

Linking simple fractions and decimals

CURRICULUM ALIGNMENT

NUM.FRC.3a

compare and express in equivalent terms; and order fractions.

NUM.PVT.3

explore equivalent numerical expressions of numbers using the base ten system.

INTERACTIVES **Fraction Strips · challenge, display**

WHAT THIS LESSON TEACHES

A fraction and a decimal can be two names for exactly the same amount. On a strip split into ten or a hundred equal parts, the shaded fraction reads off as its matching decimal.

→ one half = 0.5 (5 of 10 parts shaded)

→ one quarter = 0.25 (25 of 100 parts shaded)

MODEL THIS ON THE BOARD

NAMING THREE TENTHS AS A DECIMAL

- 1 The strip is split into **10** equal parts.
- 2 Three parts are shaded, so the fraction is **3/10**.
- 3 Three tenths is the same as the decimal **0.3**.



3/10

DISCUSSION STARTER

REFLECT

Which fraction-decimal twin do you find easiest to remember, and why?

LESSON ARC

Open with a €0.50 shelf tag beside a half-shaded bar and pull out both names — 'one half' and 'zero point five'. Narrate the tenths strips (half, then 0.1, 0.3), then switch to the hundredths strip for the make-or-break quarter — count all twenty-five parts aloud. Pupils take turns shading and reading both names at the board, write three matching pairs in copybook, then work the Class Challenge from tidy tenths up to three quarters as 0.75.

TEACHING MOVES

1. **Getting Started.** Display the €0.50 tag next to a half-shaded bar as pupils settle. Take three hands-up answers, not call-outs. If only one name comes up, revoice: 'so it has two names — a fraction name and a decimal name.'
2. **Watch and Notice.** Walk each strip aloud, one at a time — the narration is the teaching, so don't rush. On the quarter, let the tenths pattern settle first, take a 'more or less than a tenth?' prediction, then point along all twenty-five hundredths so pupils SEE why a quarter needs two places. Tie it straight to 25c.
3. **Try It Together.** Rotate four pupils at the board. Each shades the strip and reads BOTH names — fraction and decimal — before the class confirms. Switch to the hundredths strip for the quarter so the picture matches, and revoice: 'a quarter isn't a tidy number of tenths, so it lands on twenty-five hundredths, 0.25.'

4. **Write the Matching Pairs in Your Copy.** Pupils write the three pairs one under the other, then draw and shade one check bar. Walk the room glancing for the quarter written as 0.2 or 0.5 — if you spot it, send that pupil back to shade and recount their bar.
5. **Class Challenge.** Keep the board work brisk — pupils shade to match the decimal card and the class confirms before moving on. Before the three-quarters card, ask the whole class to predict the decimal, then check. Don't re-teach each one; this is consolidation.
6. **What Did We Notice?** Steer talk to shopping — listen for quarter linked to 25c and half to 50c. Revoice a strong answer: 'at the till the price is a decimal, but in your head a quarter of a euro can be quicker.'

COMMON MISCONCEPTIONS

⚠ Pupils write one quarter as 0.2 — they treat 'a quarter' as if it were 'a tenth-and-a-bit' or read the 25 as one place.

Switch to the hundredths strip and count along all twenty-five shaded parts aloud with the class: twenty-five hundredths. Contrast side by side with the 0.5 half-strip so pupils see a quarter needs the second place.

⚠ Pupils say 0.25 is bigger than 0.5 because '25 is more than 5' — more digits looks like more.

Put the quarter-shaded hundredths strip directly under the half-shaded strip so the shaded lengths line up. The half is visibly longer. Revoice: 'more digits after the point does not mean a bigger amount.'

⚠ Asked to shade three quarters, pupils shade only three parts.

Stop and rebuild on the hundredths strip — three quarters is seventy-five of a hundred parts, 0.75. Count in twenty-fives with the class so the seventy-five is built from three quarter-blocks.

DIFFERENTIATION

EMERGING

- Keep these pupils on the tenths strips only (half, 0.1, 0.3) while the class moves to hundredths; the quarter is teacher-supported at your table.
- In copybook, have them write just the two tenths pairs (one half = 0.5, three tenths = 0.3) and draw both check bars before attempting the quarter.

DEVELOPING

- After the copybook pairs, ask them to add three quarters = 0.75 and two tenths = 0.2 to the list and shade a check bar for each.
- Pose: which is bigger, 0.3 or one quarter? Have them shade both on the same-scale strip to justify.

PROFICIENT

- As a fast-finisher stretch at the board, ask them to name the decimal twin for one fifth and explain — using the hundredths strip — why it lands on 0.2, or pull them ahead into the Student Activity Book page.
- Pose: 'find a fraction whose decimal twin sits between 0.5 and 0.75, and prove it with a shaded strip.'

✚ **Cross-curricular:** Tie to money and everyday shopping — pupils write coin amounts as both fractions of a euro and decimals (25c = one quarter = €0.25).

ANSWER KEY

a) $\frac{1}{2}$

b) $\frac{3}{10}$

c) $\frac{1}{4}$

Q1: 0.75

Q2: 0.7

Q3: 0.7

Q4: 0.8

Q5: 0.75

Q6: 0.1

Spot: Oisín used the 4 from the denominator as a tenth. One quarter is 0.25, not 0.4 (0.4 is four tenths).

EXTENSION SHEET · STRETCH ANSWERS

S1: $\frac{21}{24} = \frac{7}{8}$

S2: $4.58 = 4 + 0.5 + 0.08$

S3: $2.34 = 2 + 0.3 + 0.04$

S4: $\frac{12}{15} = \frac{4}{5}$

S5: $36/40 = 9/10$

Investigation: Fraction-decimal twins — open-ended; scan pupils' working for valid solution paths rather than a single answer.