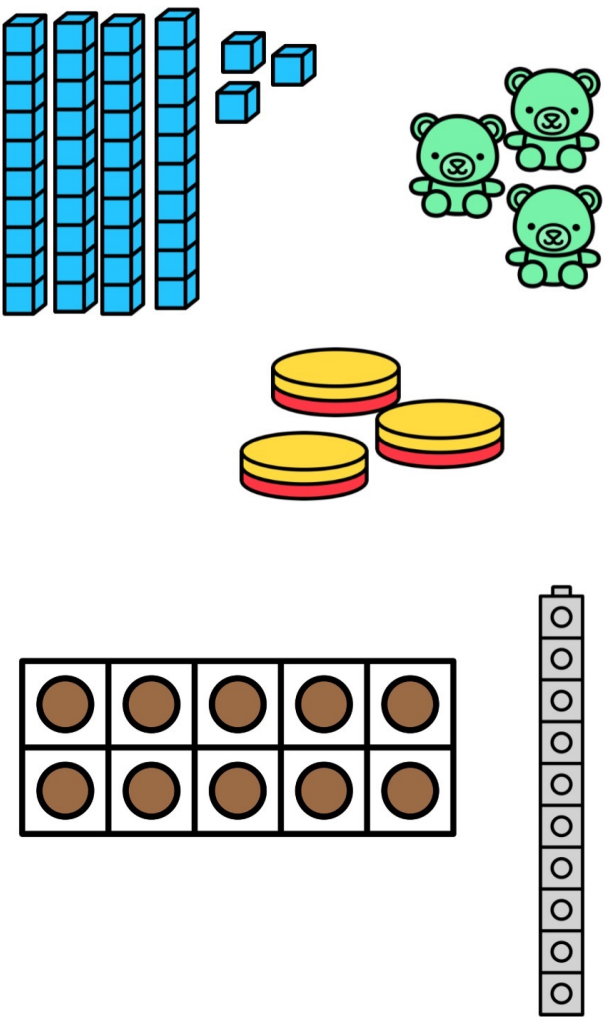
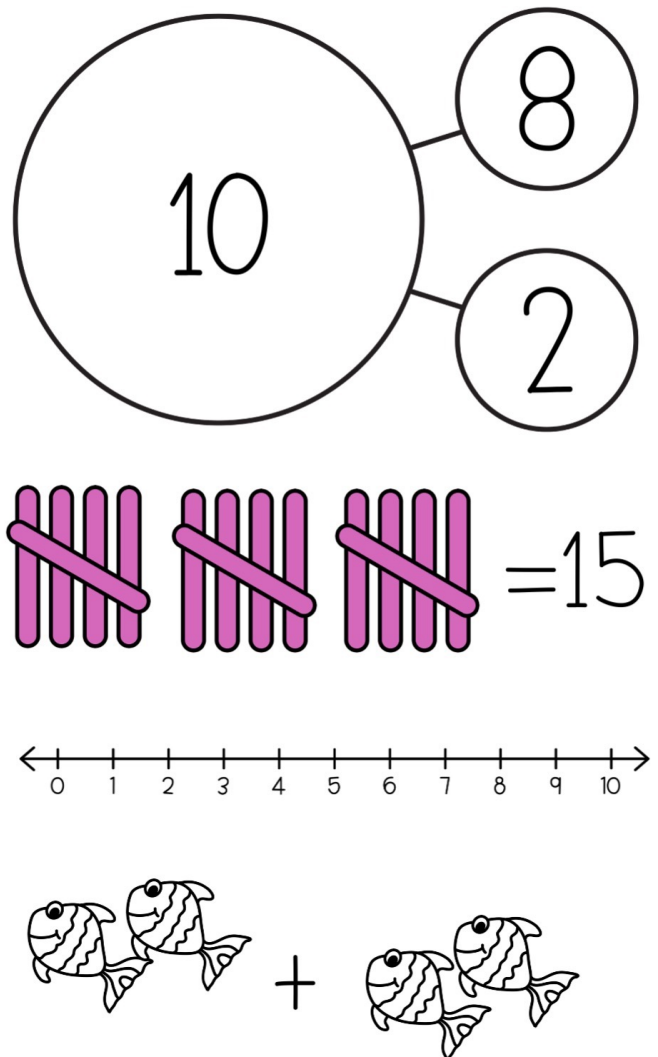


# CPA APPROACH

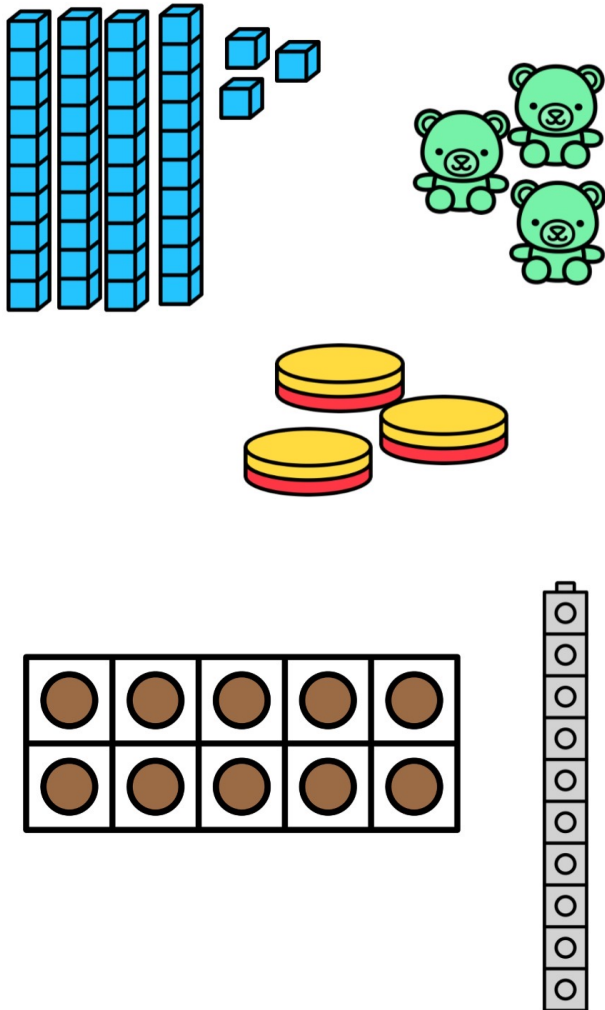
An approach for teaching math mastery by Jerome Bruner. It talks about scaffolding students through concrete, pictorial and abstract learning to use effective representations and connect with learning.

