

Lesson 16 **NUMBER****Written addition of 4-digit numbers**

CURRICULUM ALIGNMENT

NUM.OPS.3

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

INTERACTIVES

Column Addition · challenge, display

Word Problem · challenge

WHAT THIS LESSON TEACHES

To add two four-digit numbers, line up the thousands, hundreds, tens and units and add each column from the right. When a column makes ten or more, write the ones digit and carry one into the next column to the left.

→ In the units: $8 + 9 = 17$, so write 7 and carry 1 into the tens.

→ 9 hundreds + 6 hundreds = 15 hundreds, so write 5 hundreds and carry 1 thousand.

MODEL THIS ON THE BOARD

ADDING 4-DIGIT NUMBERS

- ① Units: $5 + 8 = 13$. Write 3, carry 1.
- ② Tens: $4 + 7 + 1 = 12$. Write 2, carry 1.
- ③ Hundreds: $6 + 2 + 1 = 9$. Write 9.
- ④ Thousands: $2 + 1 = 3$. Write 3.

$$\begin{array}{r} \overset{1}{2} \overset{1}{6} 4 5 \\ + 1 2 7 8 \\ \hline 3 9 2 3 \end{array}$$

DISCUSSION STARTER

REFLECT

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

LESSON ARC

Open with the two GAA fundraising totals and take estimates before any digits go up — pupils predict where a trade might happen. On the IWB place-value columns, work the calm no-trade example first, then build to $4,857 + 3,265$ where one carry ripples across every column, always right-to-left. Pupils set out two sums on squared paper in the maths copy. The Class Challenge runs four Irish-context word problems at the board before the maths-talk wrap.

TEACHING MOVES

1. **Getting Started.** Put the two GAA totals up and take three quick estimates for over/under €2,500, then ask 'where might we have to trade?' — five seconds of quiet think-time before hands. Do not work the sum; that's the next step.
2. **Watch and Notice.** Work all four on the place-value columns strictly right-to-left. Keep $1,256 + 1,323$ brisk to fix the columns, pause on $2,475 + 1,168$ at the units — 'ten and three, three stays, one ten goes up' — and give $4,857 + 3,265$ the most time, tracing one trade all the way across so pupils see it ripple through every column.
3. **Try It Together.** Send a different pupil up for each sum and re-enter each pair on the interactive as you move to it. Insist on the carry said aloud ('ten and three, carry one') and watch for the carry going into the wrong column. On $5,678 + 2,456$, pause the class to predict where the trade reaches before the pupil finishes the hundreds.

4. **Set Out the Columns in Your Copy.** Walk the room glancing at column alignment and the carry digits — this is practice, not marking. Squared paper keeps the thousands under the thousands; check the underlined thousands digit is right before pupils move on.
5. **Class Challenge.** Brisk board turns through the four Irish problems. Before each one ask 'which words tell us to add?', and before the last two ask 'which of these needs a trade all the way to the thousands?' — the class predicts, then checks. Consolidation, so don't re-teach each sum.
6. **What Did We Notice?.** Listen for 'same rule, just one more column'. Revoice a strong answer — 'so the only new thing is a trade can now reach the thousands' — and head off any idea that four-digit sums need a brand-new method.

COMMON MISCONCEPTIONS

⚠ Pupils write the carry into the wrong place — they tuck the carried 1 into the same column instead of above the next column to the left, so $2,475 + 1,168$ comes out with a stray digit in the units answer.

Stop and point at the place-value columns: the ten we made belongs one column left. Rework the units on the IWB saying 'three stays here, the ten goes up above the tens' and have the pupil place the carry digit themselves before adding that column.

⚠ Pupils forget to add the carried digit into the next column — they add the two written digits and drop the little 1 sitting above.

As you move to each new column, point at the carry first and say 'start with the one we carried' before reading the two digits. On $4,857 + 3,265$, deliberately pause at each column and ask the class 'have we counted the carry?'

⚠ Pupils assume a bigger four-digit sum needs a different method and freeze at the thousands column. In the maths-talk, lay a three-digit sum beside a four-digit one on the IWB. Same rule, one more column — the only new thing is a trade can now land in the thousands. Have a pupil narrate the thousands column of both.

DIFFERENTIATION

EMERGING

- Stay on the no-trade and single-trade examples ($1,256 + 1,323$, then $2,475 + 1,168$) while the class moves to the ripple sum; these pupils mirror those two on squared paper.
- Pre-draw the four labelled columns in the maths copy so pupils place digits into a ready grid rather than aligning from scratch.

DEVELOPING

- After the copybook sums, ask pupils to check one answer by rounding both numbers to the nearest hundred — does the estimate match?
- Give a missing-digit variant: $3,4_6 + 2,957 = 6,443$, find the hidden digit and explain the trade that fixes it.

PROFICIENT

- Teacher-narrated stretch at the IWB: add three four-digit numbers in one column and ask what happens when a column makes twenty or more — how many carry up then?
- Pull ahead into the Student Activity Book page and ask them to write a €-context word problem whose answer needs a trade reaching the thousands, then solve it.

✚ **Cross-curricular:** Tie to Geography — pupils add two Irish town-to-town distances in metres (e.g. Cork to Mallow legs) and read the total as a four-digit sum.

ANSWER KEY

a) 6469

b) 6572

c) 6215

Q1: 3,657 seats

Q2: 5,691 tickets

Q3: 2,555 supporters

Q4: 5,626 m

Q5: 6,443 points

Q6: 8,134 players

EXTENSION SHEET · STRETCH ANSWERS

S1: 14780

S2: 7550

S3: 9495

S4: 10125

S5: 10661

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