FROOBLE YEAR 3 MENTAL MATHS CHALLENGE

Parent guide: how the help pictures work

Every level teaches one mental maths strategy used in Year 3 classrooms. When your child is stuck, the game shows a short series of **help pictures** that walk through the strategy step by step. This guide explains each one, so you can talk it through with them if you'd like to.

How the game works

There are **13 strategy levels** and a final **Skill Gate**. Each level can be played in three modes, and each mode earns a ⭐ star:

Practice
No timer. The help pictures are there for every question — this is where the learning happens.

Speed Run
A timer. The help pictures are there, but the **last step is greyed out** — your child finishes that part themselves. A wrong answer shows the full last step.

Challenge
A timer and no help. This shows they can use the strategy on their own.

The **Skill Gate** mixes questions from every level (one star for passing). There are **40 stars** to earn in total.

Certificates: every level on Practice = **Bronze** · every level on Speed Run = **Silver** · every level on Challenge = **Gold**.

Colours in the help pictures

tens | ones | hundreds / round numbers | ? the answer

The help pictures **never show the answer** — the red "?" is always left for your child.

How you can help

- **Jottings are good!** Keep a whiteboard or some paper nearby. Writing down a step (like "470 + 30 = 500") is exactly what teachers want to see.
- **Ask, don't tell.** "What did the picture do first?" or "What's the next jump?" helps more than giving the answer.
- **Little and often.** Five to ten minutes a day beats one long session.
- **Practice before speed.** If a Speed Run feels hard, go back to Practice for that level — there's no penalty.

> You don't need to know these methods yourself — the pictures do the explaining. The descriptions below are just here if you'd like to follow along.

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The 13 strategies — level by level

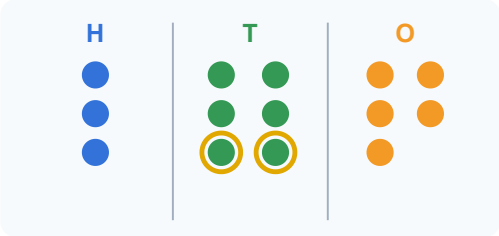
L1 Which digit changes?

Adding or taking away tens or hundreds only changes **one digit** — the ones never move.

Example: 345 + 20 = ?

What the help pictures show:

1. The number is shown as counters in Hundreds | Tens | Ones columns.
2. The counters being added are ringed (or the ones taken away are crossed out) — your child counts the column that changed.



How you can help: Ask: *"Which column changes? Which digits stay the same?"*

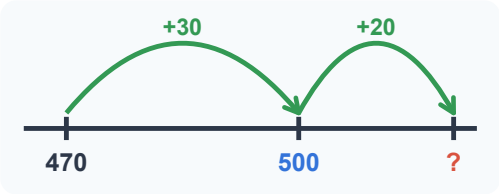
L2 Adding tens across 100

Make the next hundred first, then add the tens that are left.

Example: 470 + 50 = ?

What the help pictures show:

1. A number line with 470 and the hundred it crosses (500).
2. Jump +30 to reach 500.
3. Jump +20 more to land on the answer.



How you can help: Ask: *"How far is it to the next hundred?"*
Number bonds to 10 help: 7 + 3 = 10, so 70 + 30 = 100.

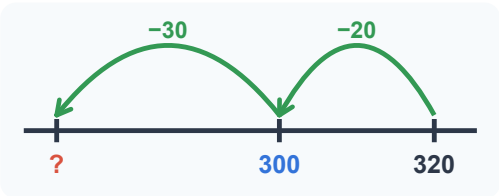
L3 Subtracting tens across 100

Go back to the hundred first, then take away the tens that are left.

Example: 320 − 50 = ?

What the help pictures show:

1. A number line with 320 and the hundred below it (300).
2. Jump back −20 to reach 300.
3. Jump back −30 more to land on the answer.



How you can help: Ask: *"How far back is it to the hundred?"*
The 50 gets split into "20 to get to 300, then 30 more".

