The ‘CPA’ Approach

Teaching for Mastery:

https://www.youtube.com/watch?v=weCPBlJVSrI

Concrete Stage

- Involves the physical manipulation of objects to explore structure, find commonalities and rehearse the mathematics.

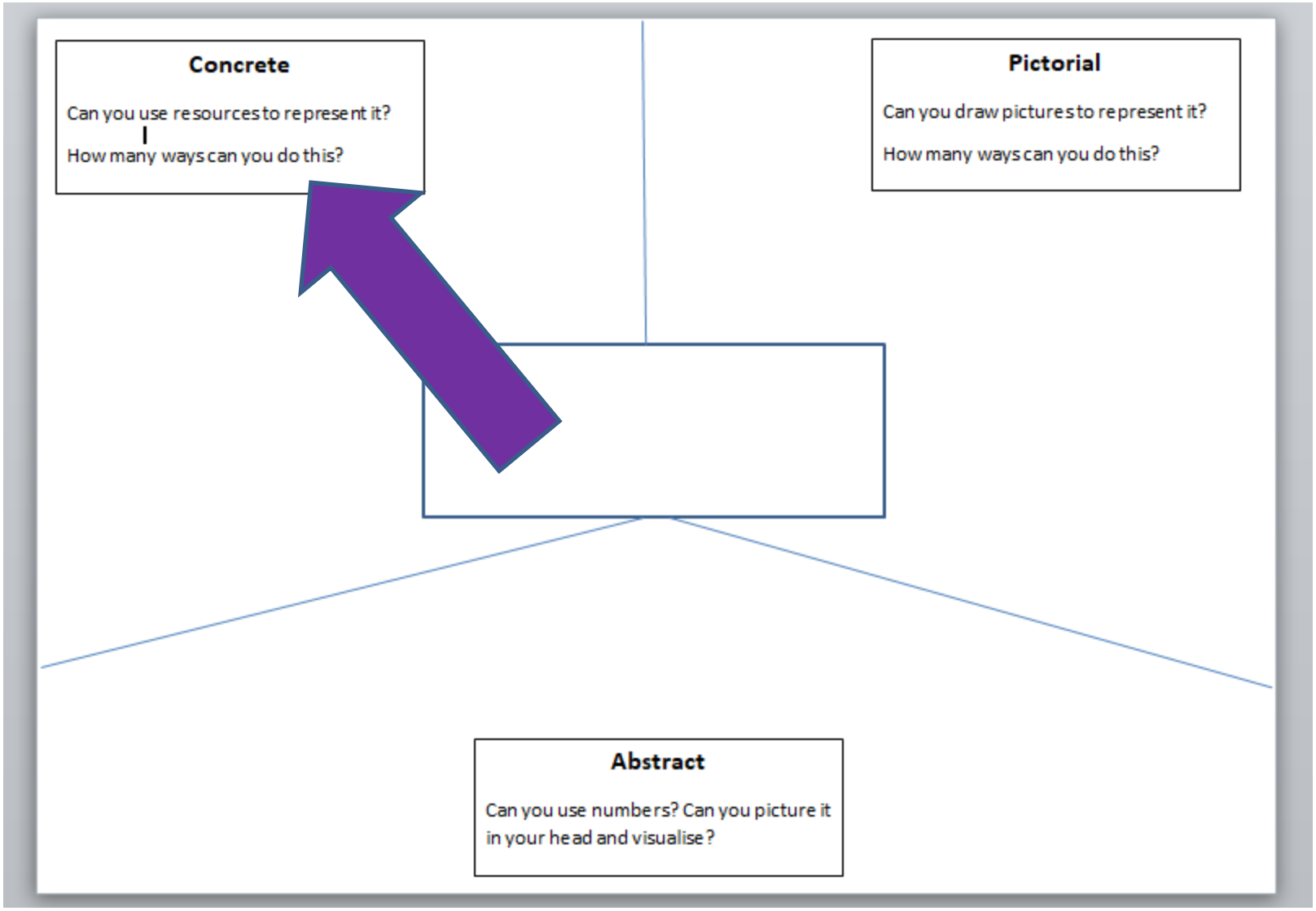
- Always used during the learning of a new concept or when building further onto learnt concepts for **every child** in the classroom.

