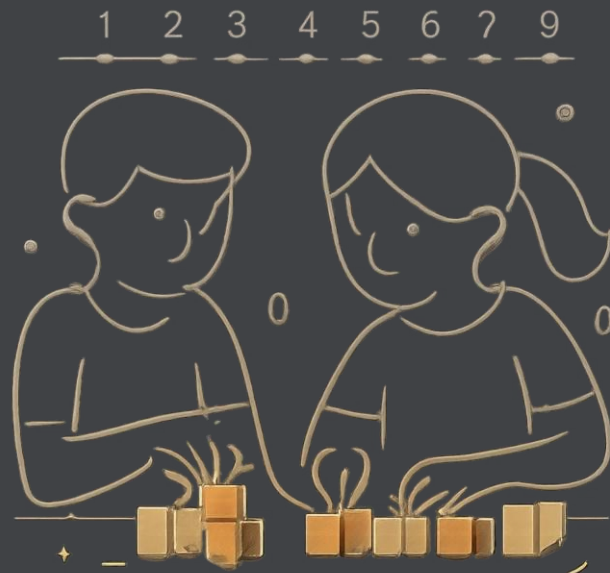


Addition & Subtraction: A Parent's Guide

How we teach maths – and why it looks different from when you were at school.

WHITE ROSE MATHS

YEARS 1–6



Why Maths Looks Different Now



Many parents were taught to **memorise procedures** – carry the one, borrow from the neighbour. Today, we focus on **understanding why** those procedures work.

- Children explore **multiple strategies** before learning formal written methods
- Mistakes are welcomed as part of learning
- Fluency, reasoning, and problem-solving are all developed together

□ When your child uses a method you don't recognise, ask: *"Can you show me how you worked that out?"*

The CPA "Magic Order"

Children don't jump straight to number sentences. We follow a proven three-stage journey – and it matters which order we use.



Concrete

Do it with real objects – counters, cubes, fruit, or coins. Children physically manipulate to understand.



Pictorial

See it through models – part-whole, bar models, number lines, ten frames, and Numicon shapes.



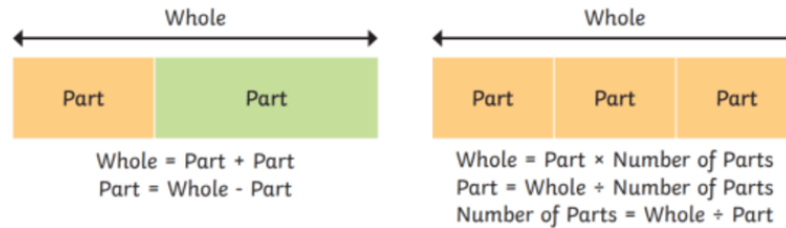
Abstract

Only once children can explain and represent the idea do we move to number sentences and written methods.

Bar Models: A Powerful Visual Tool

The 6th 'B' Is

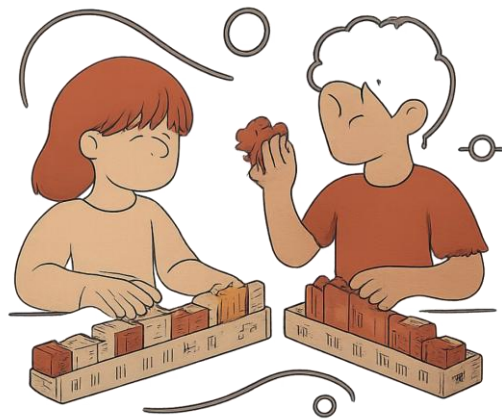
Bar Models



To understand Addition & Subtraction, we first must understand Place Value

TH	H	T	U
Thousands	Hundreds	Tens	Units

Building the Foundations



Key Skills

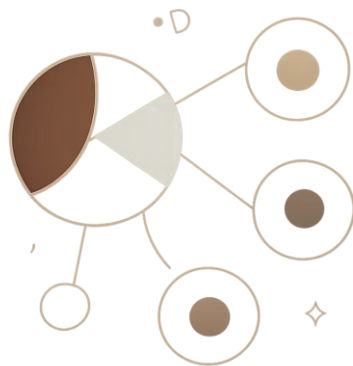
- Partitioning numbers (e.g. $7 = 5 + 2$)
- Counting on and back using number lines and tracks
- Bonding to 10 and 20 using tens frames
- Solving simple one-step problems with objects

Vocabulary

add, plus, more, total, altogether, subtract, take away, less, difference, equals

 **Try at home:** Use buttons or pasta to explore number bonds to 10. Ask: *"How many more to make 10?"*

Part-Whole Models



Addition: parts make a whole

Try it: Use cubes to represent two parts (e.g. 3 and 4), combine them, and write $7 = 3 + 4$.

