPA approach helps children learn new ideas and build on their existing knowledge by introducing abstract concepts in a more familiar and tangible way. The approach is firmly embedded in Inspire Maths teaching.

Concrete step of CPA

Concrete is the "doing" stage, using concrete objects to model problems. Instead of the traditional method of maths teaching, where a teacher demonstrates how to solve a problem, the CPA approach brings concepts to life by allowing children to experience and handle physical objects themselves. Every new abstract concept is learned first with a "concrete" or physical experience.

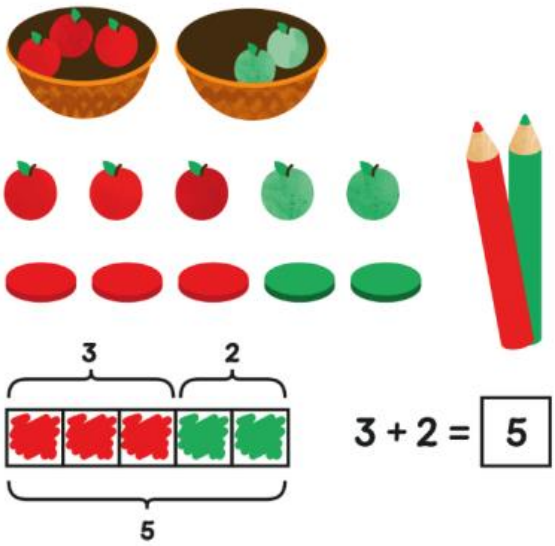
For example, if a problem is about adding up four baskets of fruit, the children might first handle actual fruit before progressing to handling counters or cubes which are used to represent the fruit.



Pictorial step of CPA

Pictorial is the “seeing” stage. Here, visual representations of concrete objects are used to model problems. This stage encourages children to make a mental connection between the physical object they just handled 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). Simply put, it helps students visualise abstract problems and make them more accessible.



Abstract step of CPA

Abstract is the “symbolic” stage, where children use abstract symbols to model problems. Children will not progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages of the problem. The abstract stage involves the teacher introducing abstract concepts (for example, mathematical symbols). Children are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols (for example, +, –, x, /) to indicate addition, multiplication or division.