- Can be used to help pupils demonstrate their understanding of concepts or see the learning in a different way.

<u>Benefits in this stage</u>

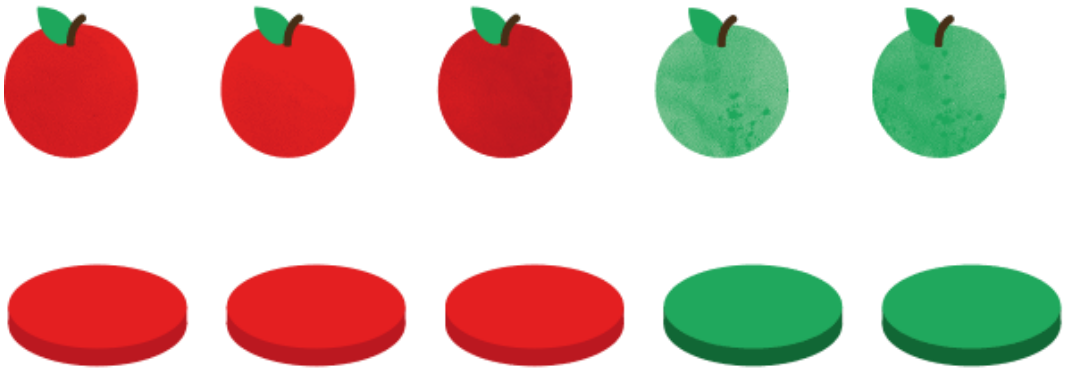
- ✓ Pupils are more likely to form the language to communicate concepts and ideas.
- ✓ The Teacher can gain a greater understanding of where misconceptions lie and the depth of understanding a child has.
- ✓ Pupils develop their ability to communicate mathematically and reason.

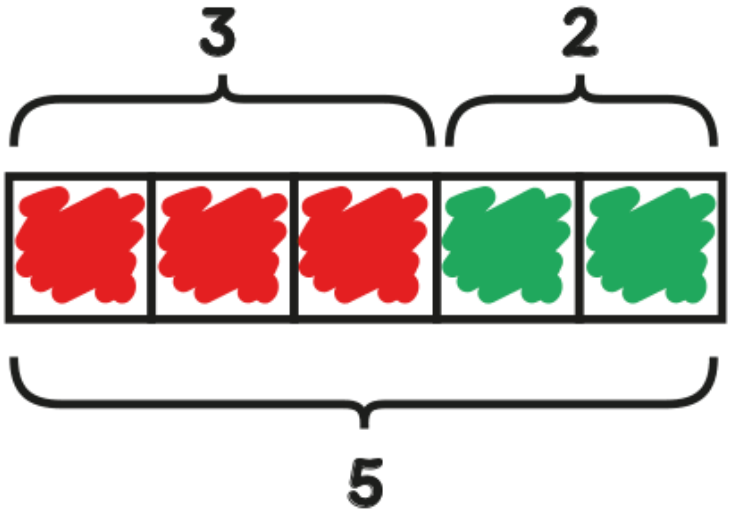
It is almost impossible for reasoning not to happen in a classroom where manipulatives are used regularly.


Concrete
Can you use resources to represent it?
How many ways can you do this?
Pictorial
Can you draw pictures to represent it?
How many ways can you do this?
Abstract
Can you use numbers? Can you picture it in your head and visualise?

Pictorial Stage

- Images that represent the concrete situation enacted in the first stage.
- Drawings of the resources they are acting upon.
- Representations such as bar models, a number line, graphs.
- This stage acts as a ‘bridge’ to support pupils to make links between the concrete and the abstract.
- It helps children develop the ability to communicate and represent their mathematics.
- This stage is often overlooked but to miss this stage out assumes pupils have made the cognitive link between the concrete resources and the abstract notion.





