

Addition and subtraction of decimals to thousandths

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 Addition · display, explore

Column Subtraction · challenge, display

WHAT THIS LESSON TEACHES

When adding or subtracting decimals to thousandths, line up the decimal points so tenths, hundredths and thousandths match in columns.

→ $4 + 0.275$ lines up as $3.400 + 0.275$.

→ $2 - 3.485$ lines up as $7.200 - 3.485$.

MODEL THIS ON THE BOARD

LINE UP THE POINTS AND ADD

- 1 Write 5.6 as 5.600 to match 2.340.
- 2 **Align** the decimal points in a column.
- 3 Add from the thousandths column right to left.

LESSON ARC

Open with $3.4 + 0.275$ and five seconds of quiet think-time on what goes wrong if the last digits are right-aligned. Model four sums on the place-value-columns interactive, padding shorter decimals with trailing zeros before any carry or borrow. Pupils talk through $5.6 + 2.34$ at the board, then rewrite three lined-up sums in their copybooks. Class Challenge runs three subtractions, ending on a missing-number stretch. Student Activity Book practice carries the three-step habit: line up, fill zeros, work column by column.

TEACHING MOVES

1. **Getting Started.** Give five seconds of silent think-time on $3.4 + 0.275$ before hands go up. Take two or three answers without correcting — you want the right-align habit voiced out loud. Close with 'let's see what the columns tell us' and move straight into the model.
2. **Watch and Notice.** Work one sum at a time on the interactive; trailing zeros are the whole point, so do not rush. On $12.06 + 5.349$ pause when hundredths make ten and ask where the little 1 sits — above the tenths, not the units. On $8.5 - 3.726$ and $10.0 - 4.085$ narrate the borrow slowly across the padded zeros.
3. **Try It Together.** Call a pupil up for $5.6 + 2.34$. Insist the first move is line up the points and fill 5.6 to 5.60 — nobody starts adding until the columns are square. The class watches and calls out a missing zero. Watch where the answer's decimal point lands: directly under the points above.
4. **Line Them Up in Your Copy.** Walk the room glancing for two things only: decimal points stacked, and gaps filled with zeros. This is whole-class copybook practice, not marking — nudge crooked columns and keep moving.

5. **Class Challenge.** Keep the board work brisk: one pupil per sum, class checks, move on. Before $15.0 - 6.074$, have the class predict how the borrow will travel through the zeros. On the missing-number stretch, revoice it as $9.5 - 3.275$ and confirm the take-away really leaves 3.275 .
6. **What Did We Notice?.** Ask why a missing trailing zero changes the answer. Listen for a place-value reason — wrong digits end up in the same column — and revoice: 'so the zeros keep every column honest.' Head off any lingering right-align habit.

COMMON MISCONCEPTIONS

⚠ Pupils right-align the last digits the way they do with whole numbers, so in $3.4 + 0.275$ the 4 sits above the 5.

Leave the wrong layout on the board for a beat, then rebuild both numbers in place-value columns with the points stacked. Point to the empty hundredths and thousandths in 3.4 and fill them to 3.400 so the class sees which digits actually belong together.

⚠ When hundredths six and four make ten, pupils park the carried 1 above the units instead of the tenths.

Freeze on $12.06 + 5.349$. Trace the columns with a finger and ask 'which place is one step left of hundredths?' Confirm the little 1 sits above the tenths before anyone writes the next digit.

⚠ Pupils put the answer's decimal point wherever the digits seem to end, not directly under the lined-up points.

Draw a faint vertical line down through every decimal point on the board before the sum is finished. The answer's point must sit on that same line — no drifting left or right.

DIFFERENTIATION

EMERGING

- Keep early board turns on two-place decimals only (tenths and hundredths) so lining up and one trailing zero are the only new moves.
- On the copybook list, lightly rule the place-value columns in advance so the pupil only places digits and points, not the grid itself.

DEVELOPING

- After the copybook three, swap $4.7 + 0.265$ for $4.07 + 0.265$ and ask which columns changed and why the total shifted.
- On $9.2 - 4.137$, stop after the first borrow and ask the class to say the next column's value before it is written.

PROFICIENT

- During Class Challenge, extend the missing-number idea: find a decimal that subtracts from 12.0 to leave 4.086 , and justify the lining-up before calculating.
- If they finish the board set cleanly, send them into the Student Activity Book page early with the same three-step habit as the success check.

✓ **Cross-curricular:** Link to science measuring — add two lengths in cm to three decimal places (e.g. $12.4 \text{ cm} + 3.085 \text{ cm}$) using the line-up rule.

ANSWER KEY

a) $7.200 - 3.485$

b) $15.000 - 6.074$

c) $9.500 - 3.275$

Q1: 3.675 kg

Q2: 7.94 litres

Q3: 6.55

Q4: 4.743 kg

Q5: 8.926 euros

Q6: 6.225 litres

Spot: She lined up the last digits instead of the decimal points. Write $8.40 + 0.75$ and line up the points: ****9.15****.

EXTENSION SHEET · STRETCH ANSWERS

S1: 41.138

S2: 50.646

S3: 69.222

S4: 78.131

S5: 108.092