

## Written addition of 3-digit numbers with regrouping

### CURRICULUM ALIGNMENT

NUM.OPS.3

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

NUM.PVT.3

explore equivalent numerical expressions of numbers using the base ten system.

**INTERACTIVES** Column Addition · challenge, display, explore

### WHAT THIS LESSON TEACHES

When you add two 3-digit numbers, add each column from the right. If a column comes to ten or more, trade ten of them for one carried into the next column to the left.

→  $156 + 138$ : the units  $6 + 8 = 14$ , so write 4 and carry 1 into the tens.

→  $143 + 126$ : no column reaches ten, so no carrying is needed.

### MODEL THIS ON THE BOARD

#### ADDING 437 + 295 IN COLUMNS

- 1 Add the units:  $7 + 5 = 12$ . Write **2**, carry **1** to the tens.
- 2 Add the tens:  $3 + 9 + 1 = 13$ . Write **3**, carry **1** to the hundreds.
- 3 Add the hundreds:  $4 + 2 + 1 = 7$ . Write **7**.

$$\begin{array}{r} \overset{1}{4} \overset{1}{3} 7 \\ + 295 \\ \hline 732 \end{array}$$

### DISCUSSION STARTER

**REFLECT** When a column made ten or more, how did you remember where to put the carry?

### LESSON ARC

Stack  $156 + 138$  on the IWB and leave the units sum (14) hanging — pose the puzzle of where the extra ten goes before naming the rule. Worked examples pivot on '14 is one ten and four units; the ten can't stay here'. Pupils take turns at the board for  $264 + 158$  and  $372 + 249$ , then set out  $437 + 295$  in their own copy with carries above. The Class Challenge runs club and GAA additions; Student Activity Book practice follows.

### TEACHING MOVES

1. **Getting Started.** Stack  $156 + 138$  and add only the units aloud — 'six and eight is fourteen, but fourteen won't fit in one box'. Take two or three hands-up answers on where the ten goes; don't reveal the method, just leave the puzzle open. Listen for any pupil who already uses the word 'carry'.
2. **Watch and Notice.** Always start from the units on the right. On  $156 + 138$ , name the trade out loud — 'fourteen is one ten and four units' — and ask 'why can't the ten stay in the units column?' before writing the carry. Slow right down on  $308 + 196$  and say 'zero tens plus nine tens plus the carry' so the zero doesn't get skipped.
3. **Try It Together.** Call a pupil up to stack  $264 + 158$ ; the class checks the columns line up before any adding starts. Revoice a strong answer — 'so twelve tens is one hundred and two tens, the hundred carries left'. Watch for pupils carrying to the right or forgetting to add the carry in; retype to  $372 + 249$  in the same interactive for the second pair.

4. **Build Alongside in Your Copy.** Pupils set out  $437 + 295$  in their own copy (or the squared-paper sheet) — this is the write-not-watch beat. Walk the room glancing for column alignment and the carry written above the next column to the left. No marking; this is practice, not assessment.
5. **Class Challenge.** Brisk board turns — frame  $143 + 126$  as a gentle no-trade warm-up, not the first hard rung. Before each later item, ask for a thumbs up if it needs a trade, and before  $467 + 358$  ask 'which of these needs two trades?'. Confirm each answer with the on-screen Check before the next pupil comes up.
6. **What Did We Notice?.** Ask why the carry goes left and never right. Listen for 'ten units make one ten, so it belongs where the tens live' and revoice it — 'the carry is worth more, so it moves to a column worth more'. Head off the idea that the carry is just a leftover with no value.

### COMMON MISCONCEPTIONS

⚠ Pupils write the full units sum in the answer row —  $6 + 8 = 14$ , so they write 14 under the units and the column count goes wrong from there.

Stop and split 14 on the IWB into '1 ten and 4 units'. The 4 stays, the 1 ten has no room here, so it moves left. Have the pupil read back which digit goes in the answer row and which goes up as a carry.

⚠ Pupils forget to add the carry into the next column — they add the two tens digits and ignore the small 1 sitting above them.

Point to the carry digit before adding the tens and say 'we have three numbers to add in this column now, not two'. Re-add the column aloud, touching all three digits including the carry.

⚠ When a zero sits in a column ( $308 + 196$ ), pupils skip it or get stuck — 'there's nothing to add'. Say it in full: 'zero tens plus nine tens plus the carry'. Zero still holds the column open. Point to the place-value columns so they see the tens slot is real even when it holds nothing.

### DIFFERENTIATION

#### EMERGING

- Pre-rule the column frame on the squared-paper sheet so pupils only place digits, not invent the layout — alignment errors disappear and they can focus on the trade.
- Stay on additions with one trade only (units column) while the rest of the class meets the two-trade examples; pupils work these at the teacher table.

#### DEVELOPING

- After  $437 + 295$  in the copy, swap the addends to a pair with two trades in a row and ask pupils to predict where each carry lands before they add.
- Pose a missing-digit version:  $2\_5 + 187 = 422$  — what units digit makes the trade work?

#### PROFICIENT

- During the Class Challenge, narrate one harder variant at the board — three three-digit numbers stacked — and ask whether a column could ever need a carry of 2, and why.
- Set the open question: invent a 3-digit addition where every column needs a trade. Pupils try it in their copy and explain how they chose the digits.

✓ **Cross-curricular:** Tie to the sponsored-walk context — pupils add two leg distances in metres ( $318 \text{ m} + 296 \text{ m}$ ) and discuss the club's total for a real GAA fundraiser.

### ANSWER KEY

a) 704

b) 422

c) 825

Q1: 269

Q2: 434

Q3: 625

**Spot:** Emma regrouped the units ( $6 + 8 = 14$ ) and wrote 4, but forgot to carry the 1 ten into the tens column. Tens should be  $5 + 3 + 1 = 9$ . The correct sum is 294.

### EXTENSION SHEET · STRETCH ANSWERS

S1: 14024

S2: 12416

S3: 10332

S4: 13005

**S5:** 12995

**Investigation:** Make the biggest total — open-ended; scan pupils' working for valid solution paths rather than a single answer.