

Mental addition strategies within 100

CURRICULUM ALIGNMENT

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

INTERACTIVES **Number Line Jumps** · challenge, display

WHAT THIS LESSON TEACHES

Adding by jumping forward in small steps from the bigger number. Start at the larger addend and jump on in tens and ones, or use a near-double when the numbers are close.

- $46 + 7$: start at 46 and jump forward 7 ones to land on 53
- $28 + 27$: add the 20 first to reach 48, then the 7 to reach 55
- $24 + 25$: double $24 + 24 = 48$, then one more is 49

MODEL THIS ON THE BOARD

JUMPING ON FOR $26 + 27$

- 1 Start at the bigger number **26** on the number line.
- 2 Jump forward the tens: add **20** to reach **46**.
- 3 Then jump the ones: add **7** more to land on **53**.
- 4 So $26 + 27 = 53$.

DISCUSSION STARTER

REFLECT Which route felt smartest today — counting on, partitioning, or a near-double?

LESSON ARC

Open with $32 + 9$ on the empty-number-line interactive and take two hands-up routes — counting on versus 'add ten, take one back'. Demo $46 + 7$, $35 + 20$, $28 + 27$, $24 + 25$, each pivoting on 'the numbers tell you which route is fastest'. The class works four more at the board, then jots two strategies in their copy. The Class Challenge scoreboard sums consolidate route-choosing at the board.

TEACHING MOVES

1. **Getting Started.** Pose $32 + 9$ and take just two or three hands-up routes, not open call-outs. Listen for 'count on nine' versus 'add ten, take one back' — revoice both as valid, and land the point that smart adders choose a route rather than always counting in ones.
2. **Watch and Notice.** Narrate each example on the number-line interactive one at a time, pointing at the arcs. On $46 + 7$ count the seven ones aloud so pupils feel how costly counting-on is; on $24 + 25$ ask 'what double is hiding here?' before revealing the +1. Pause and have the class predict each landing number.
3. **Try It Together.** Before each addition ask which route the class would pick and why; one pupil draws their chosen jumps while the rest predict the landing number. On $42 + 30$ reward the pupil who resists counting in tens three times; on $23 + 24$ surface the near-double of 23.
4. **Show Your Strategy in Your Copy.** Walk the room glancing at the jottings — is the route sensible for the numbers? Watch for pupils still counting $26 + 27$ in ones when partitioning the 27 is sitting right there. This is practice, not marking.

5. **Class Challenge.** Keep the board work brisk — pupils take turns, check each answer, class confirms, move on. As each one is solved ask 'which short cut saves the most steps here?' Don't re-explain each route; the $43 + 6$ quick win suits a less confident pupil.
6. **What Did We Notice?** Listen for pupils naming the size of the second number as the clue. Revoice a strong answer: 'so the numbers themselves tell you which route is fastest.' Head off the idea that counting on is always wrong — it's perfectly smart for $43 + 6$.

COMMON MISCONCEPTIONS

⚠ Pupils partition $28 + 27$ but add the units first — 8 and 7 makes 15 — then lose track of the tens and stall.

Stop and redraw the jumps on the number-line interactive jumping the 20 first to reach 48, then the 7. Say it aloud: 'tens first keeps the running total tidy.' Have the pupil re-draw $26 + 27$ the same way.

⚠ Pupils treat $42 + 30$ as 'count on in tens' and draw three separate ten-jumps, defeating the point of the tidy number.

Ask the pupil at the board how many jumps that took, then redraw it as one arc of thirty. 'A whole thirty is one jump, not three.' Contrast side by side on the interactive so the saving is visible.

⚠ Pupils reach for a near-double on numbers that aren't actually close — e.g. trying to force $38 + 20$ into a doubles route.

During What Did We Notice?, ask 'how far apart are these two numbers?' Draw out that near-doubles only pay off when the numbers are within one or two — 38 and 20 want a single tidy jump instead.

DIFFERENTIATION

EMERGING

- Stay on counting-on examples like $43 + 6$ and $33 + 8$ in copybook while the class moves to partitioning — keep the jumps small and concrete on the number line first.
- Pre-draw the number-line scale with the tens marked so the pupil only places the jumps, not the structure.

DEVELOPING

- After the copybook jottings, ask pupils to solve $26 + 27$ a second way and decide which route was fewer steps.
- Pose a missing-number twist: $24 + ? = 49$ using the near-double they just met.

PROFICIENT

- At the board after $49 + 49$, hand a fast finisher $47 + 49$ and ask them to narrate the double-then-adjust aloud — which double, and which way does the adjustment go?
- Pull them ahead into the Student Activity Book page and ask them to write, in one line, the clue in any pair of numbers that tells them to choose a near-double.

✓ **Cross-curricular:** Tie to PE — pupils keep running scores in a class rounders or basketball game and add each team's tallies using whichever mental route is fastest.

ANSWER KEY

a) 41

b) 59

c) 47

Q1: 41 points

Q2: 49 points

Q3: 41 points

Q4: 55 points

Q5: 53 points

a) **Always** : Starting from the bigger number means fewer jumps and is the familiar mental route.

b) **Sometimes** : True for $34 + 2$; false for $34 + 20$, where jumping on 2 tens is quicker.

c) **Always** : Numbers only one or two apart can be doubled then adjusted by the difference.

d) **Sometimes** : It stays within 55 only when both addends and the sum are chosen inside the ceiling.

EXTENSION SHEET · STRETCH ANSWERS

S1: 11914

S2: 1662

Investigation: Three routes to the same sum — open-ended; scan pupils' working for valid solution paths rather than a single answer.