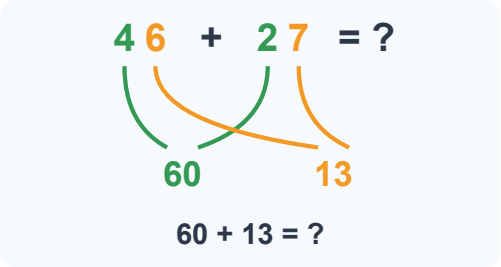
L4 Partitioning +

Split both numbers into **tens and ones**, add the tens, add the ones, then put them back together.

Example: 46 + 27 = ?

What the help pictures show:

1. The tens digits light up green; arrows show 40 + 20 meeting at **60**.
2. The ones digits light up orange; arrows show 6 + 7 meeting at **13**.
3. Last: 60 + 13 = ? (and any hundreds go in too, e.g. 200 + 80 + 7).



How you can help: Ask: *"What are the tens worth? What are the ones worth?"* Jotting the two totals helps a lot.

L5 Partitioning –

Keep the first number whole. Split the number being taken away, then **take away the tens, then the ones**.

Example: 43 – 26 = ?

What the help pictures show:

1. A number line starting at 43.
2. Jump back –20 (the tens of 26) to 23.
3. Jump back –6 (the ones) to land on the answer.



How you can help: Ask: *"What are the tens in the number we're taking away? Where does that jump land?"*

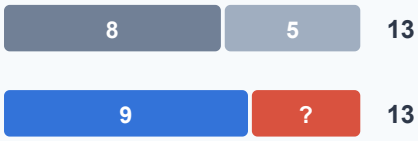
L6 Balancing

"=" means both sides are worth the same — not "the answer comes next".

Example: 8 + 5 = 9 + ?

What the help pictures show:

1. A bar shows the side we can work out: 8 and 5 make 13.
2. The other side must also make 13: a blue bar of 13.
3. It splits into the 9 and a red part — the "?".



How you can help: A common slip is writing 13. Ask: *"What does the other side need to make?"*

L7 Give and take: balance it

A number just below a round number can **take a little from its partner** to become round — the total stays the same.

Example: 253 + 99 = ? + 100

What the help pictures show:

1. Both numbers are shown as Dienes blocks (hundred squares, ten sticks, one cubes).
2. One cube moves from 253 to 99.
3. 99 becomes a whole hundred; 253 is now one less — that's the "?".

How you can help: Ask: *"How many does 99 need to make 100? Where could it get it from?"*



L8 Give and take: calculate

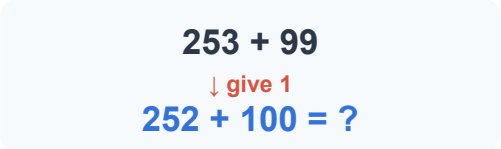
Use give and take to add: make the near-round number round, then add the easy way.

Example: 253 + 99 = ?

What the help pictures show:

1. The same Dienes pictures as Level 7.
2. One cube moves across: 253 + 99 becomes 252 + 100.
3. 252 + 100 is easy to add — that's the answer.

How you can help: Ask: *"Can we turn 99 into 100? What does the other number become?"*



L9 Finding number bonds

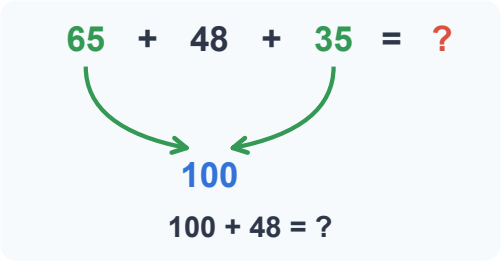
When adding three numbers, **look for the pair that makes a whole hundred** first.

Example: 65 + 48 + 35 = ?

What the help pictures show:

1. The first picture is blank — spotting the pair is the challenge!
2. The pair (65 and 35) drops below the question.
3. Arrows show them joining to make 100.
4. Last: 100 + 48 = ?

