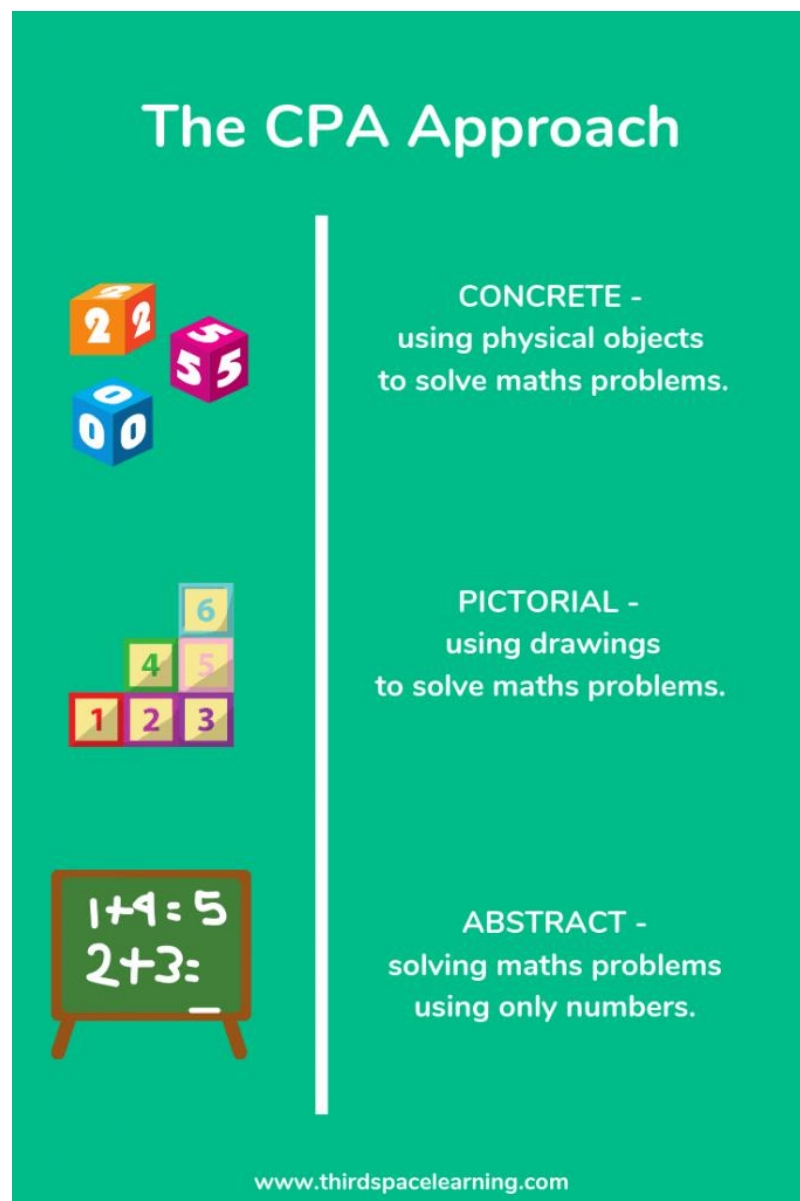


The Concrete Pictorial Abstract Approach at New Road Primary and Nursery School

The Concrete Pictorial Abstract approach is now an essential tool in teaching maths at KS1 and KS2 New Road Primary School and Nursery, so here we explain what it is, why its use is so widespread, what misconceptions there may be around using concrete resources throughout a child's primary maths education, and how best to use the CPA approach yourself in your KS1 and KS2 maths lessons.

The maths curriculum is far too broad to cover in one blog, so the focus here will be on specifically how the CPA approach can be used to support the teaching and learning of the four written calculation methods.



What is the Concrete Pictorial Abstract in Maths?

The Concrete Pictorial Abstract (CPA) approach is a system of learning that uses physical and visual aids to build a child's understanding of abstract topics.

Pupils are introduced to a new mathematical concept through the use of **concrete** resources (e.g. fruit, Dienes blocks etc). When they are comfortable solving problems with physical aids, they are given problems with pictures – usually **pictorial representations** of the concrete objects they were using.

Then they are asked to solve problems where they only have the **abstract** i.e. numbers or other symbols. Building these steps across a lesson can help pupils better understand the relationship between numbers and the real world, and therefore helps secure their understanding of the mathematical concept they are learning.

Origins of Concrete Pictorial Abstract Approach

Anyone working in primary mathematics education can't fail to have noticed that the word 'maths' is rarely heard these days without a mention of the term 'mastery' alongside it.