Concrete	Pictorial	Abstract
		<p><math>6 + 3 = 9</math></p> <p><math>15 - 4 = 11</math></p> $\begin{array}{r} 23 \\ \times 2 \\ \hline 46 \end{array}$

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## Concrete



The concrete stage is the first stage that uses physical objects or manipulatives. Some examples could be:

- maths cubes
- place value blocks
- counting bears
- counters
- tens frames
- beans or teddies
- physical number lines or 100's boards

This allows students to see and touch the materials to understand concepts.

### How does this fit in with Structured Maths Approach?

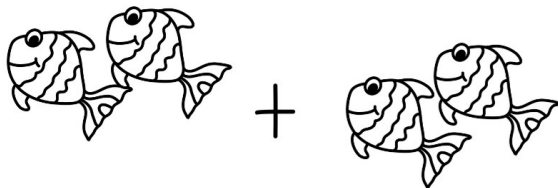
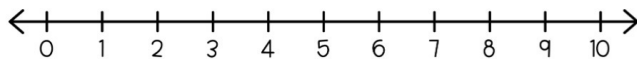
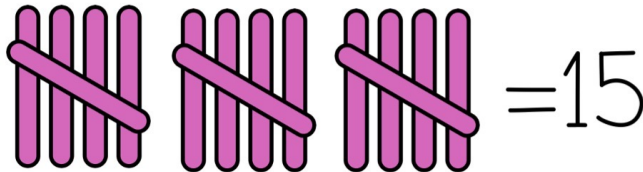
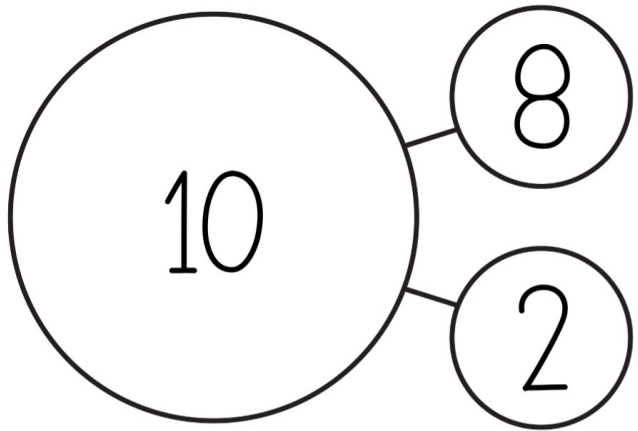
For concepts that are new for learners, beginning with hands on materials and manipulatives are important. Especially for younger learners, they need multiple opportunities to have concrete learning to build their understanding.

When the teacher uses the 'I do' of the lesson sequence, this is a great time to model using concrete materials and unpack the learning. This can be alongside the teaching slides to engage and dive deeper into concepts. Students may need further support with materials and the concrete stage in the 'we do' and 'you do' also depending on the student and learning they are exploring.

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## Pictorial



The pictorial stage is the second stage where students begin to use diagrams, visual aides and pictures. Some examples could be:

- number bonds
- part-part-whole
- number lines
- pictures, dots or visuals
- a visual number line

This allows students to use visual representations to solve problems but making connections to the concrete materials they know and can use. .

### How does this fit in with Structured Maths Approach?

When students have had exposure and exploration with concrete materials to build their understanding, bringing in pictorial representations is the next step. This might be in the same teaching session as using the concrete materials, in the 'I do' or 'we do' of the lesson sequence in particular; or throughout the entire lesson sequence including the 'you do'.

Using the pictorial stage might be when writing in your modelling book and within your small group teaching time. Students might also record using pictorial representations on their whiteboards or in their books to record their thinking.

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## Abstract

$$6 + 3 = 9$$

$$15 - 4 = 11$$

$$\begin{array}{r} 23 \\ \times 2 \\ \hline 46 \end{array}$$

The abstract stage is the third stage where students can understand and apply with more mental math and without the use of manipulatives or drawings. Some examples could be:

- using mental maths
- solving in equations
- solving equations without tools
- using symbols

This allows students to become more successful with their learning having moved through concrete and pictorial representations first, so understand the concepts and have a strong foundation.

### How does this fit in with Structured Maths Approach?

When students have had exposure and exploration with both concrete and pictorial representations of mathematics learning, they have a strong foundation to apply to using the Structured Maths Approach worksheet checks or follow ups independently. This might be in the 'we do', 'you do' or 'you do it alone' of the lesson sequence.

Using the abstract stage would be when students are confident with learning concepts and could be in your small group teaching time, or independent work time.