Subtraction: take away a part

Start with the whole (e.g. 14 counters), remove a part (e.g. 6), count what's left, and write $14 - 6 = 8$.

i **Key language:** sum, total, parts, whole, "take away", "left over", "difference"

Number Lines

Addition — counting on

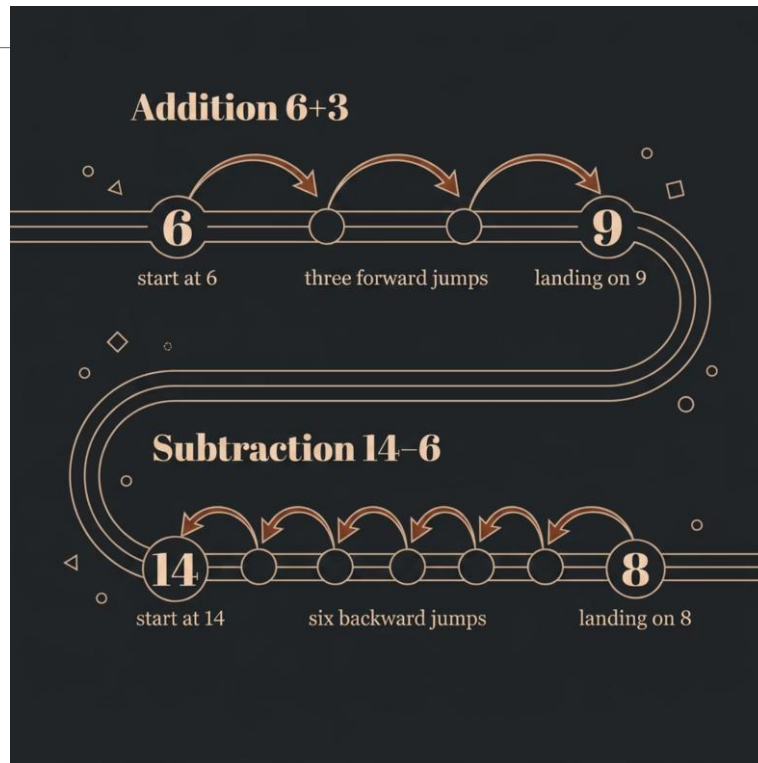
For $6 + 3$: start at 6, make 3 jumps forward in ones, land on 9.

Subtraction — counting back

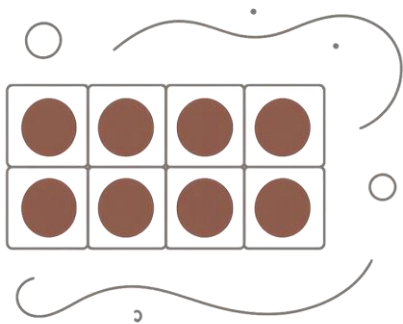
Start at the larger number, jump back. When crossing 10, record each step as a number sentence.



Parent prompt: "Where do we start? How many jumps? What does the start number become?"



Tens Frames & Your Home Challenge



Using Tens Frames

Addition: Fill the frame to make 10 first, then add the rest — partitioning into tens and ones.

Subtraction: Model "making 10", then take away, regrouping across the ten boundary on the frame.

✓  **5-Minute Daily Challenge:** Pick one problem. Do **Concrete** first (use objects), then draw the **Pictorial** model, then write the **Abstract** number sentence. That's the CPA magic in action!

