

Fractions and decimals in money and measure

CURRICULUM ALIGNMENT

NUM.FRC.3a

compare and express in equivalent terms; and order fractions.

MEA.MON.3

transfer knowledge of the base ten system in number to monetary contexts and use for purposes of calculation.

MEA.MSR.3b

identify the relationship between equivalent units of measurement, and rename measures using equivalent units.

INTERACTIVES

Coin Counter · challenge, display

Word Problem · challenge

WHAT THIS LESSON TEACHES

One euro is one whole, split into 100 equal cent. The two digits after the point in a price count the cent, and each cent is one hundredth of a euro. It works the same way for measures.

→ €0.50 is fifty of the 100 cent in a euro, which is one half of a euro.

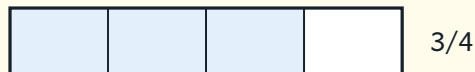
→ €0.25 is 25 of 100 cent, which is one quarter of a euro.

→ 0.5 m is half a metre, which is fifty centimetres.

MODEL THIS ON THE BOARD

READING €0.75 TWO WAYS

- Look at the digits after the point: **75**. These are the cent.
- There are **100** cent in one euro, so €0.75 is **75** out of **100** cent.
- $€0.75 = 75/100 = 3/4$, three quarters of a euro (see the strip).



DISCUSSION STARTER

REFLECT

Where do you meet decimals most — in money, in length, or somewhere else?

LESSON ARC

Open with two shop prices on the IWB and get pupils naming what the digits after the point count. Bring up the coin trays and read €1.50, €0.25, €2.75 two ways — decimal, then fraction of a euro — carrying a fraction wall beside the €0.25 tray so 'a quarter' is visible. Fold the real one-metre length in half to lock the cent/centimetre parallel. Pupils build amounts at the board, then pair each with its fraction in their copy.

TEACHING MOVES

- Getting Started.** Display €1.20 and €2.50 side by side while pupils settle and take three hands-up answers only. Fish just for 'the digits are the cent' — resist naming them as hundredths yet, that's the next step's job.
- Watch and Notice.** The €0.25 coins on screen don't look like a quarter, so keep the fraction wall beside the tray and point to the one-quarter piece as you say 'twenty-five of the hundred cent is one quarter.' Take the prediction 'if a quarter is 25c, half will be...?' then hold up the metre length, fold it in half, and say 'half is fifty centimetres — the same way €0.50 is half a euro.'

3. **Try It Together.** Before each pupil drags coins, ask the watching rows 'which coins will we need, and how many?' and take two answers so they stay in it. Watch €3.05 — pupils read 'three-fifty' and drop the zero; say 'three euro and five cent' aloud before checking. Rotate four pupils.
4. **Write the Amount in Your Copy.** Walk the room while pupils pair €0.50 with a half, €0.25 with a quarter, and 0.5 m with fifty centimetres. Glance for the 0.5 m match specifically — that's the pairing pupils forget. This is practice, not marking.
5. **Class Challenge.** Keep the board brisk — pupils solve, class checks, move on. For the change, count on aloud from €3.50 up to €5; for 0.3 m, revoice 'each tenth of a metre is 10 centimetres, so three tenths is 30 centimetres.'
6. **What Did We Notice?.** Listen for pupils naming that the part after the point is always a fraction of one whole — one euro, one metre, one kilogram. Revoice a strong answer linking 50 cent to 50 centimetres, and head off 'more digits means more.'

COMMON MISCONCEPTIONS

⚠ Pupils read €3.05 as 'three euro fifty' — they drop the zero and treat the 5 as tens of cent.

Before checking on the tray, say 'three euro and five cent' aloud together, then count the coins so the class sees only five single cent, not fifty. Point out the zero is holding the tens-of-cent place empty.

⚠ Pupils insist €0.25 can't be a quarter because 'twenty-five is a big number and a quarter is small.'

Keep the fraction wall beside the €0.25 tray and point to the one-quarter piece: twenty-five out of the hundred cent in a euro. Same amount, two names — twenty-five cent counts the parts, one quarter names the share.

⚠ Pupils think more digits after the point means a bigger amount (so €0.50 seems 'less than' something with more figures).

Put €0.50 and €0.5 m side by side and fold the metre length to show both land on half. The digits count a fraction of one whole — it's the size of the whole and the place of the digit that matter, not how many digits.

DIFFERENTIATION

EMERGING

- Stay with the three tidy amounts only — 50c, 25c, 75c — and keep the fraction wall on screen so pupils can point to the matching piece before naming it.
- In the copy, let these pupils draw the coins beside each amount rather than writing the fraction abstractly first.

DEVELOPING

- After the copy work, ask pupils to write 10c as a fraction of a euro (one tenth) and check it against a tenth on the fraction wall.
- Give a two-step board variant: €1.75 read as a decimal, then as 'one and three quarters of a euro.'

PROFICIENT

- During the Class Challenge, hand fast finishers a teacher-narrated harder variant: 'find the change from €10 for a €6.25 book, and say the change as a fraction of a euro.'
- Ask: 'is 0.7 m closer to a half or a whole metre? Explain how you know without a ruler' — pair with a copybook moment.

✂ **Cross-curricular:** Tie to the measures work ahead — pupils read a food label's weight (e.g. 0.5 kg) and say it as half a kilogram, same hundredths idea as cent and centimetres.

ANSWER KEY

a) 50 c

Q1: $\frac{1}{2}$

b) 75 c

Q2: $\frac{7}{10}$

EXTENSION SHEET · STRETCH ANSWERS

S1: €1.60 (write both as cent: 160 cent vs 138 cent)

S4: €2.46 (write both as cent: 180 cent vs 246 cent)

S2: €4.20 (write both as cent: 420 cent vs 414 cent)

S5: €1.70 (write both as cent: 170 cent vs 56 cent)

S3: €1.60 (write both as cent: 160 cent vs 149 cent)

Investigation: Pocket-money price list — open-ended;
scan pupils' working for valid solution paths rather
than a single answer.