

Subtracting decimals

CURRICULUM ALIGNMENT

NUM.OPS.4

build upon, select and make use of a range of operation strategies.

NUM.PVT.4

investigate how decimals and percentages (and fractions) can be compared, ordered and expressed in related terms.

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

WHAT THIS LESSON TEACHES

Before subtracting decimals, write the two numbers one above the other so the decimal points sit in a single vertical line. This keeps tenths above tenths and hundredths above hundredths.

→ $4.5 - 1.75$ is rewritten as 4.50 above 1.75 so every column matches.

→ 3.8 becomes 3.80 to give the hundredths column a partner under the 5 in 1.45.

MODEL THIS ON THE BOARD

BOARD WORK: $3.8 - 1.45$

- 1 Write **3.80** above **1.45** so the decimal points form one vertical line.
- 2 Hundredths: **0** cannot lose **5**, so regroup one tenth into ten hundredths, leaving **7** tenths and **10** hundredths.
- 3 Subtract: **$10 - 5 = 5$** hundredths, **$7 - 4 = 3$** tenths, **$3 - 1 = 2$** units.
- 4 The answer is **2.35** with the point still under the lined-up points.

LESSON ARC

Open with $4.5 - 1.75$ deliberately right-aligned on the IWB so the points don't line up — pupils spot the fault before you fix it. The worked examples pivot on one idea: regrouping a tenth into ten hundredths is the same ten-for-one trade pupils already know, just one place further right. Pupils set up three subtractions in their copy with trailing zeros and circled regroups. The Class Challenge bank rises in difficulty at the board.

TEACHING MOVES

1. **Getting Started.** Display $4.5 - 1.75$ with the digits RIGHT-aligned so the 5s sit under each other and the points do NOT line up — this misalignment is the whole question, so resist the urge to fix it. Take three hands-up answers only; you're fishing for 'the points aren't lined up' but don't confirm yet.
2. **Watch and Notice.** Walk all three examples one column at a time from the right. On $0.6 - 0.27$, pause before revealing and ask 'how many tenths are left on top?' — take two hands-up predictions, then reveal and check against them. Keep hammering the load-bearing line: making 4.5 into 4.50 gives the hundredths column a partner.
3. **Try It Together.** Send a pupil to write the trailing zero first ($3.8 \rightarrow 3.80$) before any subtracting. Step the algorithm column by column with the class calling out each borrow before it lands. Catch anyone right-aligning digits instead of points at the write-up stage — fix it before a single subtraction happens.
4. **Set Up and Subtract in Your Copy.** Walk the room glancing at two things only: are the points in one straight column, and did they add the trailing zeros? Don't mark or correct individually — just note who right-aligns digits so you can address it in the Class Challenge.

5. **Class Challenge.** Brisk turns at the board, checking each answer as the class confirms it. Before you check each one, get a prediction of where the trade will travel. On a miss, ask 'did the points line up? did we add every trailing zero?' before anything else — that's almost always the fault.
6. **What Did We Notice?.** Listen for pupils naming the ten-for-one trade as the constant. Revoice a strong answer: 'so the place value shrinks by a step each time, but ten-for-one never changes.' Head off any sense that decimals need a brand-new borrowing rule.

COMMON MISCONCEPTIONS

⚠ Pupils right-align the digits instead of the decimal points — they line the 5 of 4.5 under the 5 of 1.75 because that's how whole-number sums looked.

Catch this at the write-up stage on the column-subtraction interactive, before any subtracting. Show the two layouts side by side and ask which one keeps tenths above tenths. Insist the point column is drawn first, digits placed around it.

⚠ Pupils leave 4.5 as-is against 1.75 and try to subtract 5 hundredths from nothing, or write the hundredths digit of the answer as 5.

Stop and add the trailing zero out loud: '4.5 is 4.50 — a zero in the hundredths so it has a partner.' Rebuild in the place-value columns so the empty hundredths box is visibly a 0, then run the regroup.

⚠ Pupils freeze on $3.0 - 1.48$ or $10.0 - 4.55$ — a whole-number-looking top with a cascade of borrows across two decimal places.

Link it to the cascade they already meet taking one away from a whole hundred: same run of borrows, one place further right. Add both trailing zeros first, then step the trade tenths-then-hundredths on the interactive.

DIFFERENTIATION

EMERGING

- Give these pupils only the same-decimal-place sums ($2.4 - 1.36$ style where the top already has the shorter tail) and have them write the point column with a ruler line before placing any digit.
- Stay on the place-value columns for their copybook work so the empty hundredths box is a visible 0 to fill, not an invisible gap to imagine.

DEVELOPING

- After the copybook page, hand them $7.25 - 3.9$ and ask them to explain which number needs the trailing zero and why — justify before subtracting.
- Give a missing-number variant: $5.6 - \text{???} = 3.85$. What was taken away?

PROFICIENT

- Pose $10.0 - 4.55$ and ask them to narrate the full cascade to the class as if teaching a younger pupil — every borrow named, from tenths right through hundredths.
- Ask: is there a decimal subtraction where you'd need to regroup twice in the same column? Let them hunt for one and explain why it can't happen.

✂ **Cross-curricular:** Tie to money — pupils work out change from €5.00 for a €1.65 item, laying it out as $5.00 - 1.65$ with the points lined up.

ANSWER KEY

Scaffold: visual check on the page

Q1: €2.30

Q2: €4.40

Q3: €2.50

Q4: €2.75

a) Always : Lining the points up keeps every place value in its correct column.

b) Sometimes : You add a zero only when one number has fewer decimal places than the other.

c) Always : The trade is identical; only the place value names change.

d) Never : Without lined-up points the tenths and hundredths land in the wrong columns.

EXTENSION SHEET · STRETCH ANSWERS

S1: 50.646

S2: 69.222

S3: 41.138

S4: €63.31

S5: €51.42