$6 + 14 = \square$

$5 + 6 = \square$

$6 + 4 = \square$

$13 + 3 = \square$

$15 + 1 = \square$

$7 + 7 = \square$

$1 + 7 = \square$

$1 + 6 = \square$

$9 + 5 = \square$

$2 + 18 = \square$

$5 + 11 = \square$

$4 + 2 = \square$

$3 + 12 = \square$

$5 + 15 = \square$

$17 - 3 = \square$

$19 - 17 = \square$

$11 - 4 = \square$

$14 - 13 = \square$

$12 - 4 = \square$

$13 - 1 = \square$

$20 - 15 = \square$

$14 - 3 = \square$

$16 - 8 = \square$

$20 - 1 = \square$

$18 - 10 = \square$

$15 - 3 = \square$

$10 - 8 = \square$

$19 - 8 = \square$

11

Sam has **90** marbles.

He gives **50** marbles to Ben.

How many marbles does Sam have left?

17

Ajay had **18** strawberries.

He picked some **more**.

Ajay now has **24** strawberries.

How many **more** strawberries did he pick?



YEARS 3-4

Developing Strategies & Written Methods

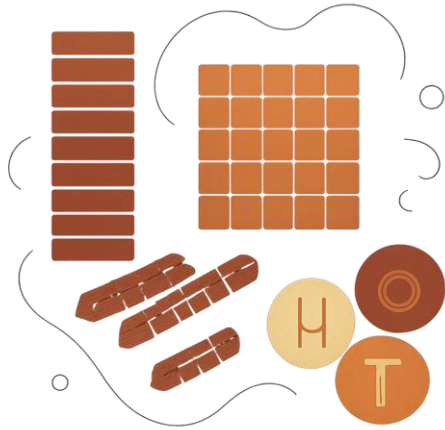
Key Skills

- Adding and subtracting using **empty number lines**
- Introduction to **column addition and subtraction**
- Using **bar models** to represent problems
- Estimating and checking answers using inverse operations

Vocabulary

estimate, round, inverse, compensate, partition, exchange

CONCRETE STAGE



Hands-on Calculation

Physical objects make abstract ideas like "carrying" visible and logical.

Try It: $47 + 25$

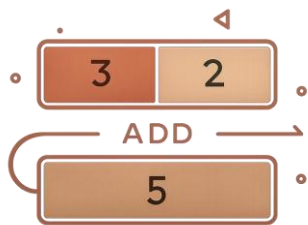
Use **Dienes blocks** or **place value counters**. Physically group the ones to create a new ten — this is the exchange.

Why It Works

Moving objects makes regrouping concrete before it becomes a written rule.

Visualising the Strategy

Once children are confident with objects, they draw models to represent the same thinking – bridging the gap to abstract methods.



Bar Models

Solve missing number problems by drawing a bar split into parts. **Try:** Draw a bar split into 5,945 and 1,052 – total them to find the whole.

Empty Number Line

Count on or back to find the **difference** between two numbers. Jumps show the strategy clearly.

ABSTRACT STAGE

The Formal Method

Children transition from expanded column addition to the formal column method — but only once understanding is secure.



1 Expanded Column Addition

Each digit is written in its full value, making place value explicit.

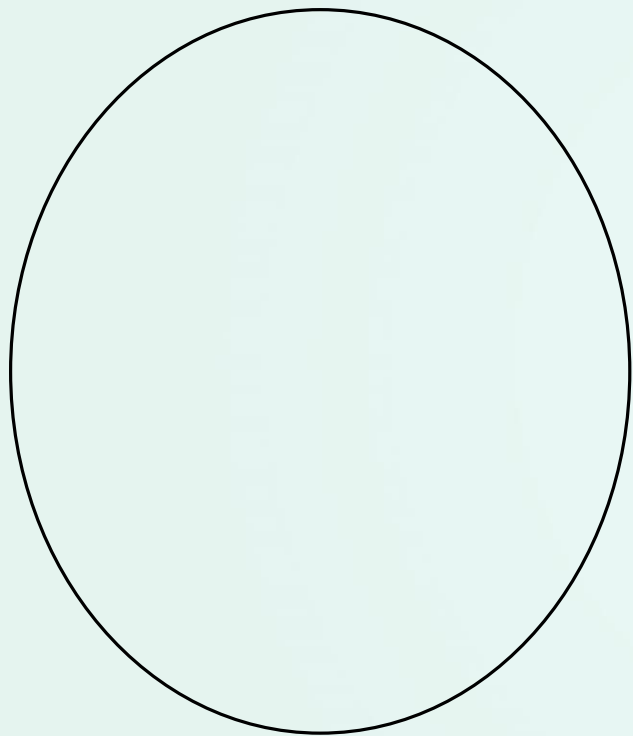
2 Formal Column Method

We **exchange**, never "borrow" — numbers are swapped for equal value.