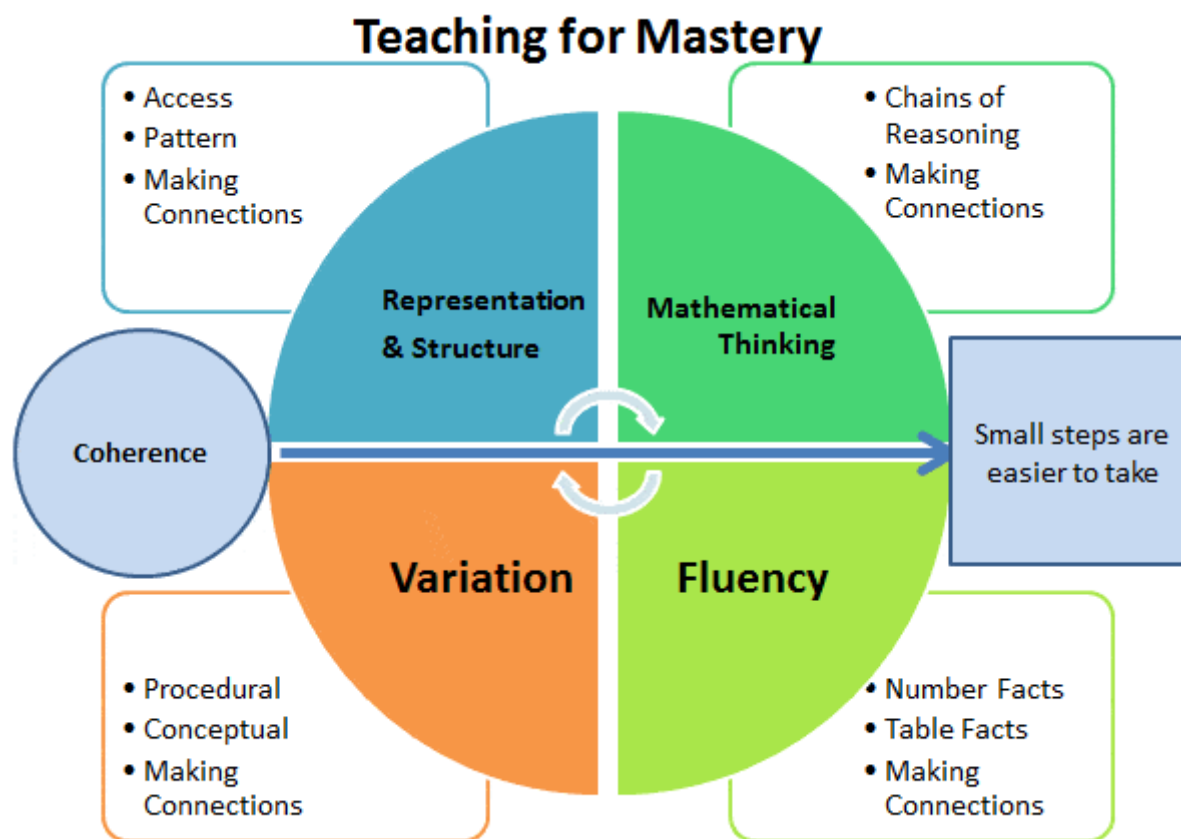
This is no surprise, with 'mastery' being the Government's flagship policy for improving mathematics and with millions of pounds being injected into the Teaching for Mastery programme; a programme involving thousands of schools across the country.

Prior to 2015, the term 'mastery' was rarely used. With the constant references to high achieving Asian style maths from East Asian countries including Singapore and Shanghai (and the much publicised Shanghai Teacher Exchange Programme), a teacher could be forgiven for believing 'teaching for mastery' to be something which was imported directly from these countries..

The fact that the CPA approach is a key component in maths teaching in these countries only added to the misconception.

The CPA maths model in Teaching for Mastery

To find the origins of the Teaching for Mastery Approach, we need to go much further back in time and look much closer to home.



How CPA fits into the teaching for mastery, as explained by [NCETM](#).

The concept of ‘mastery’ was first proposed in 1968 by Benjamin Bloom. At this time the phrase ‘learning for mastery’ was used instead. Bloom believed students must achieve mastery in prerequisite knowledge before moving forward to learn subsequent information.

Bloom suggested that if learners don’t get something the first time, then they should be taught again and in different ways until they do.

Jerome Bruner and Concrete Pictorial Abstract

Looking more specifically at the origins of the CPA approach, we again need to go back to the teaching methods of the 1960s, when American psychologist Jerome Bruner proposed this approach as a means of scaffolding learning.

He believed the abstract nature of learning (which is especially true in maths) to be a ‘mystery’ to many children. It therefore needs to be scaffolded by the use of effective representations and maths manipulatives.

He found that when pupils used the CPA approach as part of their mathematics education, they were able to build on each stage towards a greater mathematical

understanding of the concepts being learned, which in turn led to information and knowledge being internalised to a greater degree.

Many teachers mistakenly believe mastery, and specifically the CPA approach, to have been a method imported from Singapore.

In actual fact, the Singapore Maths curriculum has been heavily influenced by a combination of Bruner's ideas about learning and recommendations from the 1982 Cockcroft Report (a report by the HMI in England, which suggested that computational skills should be related to practical situations and applied to problems).