

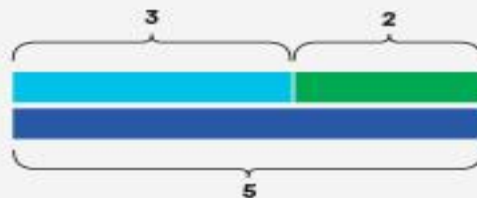


Supporting Your Child with Mathematics

1. Concrete, pictorial, abstract
2. The Calculations Policy, and how to use it
3. Maths in Everyday Life



Concrete → Pictorial → Abstract



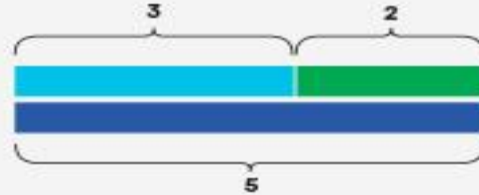
$$3 + 2 = 5$$

The C-P-A approach is a system of learning. It uses physical and visual resources to support conceptual understanding.

concrete	Representational	Abstract
<p>①</p>		
<p>②</p>		$4 + 5 = 9$



Concrete → Pictorial → Abstract



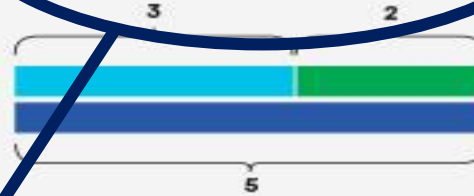
$$3 + 2 = 5$$

Using physical objects to solve maths problems, or investigate mathematical relationships.



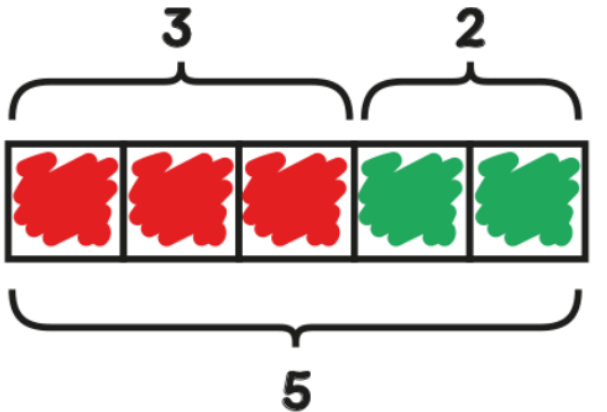


Concrete → **Pictorial** → Abstract

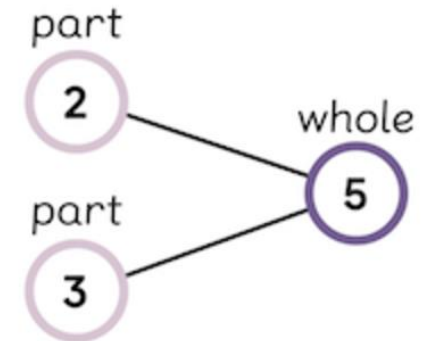
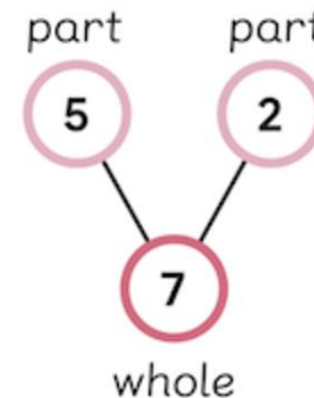


$$3 + 2 = 5$$

Using pictorial representations, or pictures, that represent equations or problems to solve.

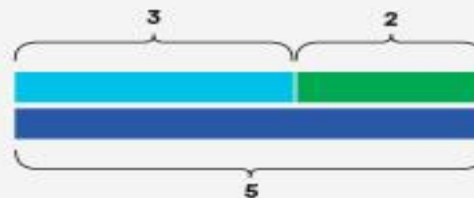


$$3 \times 4 = 12$$
$$4 + 4 + 4 = 12$$
$$3 \times 4 = 12$$





Concrete → Pictorial → Abstract



$$3 + 2 = 5$$

Using numbers and symbols to solve problems or demonstrate relationships.

$$16 - 2t = 5t + 9$$

$$3 + 3$$

$$186 \div 6 =$$

0	3	1
1	8	6



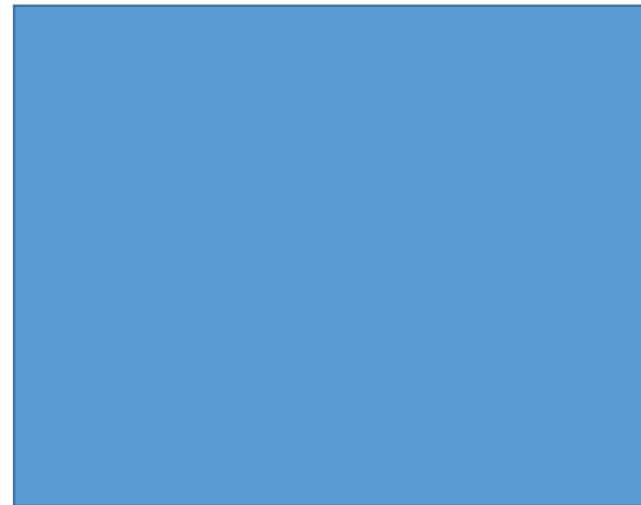
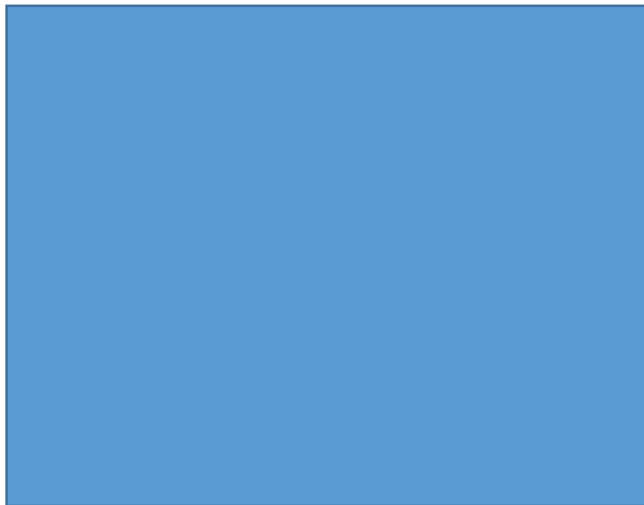
Common misconception: ‘the concrete and pictorial approach are for lower-level concepts, or for less able learners’.