3 Mental Fluency First

Partitioning, compensating, and rounding come before reaching for the pen.

Partition into 10s and
1s



$$44 + 13$$

$$44 + 19$$

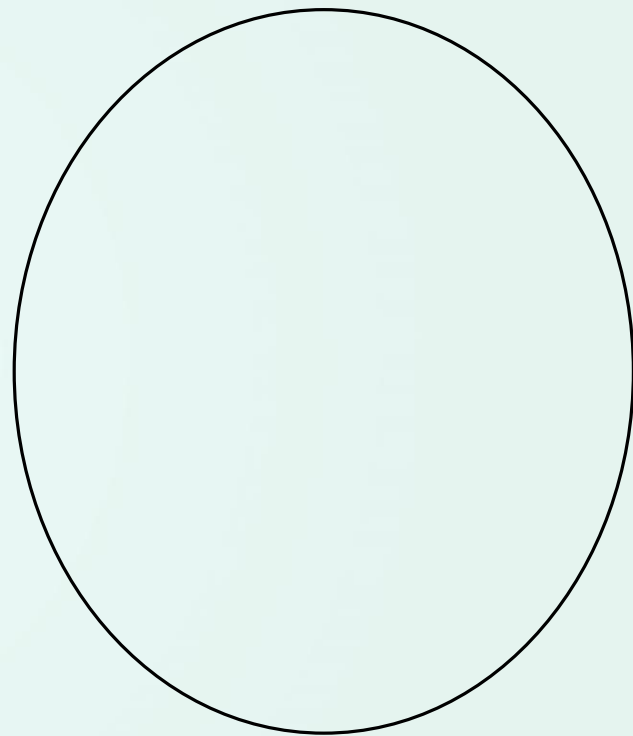
$$59 + 23$$

$$52 + 23$$

$$26 + 29$$

$$21 + 26$$

Redistribute to create an
easier calculation



Mastering Formal Methods & Reasoning



Key Skills

- Compact column addition and subtraction with **large numbers**
- Subtracting across **multiple zeros** (e.g. $4,000 - 267$)
- Multi-step problems using **bar models** and written methods
- Reasoning about which method is most efficient

Vocabulary

efficient, strategy, justify, verify, multi-step, residual, accumulate



Try at home: Ask your child: *"Which method would you use for $3,998 + 247$ — and why?"*

17

Chen buys these four items.



Chen pays for the four items with a £10 note. The price of the butter is not shown.

She receives £3.85 change.

What is the price of the **butter**?

19

A hall has 1,250 seats.

At 7 pm, 880 seats are filled.

At 8 pm, there are 40 empty seats.

How many seats were filled between 7 pm and 8 pm?

Get Involved: Activities to Try at Home



Number Bond Snap

Use a deck of cards — call out the number needed to make 10 or 20. Great for car journeys!

Shopping Maths

Estimate the total as you shop, then calculate the change. Ask: *"How did you work that out?"*

Draw a Bar Model

When your child has a word problem, encourage them to draw it first. Ask: *"What do we know? What are we finding?"*

Spot the Mistake

Deliberately make an error in a calculation and ask your child to find and explain it.

Key Takeaways & Next Steps

Remember

- Understanding comes before speed
- Multiple methods build flexibility
- Vocabulary matters — use it at home
- Ask *"How do you know?"* not just *"What's the answer?"*

Want to Learn More?

- Visit whiterosemaths.com/parents for free videos and guides
- Attend our next **Maths Workshop** — dates will be added to the school newsletter
- Speak to your child's class teacher at the next **parents' evening**
- Ask your child to **teach you** what they've learnt this week



Your support at home makes a real difference. Thank you for being part of your child's maths journey.