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 with the wrongly-aligned 4.7 + 0.85 already on the IWB — pupils diagnose the wandering decimal points before any rule lands. Walk four worked examples on the column-addition interactive, pivoting on 'the decimal point is the anchor, not the right edge'. Pupils mirror three sums in copybook with you, including the 9.99 + 0.01 cascade. Class Challenge bank of five sums runs at the board with pupils checking as they go.

TEACHING MOVES

1. **Getting Started.** Take three hands-up answers on the broken sum — not open call-out. You're listening for a pupil to name that the points don't sit in a line, or that the 7 and 8 are both tenths but the 5 has nothing above it. If they only say 'it looks wrong', revoice: 'point at the part that's wrong'. Do not state the rule yet.
2. **Watch and Notice.** Walk all four examples slowly, pausing each time to ask 'where does the decimal point go?' before any digit lands. After Example 2, have the class read the rule aloud: 'line up the points, fill empty columns with zeros, then add.' On Example 4 (9.99 + 0.01), let the carry ripple visibly across the screen and stress that the answer is 10.00, not 10.
3. **Try It Together.** Send one pupil to the board per problem. On 6.4 + 2.85, drive column-by-column: hundredths 0 + 5, tenths 4 + 8 carry 1, units 6 + 2 + 1. If a pupil at the board aligns by the right edge, don't correct — ask the class 'what's missing?' and let another pupil revoice the rule.
4. **Line Up the Points in Your Copy.** Give one minute for vertical set-up (points only, no adding), then work each column with the class — pupils write a digit, then wait. Walk the room watching for crooked points

and missing trailing zeros. Tap the desk of any pupil whose alignment wanders; do not say the rule for them. Quietly ask 'what holds that column?' if a hundredths place sits empty.

5. **Class Challenge.** Different pupil per problem. Before they tap Check, ask the class to predict the unit digit of the answer — that catches lazy carrying. Pause on Problem 5 (6.99 + 0.01) to let the cascade ripple and confirm the answer reads 7.00, not 7. If a check fails, ask 'which column went wrong?' — let the pupil re-walk it. Route fast finishers to the extension bank on a device.
6. **What Did We Notice?.** Display-only — nobody writes. Listen for the place-value reason: the 7 in 4.7 is tenths, the 5 in 0.85 is hundredths. Revoice: 'tenths add with tenths — the point keeps the columns honest.' Acknowledge pupils who say the right-edge layout 'looked right' — that intuition came from whole-number addition, where the right edge IS the units column.

COMMON MISCONCEPTIONS

⚠ Pupils line up 4.7 + 0.85 by the right edge — the 7 sits over the 5, the 4 sits over the 8, and the decimal points wander out of line.

Don't correct it yourself. Put the broken sum on the IWB and ask 'what's the 7 worth? what's the 5 worth?' until the class names tenths and hundredths. Then rebuild with points aligned and the trailing zero on 4.70 so the hundredths column has something above the 5.

⚠ On 9.99 + 0.01, pupils write the answer as 10 — they drop the trailing zeros because '10.00 is the same as 10'.

Agree the values are equal, then push on precision: 'we measured to hundredths — the answer has to show hundredths too.' Run the cascade once more on the interactive and have the class read aloud '10.00' as 'ten point zero zero', not 'ten'.

⚠ When one addend has fewer decimal places (e.g. 0.7 + 0.567), pupils leave the empty columns blank and add only where both digits exist.

Stop and ask 'what holds the hundredths column on 0.7?' Have the pupil write 0.700 in their copy and reread the rule: line up the points, fill empty columns with zeros, then add. Avoid telling — let them name the zero.

DIFFERENTIATION

EMERGING

- Pre-write the decimal points in the copybook with a faint dot so pupils only need to place digits around the anchor, not invent the alignment.
- Stay on two-place sums (4.7 + 0.85, 3.6 + 1.85) during the copybook moment — the thousandths-place sum is teacher-supported.

DEVELOPING

- After the copybook, swap the digits: change 9.99 + 0.01 to 9.99 + 0.02 and ask which columns still cascade and which don't.
- Pose a missing-addend variant: 2.85 + ? = 5.00. Pupils work backwards using the same column rule.

PROFICIENT

- Direct fast finishers to the extension bank on their device while you circulate the room.
- Pose: 'can you write three different decimal sums that all cascade all the way to a whole number?' Pupils explain in copybook why each one tips over.

Cross-curricular: Tie to PE — pupils time two short sprints to the nearest hundredth of a second on the stopwatch and add the two times for a total.

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: 82.98

Q2: 127.13

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: 99.16