

Comparing two decimals

CURRICULUM ALIGNMENT

NUM.PVT.4

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

INTERACTIVES **Number Line** · challenge, display, explore

WHAT THIS LESSON TEACHES

To decide which of two decimals is bigger, line up the decimal points and compare the digits from the left. The first place where the digits differ decides the winner.

→ 0.6 vs 0.45: tenths digit 6 beats 4, so 0.6 is bigger.

→ 0.5 = 0.50 because trailing zeros after the decimal do not change the value.

MODEL THIS ON THE BOARD

COMPARING LAP DISTANCES

- 1 Write the pair with points lined up: 0.6 above 0.45.
- 2 Look at the tenths place first: **6** is greater than **4**.
- 3 Stop there – 0.6 is the bigger decimal even though it looks shorter.

LESSON ARC

Open with two runners — 0.6 vs 0.45 of a lap — and bank a deliberate split-vote before settling anything. Move to the number-line interactive and place both markers on one 0-to-1 line: further right wins, and 0.6 sits past 0.45. Work four pairs together at the board, then pupils line up decimal points in copybook with $< = >$ signs. Class Challenge builds to placing a decimal between 0.4 and 0.45. Ordering a full set is next.

TEACHING MOVES

1. **Getting Started.** Write 0.6 and 0.45 side by side and take three hands-up answers, not call-outs. Expect and welcome the 'longer must be bigger' vote — write both answers up and say 'we'll settle this by the end.' Do not correct it yet; the whole lesson turns on this split.
2. **Watch and Notice.** On the number-line interactive, let the class predict where each marker lands before you reveal it. Pause hardest on 1.34 vs 1.4 — the pay-off where longer loses — and on 0.5 vs 0.50, where both markers land on the exact same point. Say the equals sign out loud.
3. **Try It Together.** Call each pair, invite one pupil up to drag both markers, and have the whole class chant 'further right wins' before reading the answer. Reset to one pair at a time. Milk 0.65 vs 0.6 — longer wins here, but only because the hundredths say so, not because it's longer.
4. **Line Them Up in Your Copy.** Walk the room glancing for genuinely straight decimal-point columns and correct sign direction. Watch the 0.9 / 0.90 pair specifically — pupils should write '=' and circle neither. This is practice, not marking; don't stop to tick.
5. **Class Challenge.** Brisk turns at the board — read the labelled ticks under each zoomed line before dragging, place the answer, class confirms, move on. Let the 0.08 vs 0.080 pair land as a discovery ('they're equal!') rather than pre-announcing it. Don't re-teach each one.

6. What Did We Notice?. Pose the other-class pupil's claim and listen for the real rule in pupils' own words: compare from the left, first differing place decides. Revoice a strong one — 'so the number of digits doesn't tell us the size, the place value does' — and point back at 0.6 sitting further right than 0.45.

COMMON MISCONCEPTIONS

⚠ Pupils say 0.45 is bigger than 0.6 'because it has more digits' — they read decimal length like whole-number length, where more digits does mean bigger.

Don't argue it — settle it on the number line. Drag both markers onto one 0-to-1 line; 0.6 visibly sits further right. Then rewrite 0.6 as 0.60 and compare 60 hundredths against 45 hundredths so the digits and the picture agree.

⚠ Pupils treat 0.9 and 0.90 (or 0.08 and 0.080) as different numbers, expecting the longer one to be slightly bigger.

Place both markers on the interactive — they land on the identical point. Say the equals sign aloud and have pupils write '=' and circle neither in copybook. A trailing zero adds zero of the next-smaller place, so it changes nothing.

⚠ When the tenths tie (0.65 vs 0.6), pupils stall or guess instead of moving to the next place.

On the board, name the tenths: both 6, so they tie. 'When a place ties, we move right to the next place.' Compare hundredths — 5 beats 0 — so 0.65 wins. Stress it wins on place value, not on length.

DIFFERENTIATION

EMERGING

- Rewrite every pair to the same number of decimal places first (0.6 becomes 0.60) so pupils compare equal-length numbers and count hundredths on the line.
- Stay on tenths-only pairs (0.3 vs 0.7) at the board while the class moves to hundredths; pupils mirror those in copybook.

DEVELOPING

- After the copybook page, hand pupils a pair where tenths AND hundredths tie but thousandths differ (0.451 vs 0.45) — which place finally decides?
- Ask pupils to write three different decimals, all smaller than 0.5, and justify the order using the first-differing-place rule.

PROFICIENT

- On the Class Challenge 'between 0.4 and 0.45' task, ask for the decimal exactly halfway (0.425) and how they know it sits in the middle.
- Pose: is there a smallest decimal bigger than 0.4? Let them argue it out — there isn't, and explaining why stretches into thousandths and beyond.

✚ **Cross-curricular:** Tie to PE — pupils record fractions of a lap run as decimals (0.6, 0.45) and rank the class from furthest to shortest on the yard.

ANSWER KEY

Scaffold: visual check on the page

Q1: <

Q2: 0.9

Q3: <

Q4: <

Q5: 0.8

a) Always : The tenths digit 6 is greater than 4 so 0.6 wins.

b) Never : Extra digits on the right can be smaller, as 0.45 is less than 0.6.

c) Always : Trailing zeros after the decimal point do not change the value.

d) Never : 0.06 is six hundredths; 0.6 is six tenths, which is larger.

EXTENSION SHEET · STRETCH ANSWERS

S1: 2.88 < 4.03 < 7.02 < 7.13

S2: 6.26 < 6.89 < 7.753 < 9.4