How you can help: Ask: *"Which two numbers are friends that make 100?"* Hint: look at the ones digits (5 + 5).



L10 I know... so...

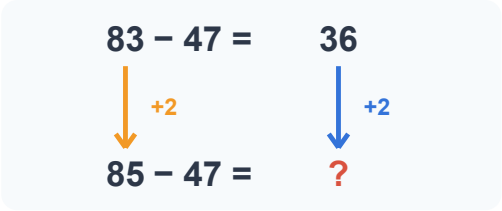
Use a fact you **already know** to work out a related one. Each question shows a fact above it.

Example: I know 83 – 47 = 36, so 85 – 47 = ?

What the help pictures show:

1. The first picture shows the two calculations, one above the other.
2. An orange arrow shows what changed (83 → 85 is +2).
3. A blue arrow shows how the answer changes (+2).

How you can help: The key idea: if the **first number** goes up, the answer goes up; if the **number taken away** goes up, the answer goes down; if **both** change by the same amount, the answer stays the same.



L11 Compensation

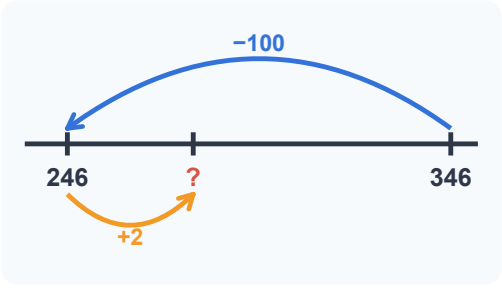
To take away a number just below a hundred (99, 98, 199...), **take away the hundred, then give back the extra**.

Example: 346 – 98 = ?

What the help pictures show:

1. A number line starting at 346.
2. A blue jump takes away 100, to 246.
3. An orange jump (under the line) gives back the 2 extra we took — landing on the answer.

How you can help: Ask: *"We took away 100 but only needed to take 98 — so did we take too much or too little?"*



L12 Hundreds take away a 2-digit number

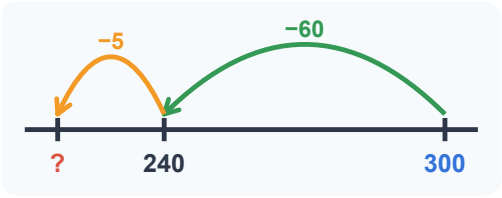
Take a 2-digit number from a whole hundred by **counting back — the tens, then the ones**.

Example: 300 – 65 = ?

What the help pictures show:

1. A number line starting at the hundred, 300.
2. Jump back −60 (the tens) to 240.
3. Jump back −5 (the ones) to land on the answer.

How you can help: Ask: *"How many tens are we taking away? Where does that leave us?"*



L13 Inverse and missing numbers

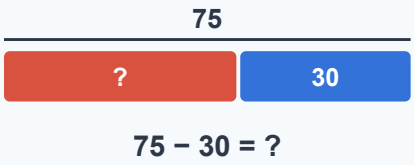
When a number is missing, **undo the calculation** with the opposite operation.

Example: ? + 30 = 75

What the help pictures show:

1. A blue bar shows the total we know: 75.
2. It splits into the 30 and a red "?" part.
3. Last: the undo calculation, 75 − 30 = ? (or 400 − 342 = ? for "342 + ? = 400").

How you can help: Ask: *"What was done to the mystery number? How do we undo it?"*



75 − 30 = ?

Gate Skill Gate: Mental Maths Mix

A **mix of questions from every level**, against the clock. It's its own test, so it isn't part of Bronze, Silver or Gold, but passing it earns a star.

Example: Any of the strategies above

What the help pictures show:

1. Help is there if needed — but a correct answer without help scores more points.
2. The best score counts towards the school leaderboard.

How you can help: Before the Skill Gate, ask: *"Which strategy would you use for this one?"* Spotting the right strategy is the real skill.