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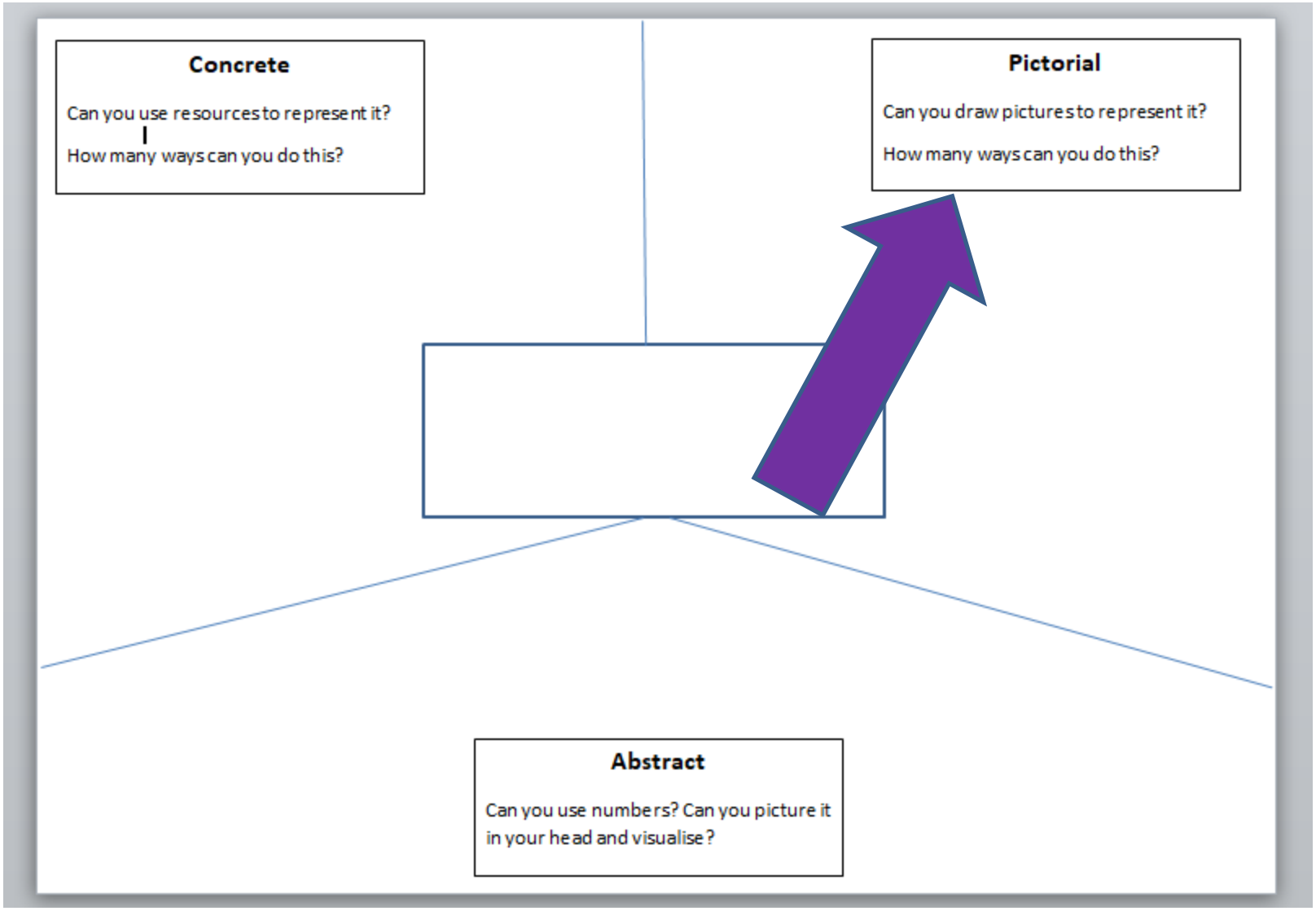
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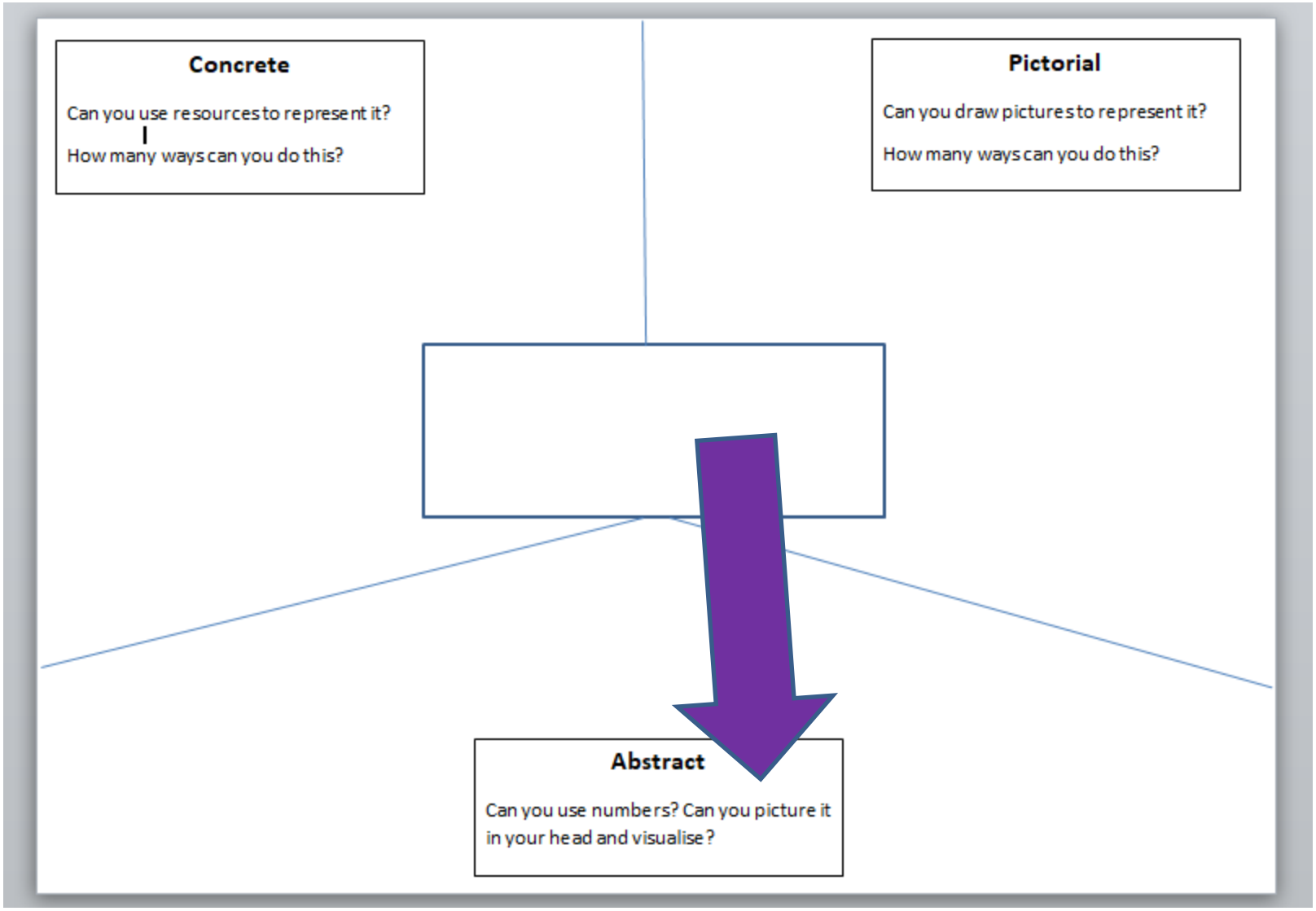
Abstract (Symbolic) Stage

- Words and symbols are used to communicate mathematically.
- It is difficult to get to this stage without the other two stages working alongside because words and symbols are abstractions.
- The concrete and pictorial stages support pupils' understanding of this stage.
- The ultimate aim of the CPA approach is to help pupils develop confidence and security when working with abstract representations.

> *"It is important for teachers to explain how symbols can provide a shorter and efficient way to represent numerical operations."*
>
> *Tia Robinson, Yewtree Primary School*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