Concrete → Pictorial → Abstract



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Concrete → Pictorial → Abstract



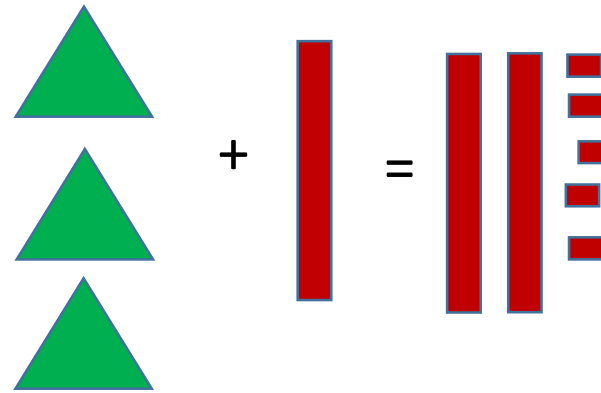
$$3y + 10 = 25$$



~~Common misconception: 'the concrete and pictorial approach are for lower-level concepts, or for less able learners'.~~

Concrete → Pictorial → Abstract

- Exchange money for items
- Use cubes to exchange
- Physically move items around the equals sign



$$3y + 10 = 25$$

The Calculations Policy

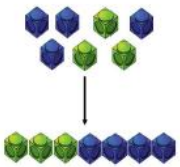
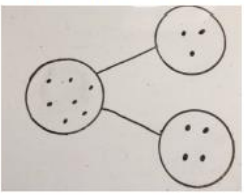
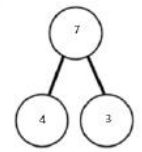

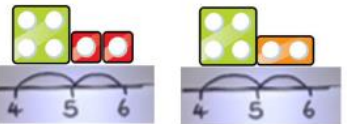
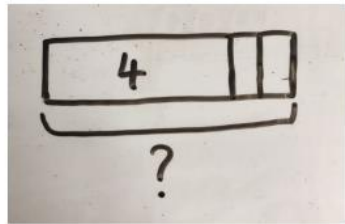



What is it?

- The calculations policy shows the different methods we use to teach the four operations. (For example, using place value counters to teach long division)
- It also shows the different ways that pupils can *evidence* their understanding

Calculation policy: Addition

Key language: sum, total, parts and wholes, plus, add, altogether, more, 'is equal to' 'is the same as'.


Concrete	Pictorial	Abstract
<p>Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars).</p> 	<p>Children to represent the cubes using dots or crosses. They could put each part on a part whole model too.</p> 	<p>$4 + 3 = 7$ Four is a part, 3 is a part and the whole is seven.</p> 
<p>Counting on using number lines using cubes or Numicon.</p>  	<p>A bar model which encourages the children to count on, rather than count all.</p> 	<p>The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? $4 + 2$</p> 

How do we use it at home?

- The policy shows you different ways to support your children as they work on each major operation; it also helps with ideas about how to represent these concepts.

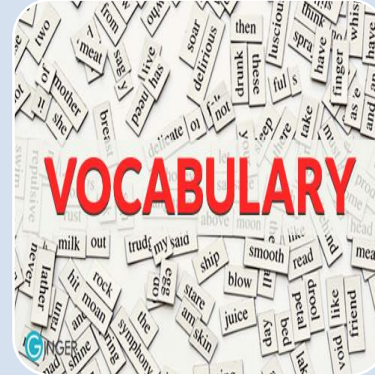
Maths in Everyday Life



BUS TIMETABLE 

Newport	06:50		07:25	08:45	09:10	09:45
Underwood	07:00	07:25	07:41	08:55	09:19	09:53
Magor	07:11	07:41	07:51	09:04	09:31	10:02
Rogiet	07:18	07:59	07:59	09:11	09:38	10:11
Caldicot	07:29	08:12	08:09	09:16	09:47	10:16
Portskewett	07:33	08:15	08:14	09:20	09:53	10:21
Chepstow	07:45	08:30	08:30		10:05	10:40

Write the Questions and Answers in your book



Reading timetables and clocks

- Working out when the next bus arrives
- Journey durations
- Dinner is in ... minutes

- ## Cooking
- Measuring and weighing ingredients
 - Concepts of amounts
 - 'Cut these into quarters/thirds/cm size chunks'
 - Twenty minutes per lb...

- ## Using Specific Vocabulary
- 'Can you pass that one litre bottle'
 - Being specific about time: 'I'll be back in ... minutes' or 'we'll be there in a minute'.

Handling Money

- Counting change and totaling amounts
- Saving and budgeting
- Comparing costs