Lesson 19 NUMBER

Adding decimals — line up the points

CURRICULUM ALIGNMENT

NUM.OPS.4 build upon, select and make use of a range of operation strategies.

INTERACTIVES Column Addition · challenge, display, explore

WHAT THIS LESSON TEACHES

When adding or subtracting decimals, **line up the decimal points** so tenths sit under tenths, hundredths under hundredths.

→ **2.45 + 1.3** → write 1.3 as 1.30, line up: 2.45 + 1.30 = 3.75.

→ **8.7 − 2.95** → 8.70 − 2.95 = 5.75.

MODEL THIS ON THE BOARD

ADDING 8.45 + 1.3

$$\begin{array}{r} 8.45 \\ +\ 1.30 \\ \hline 9.75 \end{array}$$

1. Write 1.3 with a zero so both numbers have the same decimal places: **1.30**.
2. Line up the decimal points and add column by column.
3. Answer: **9.75**.

LESSON ARC

Open by writing 4.7 + 0.85 stacked the WRONG way — right edges aligned, 7 over 5 — and let pupils spot it. In Watch and Notice, re-stack with points under points and drop a trailing zero into 4.70. Pupils set three sums in the column-addition interactive, then mirror three in their copy with points in a straight vertical line. Class Challenge ladders from a clean tenths sum up to the 9.99-cascade carry.

TEACHING MOVES

1. **Getting Started.** Write 4.7 + 0.85 stacked so the right edges line up — 7 sitting over 5 — and take three hands-up answers, not call-outs. Listen for a pupil noticing the points don't match. Resist fixing it; that's the next step's whole job.
2. **Watch and Notice.** Point at the two decimal points first and say 'points under points' before touching any digit. On 0.3 + 0.27, ask the class where the trailing zero goes before you reveal it. On 9.99 + 0.01, pause before each column and ask 'what comes next?' so they predict the cascade of carries.
3. **Try It Together.** Let an individual pupil set each addend into the column-addition interactive and step the columns; the class agrees or corrects out loud. On 0.6 + 0.27 watch for pupils ignoring the empty hundredths — insist 0.6 becomes 0.60. Re-voice a strong answer: 'the point keeps everything lined up, the empty place just gets a zero.'
4. **Set Up Each Sum in Your Copy.** Walk the room checking two things only: are the decimal points in a straight vertical line, and have the trailing zeros gone in? No marking — glance, prompt, move on.

5. **Class Challenge.** Keep the board brisk — pupils take turns, the class confirms each answer before the next sum appears. When someone writes 9.104 for 9.99 + 0.05, don't re-teach: point back at the trailing-zero set-up and have them recount the hundredths column.
6. **What Did We Notice?.** Push for the word 'decimal point' as the thing that keeps tenths over tenths. If a pupil argues for lining up edges, pull back the wrong-way 4.7 + 0.85 from the start and let the class watch the tenths land in the hundredths column.

COMMON MISCONCEPTIONS

⚠ Pupils line up the right-hand edges instead of the points, so 4.7 + 0.85 puts the 7 over the 5 and the tenths fall into the hundredths column.

Stack it both ways side by side on the IWB. With edges aligned, point at where the 7 has landed and ask 'is seven tenths the same as seven hundredths?' Then re-stack with points under points so the columns match like-for-like.

⚠ Pupils skip the empty decimal place entirely — adding 0.6 + 0.27 they leave the tenths column with nothing to pair the 7 against and write a muddled answer.

Stop and insist 0.6 is rewritten as 0.60. Say 'the empty place isn't nothing — it's zero hundredths', and have the pupil write the placeholder zero before adding the column.

⚠ Pupils forget to carry across the cascade in 9.99 + 0.05 and write 9.104.

Step the columns one at a time from the right, asking 'is this column ten or more?' at each. Let the class watch the hundredths regroup, then the tenths, then the units roll over to make 10.04.

DIFFERENTIATION

EMERGING

- Pre-write the column lines with the decimal points already marked in a vertical strip so pupils only place digits, not invent the alignment.
- Stay on tenths-only sums (0.4 + 0.3) in the copybook while the class moves to mixed tenths-and-hundredths.

DEVELOPING

- After the copybook sums, give one with three addends (1.2 + 0.45 + 0.3) — the points still line up, but now two placeholder zeros are needed.
- Pose a missing-number sum: 4.7 + ?.?? = 5.55. What did we add, and how do you know?

PROFICIENT

- During Class Challenge, hand fast finishers a teacher-narrated harder variant: a sum that cascades twice, like 7.95 + 2.06, and ask them to predict every carry before the class confirms it.
- Ask: 'explain to someone in a younger class why we line up points and not edges — what one sentence would you tell them?'

Cross-curricular: Tie to money — pupils add two shop prices in euro (€3.70 + €0.85) and see the trailing zero is just the way we already write cents.

ANSWER KEY

a) 4.70 + 0.85 = **5.55**.

b) 0.30 + 0.27 = **0.57**.

c) 1.050 + 2.345 = **3.395**.

d) 9.99 + 0.01 = **10.00**.

Q1: 127.13

Q2: 39.55

Spot: Aoife lined up the right-hand digits instead of the decimal points — she effectively added 8.45 + 0.13 = 8.58. The correct sum is 8.45 + 1.30 = 9.75.

EXTENSION SHEET · STRETCH ANSWERS

S1: 108.092

S2: 109.97

S3: 82.98

S4: 99.16