

CPA Approach



How are concrete resources used in the CPA approach to maths mastery?

Concrete Pictorial Abstract (known as [the CPA approach](#)) is a key feature of the maths mastery approach. In a nutshell, the CPA approach uses concrete manipulatives to eventually gain a secure understanding of more abstract mathematical concepts.

The CPA approach has three clear stages:

Stage 1: Concrete and action-based representation using manipulatives like money, counters, cubes, base ten blocks and dice to explore and solve problems — think of it as the 'doing' stage.

Stage 2: Pictorial representations of concrete objects such as [bar models](#) are used to model problems — the 'seeing' stage.

Stage 3: Abstract notations using mathematical symbols — the symbolic stage.

Strategies for learning addition

CPA Approach



Concrete resources are physical, manipulative apparatus that can be used to support learning in maths. These are for all pupils to enable them to grasp key concepts.

Using manipulatives like money, counters, cubes, base ten blocks and dice to explore and solve problems enable concepts to be grasped and secured.

What can be used as a concrete resource to support my child's maths understanding at home?

Anything you have around your home can be used as a concrete resource: pasta, rice, Lego/construction bricks, straws, toy cars, board game pieces, playing cards and sweets.



Have a go using concrete resources to solve:

Year 1

$$6 + 4 =$$

$$5 + 3 =$$

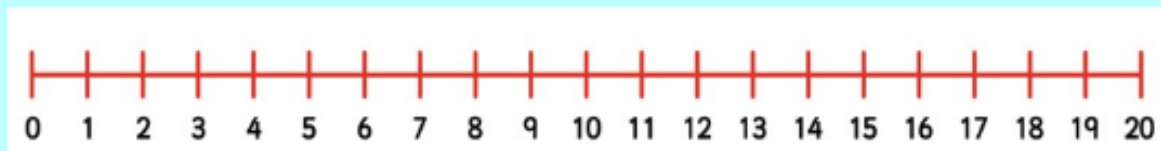
Year 2

$$14 + 7 =$$

$$21 + 8 =$$

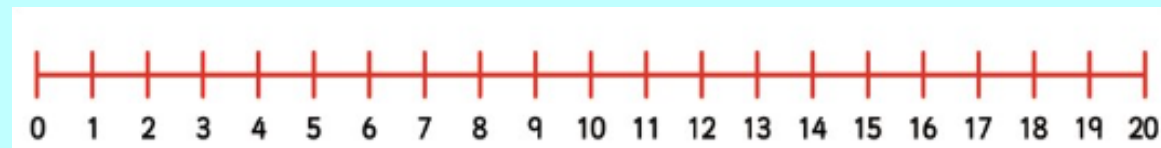
Stage 2 Pictorial

$$11 + 5 =$$



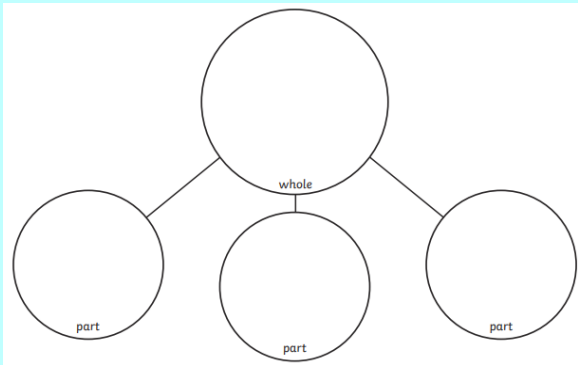
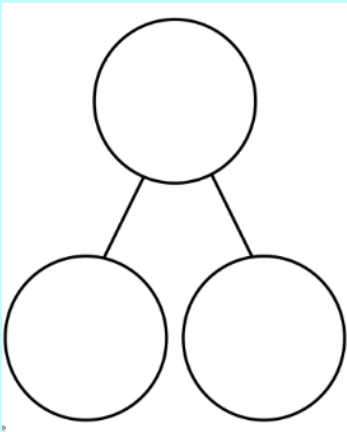
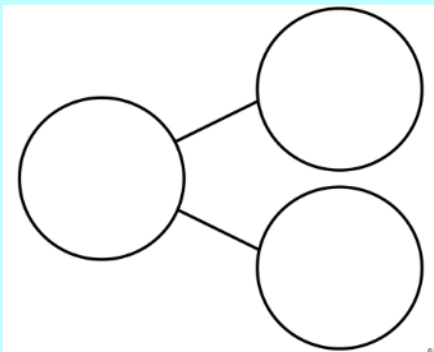
Your turn

$$9 + 9 = =$$



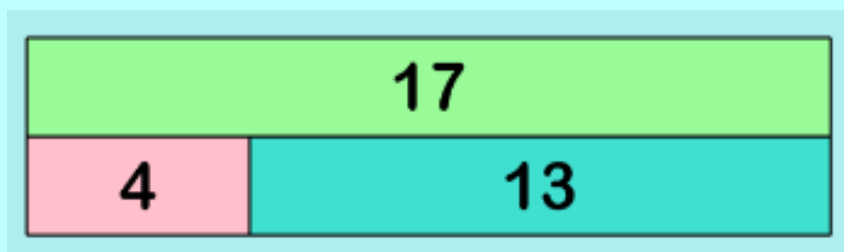
Stage 2 Pictorial

Part whole addition



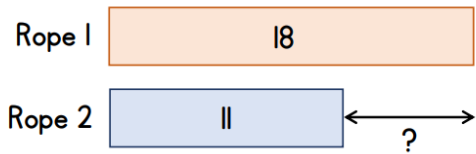
Stage 2 Pictorial

Bar model



Stage 2 Pictorial

A piece of rope is 18 metres long.
Another piece of rope is 11 metres long.
How much longer is the first piece of rope?



Fred went shopping and bought bananas, pears and plums. How many pieces of fruit did he buy altogether?

Stage 2 Pictorial

<https://www.topmarks.co.uk/learning-to-count/paint-the-squares>

- Adding ones
- Counting on in tens
- Adding tens
- Adding tens and ones

- $41 + 6 =$
- $45 + 30 =$
- $32 + 29 =$

Stage 2 Pictorial

Year 2

Blank Number lines

$$23 + 10 =$$

$$25 + 20 =$$

Stage 2 Pictorial

Year 2

Blank Number lines

$$35 + 27 =$$



Your Turn

$$88 + 20 =$$

$$53 + 34 =$$

Applying the skills

One-Step Money Challenge Cards

★

2

How much will it cost Monika to go on the dodgems and the ghost train?

012345

Ghost Train

★

★

★

40p

012345

012345

Dodgems

★

★

★

35p

012345

Addition Word Problem Challenge Cards

★★★

Aamina is playing a game. The finish is on space number 28. She starts on 0 and on her first three turns she rolls a double 3, a 2 and a 9.

How many spaces did she move?

How many more spaces will she need to pass to get to the finish?

Addition Word Problem Challenge Cards

★★★

Hannah wants to make 100 cookies for the school cake sale on Wednesday. She baked 44 cookies on Monday and 39 cookies on Tuesday.

How many cookies did she bake altogether?

How many more does she need to bake on Wednesday?