

Written subtraction of 3-digit numbers

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 Subtraction · challenge, display, explore

WHAT THIS LESSON TEACHES

When the top digit in a column is too small to take away from, we rename by taking one from the next column to the left and adding it as ten to the column we are in. Always start at the units and work left.

→ In $452 - 127$ the units are $2 - 7$ so we rename one ten as ten units to make $12 - 7$.

→ In $600 - 245$ the tens column is a zero so we take from the hundreds first.

MODEL THIS ON THE BOARD

RENAMING IN $526 - 248$

- 1 Set out 526 take away 248 in neat hundreds, tens and units columns.
- 2 Units column: 6 is smaller than 8, so take one ten. Tens become 1 and units become 16. Then $16 - 8 = 8$.
- 3 Tens column: 1 is smaller than 4, so take one hundred. Hundreds become 4 and tens become 11. Then $11 - 4 = 7$.
- 4 Hundreds column: $4 - 2 = 2$.
- 5 The difference is written below the line.

LESSON ARC

Put $423 - 156$ up in hundreds-tens-units columns and take three predictions on which columns will need renaming — don't work it yet. Model four examples right-to-left, building from the no-rename case to $600 - 245$ where the zero has nothing to give. Pupils try a no-rename sketch then a single-rename with the interactive, work two in copybook ($703 - 365$ carries the zero), then a whole-class challenge bank ending on $800 - 347$.

TEACHING MOVES

1. **Getting Started.** Display $423 - 156$ in columns as pupils settle and point at the units: '3 take away 6 — spot the wrinkle?' Take three hands-up predictions on which columns need renaming, but don't confirm or work it — this is fishing for the prediction only.
2. **Watch and Notice.** Reveal one example at a time, always from the units. On $452 - 127$ point at the borrow-note as the ten crosses and stress the 5 tens drop to 4. Save $600 - 245$ for last and say it slowly: 'a zero has nothing to give, so the borrow has to reach one more column left first.'
3. **Try It Together.** Sketch $275 - 132$ by hand on the board first to fix the units-first habit with no renaming. Then open the interactive in explore mode for $364 - 138$; have the pupil at the board tap the borrow-note cell before any answer cell, and get the class to call each column aloud before the digit goes in.

4. **Set Out the Columns in Your Copy.** Walk the room glancing at column alignment and the borrow crossings-out — this is practice, not marking. Watch $703 - 365$: the tens are a zero and have nothing to give, so the borrow must reach the hundreds first. Remind pupils to check by adding the answer back to 365.
5. **Class Challenge.** Pupils take turns at the board and check each answer before moving on — keep it brisk, don't re-teach each one. On the last one, $800 - 347$, take a prediction first: both the tens and units need the borrow to travel from the hundreds, so have the class say the borrowing aloud before the pupil fills it in.
6. **What Did We Notice?.** Ask why subtracting across a zero is the trickiest case. Listen for 'a zero has nothing to lend' and revoice a strong answer: 'so the borrow travels one more column left, and the zero jumps up to nine on the way through.'

COMMON MISCONCEPTIONS

⚠ In $703 - 365$ pupils leave the zero untouched and borrow straight from the hundreds into the units, skipping the tens column entirely.

Stop and rebuild it column by column in the place-value columns. Show that the borrow can only reach across one column at a time: the hundreds gives to the tens (0 becomes 10, then 9 after it lends on), and the tens gives to the units. Make the two-step journey explicit.

⚠ After renaming, pupils forget to drop the top digit — in $452 - 127$ they still treat the tens as 5 instead of 4.

On the interactive, point at the crossed-out 5 and the small 4 above it before the tens subtraction happens. 'The 5 already lent a ten away — it's a 4 now.' Have the pupil re-read the tens column with the new digit before subtracting.

⚠ Pupils take the smaller digit from the larger regardless of position — in $452 - 127$ they do $7 - 2$ in the units to avoid renaming.

Compare with the strips-free columns: $2 - 7$ genuinely can't be done as it stands, which is exactly why we rename. Rename one ten to make $12 - 7$ and read the real order aloud so the direction is fixed.

DIFFERENTIATION

EMERGING

- Keep these pupils on no-rename subtractions like $486 - 253$ in the copybook while the class moves to renaming, so the units-first habit lands before borrowing is added.
- Pre-rule the hundreds-tens-units columns in their copy so they only place digits, not build the layout — column misalignment is where most of their errors start.

DEVELOPING

- After the copybook pair, ask them to invent a three-digit subtraction that needs renaming in the tens but NOT the units, then swap and solve a neighbour's — checking by adding back.
- Give $900 - 456$ as a stretch: two zeros in a row, so the borrow has to cascade twice. Ask them to narrate each borrow before writing.

PROFICIENT

- While the class finishes the Class Challenge, pose $6_2 - 3_8 = 234$ with two digits hidden and ask them to find the missing digits and explain why only those work.
- Ask them to write the rule for subtracting across a zero as if explaining it to a younger pupil who's never borrowed before — then read it aloud in the maths-talk.

✓ **Cross-curricular:** Tie to money — pupils work out change from €8.00 for a €3.47 item, meeting the same $800 - 347$ zero-cascade in a real till context.

ANSWER KEY

a) 356

b) 374

c) 454

Q1: 143 books

Q2: 233 crayons

Q3: 366 glue sticks

a) Always : We always start at the units and work left column by column.

b) Always : Renaming is required whenever the top digit is too small to subtract from.

c) Sometimes : True for $352 - 128$; false for $275 - 132$, which needs no renaming.

d) Sometimes : Only when the hundreds top digit is too small, which does not always happen.