

Time and money problem-solving review

CURRICULUM ALIGNMENT

MEA.TIM.3b

identify the relationship between different units and representations of time.

MEA.MON.3

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

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

INTERACTIVES

Word Problem · challenge, display

Coin Counter · challenge

WHAT THIS LESSON TEACHES

In a two-step problem you must work out one thing first before you can find the final answer. Keep the time step and the money step separate: do not mix minutes with euro.

→ A journey from 9:30 to 10:15 lasts 45 minutes.

→ Two snacks cost $\text{EUR}1.50 + \text{EUR}0.80 = \text{EUR}2.30$, so the change from EUR5 is EUR2.70.

MODEL THIS ON THE BOARD

BUS TRIP: TIME THEN CHANGE

- 1 The bus leaves at **14:20** (that is **2:20** p.m.). Add the **40-minute** journey: $2:20 + 40 \text{ min} = \mathbf{3:00}$ p.m.
- 2 A snack costs **€1.50**. You pay with **€2**.
- 3 $\text{€}2.00 - \text{€}1.50 = \mathbf{\text{€}0.50}$ change.



DISCUSSION STARTER

REFLECT

In a mixed time-and-money problem, which part do you tackle first?

LESSON ARC

Open with a Cork day-out scenario — pupils name which step comes first before solving anything. In Watch and Notice, work four board problems aloud, naming each as a time or money step and modelling $16:20$ minus 12 to read 4:20 p.m. Pupils lay coins on the tray for four amounts, then solve one labelled two-step problem in their copy. Class Challenge steps up to a 24-hour arrival time; the maths-talk wrap fixes on why two-step problems need working in order.

TEACHING MOVES

1. **Getting Started.** Take three hands-up answers, not open call-outs. Don't solve anything — you're just getting pupils to notice a real day mixes time and money maths at once. Ask 'what would you need to work out first?' and leave it hanging.
2. **Watch and Notice.** Before you solve each of the four problems, get the class to predict the step type out loud — 'time step or money step?'. Hold out for pupils to flag the two-step ones (add both snacks, THEN find change). On 16:20, show the take-away-12 move slowly to read it as 4:20 p.m.

3. **Try It Together.** Pupils take turns building each amount on the coin-counter tray, larger coins first, saying the amount aloud before they build. Keep €2.30, €2.70 and €3.50 brisk to save time for €4.99 — the small coins catch people out. Reconcile disagreements by reading the running total aloud.
4. **Work It in Your Copy.** Walk the room glancing for the two labels — Time: and Money: — with working under each. Nudge anyone who jumped to a final answer to show the first step. If a pupil chose the bus problem, check they wrote the full 24-hour time (15:00), not just the hour.
5. **Class Challenge.** Brisk practice round — pupils take turns at the board, the class confirms each answer before moving on. On the last one, hold out for pupils to count on the 40 minutes first (14:20 to 15:00), then read it back as 3 p.m. by taking 12 from 15. Don't re-explain each problem.
6. **What Did We Notice?.** Display-only talk. Listen for pupils naming the two-step problems as the ones that took most thinking, and revoice a strong answer: 'so you couldn't find the change until you knew the total.' Head off the idea that time and money live in separate boxes.

COMMON MISCONCEPTIONS

⚠ Pupils read the 24-hour bus screen straight off — '16:20 is sixteen o'clock' — and can't connect it to an afternoon clock time.

Pause on the board and write the subtraction openly: 16 take away 12 is 4, so 4:20 p.m. Show it on the clock face — the same afternoon position, two ways of writing it. Have the pupil read it back both ways.

⚠ On a two-step problem, pupils jump to the last number they read — for the change question they subtract only one snack price from €5, skipping the total.

Stop and ask 'what do we need before we can find the change?' Get them to write the Money: total first on the board, then the change underneath. The labelled two-step layout makes the missing step obvious.

⚠ When counting elapsed time, pupils count the finishing minute or the starting minute twice — 9:30 to 10:15 comes out as 46 or 44 minutes.

Model counting on in two hops on the clock face: 9:30 up to 10:00 is 30, then 10:00 to 10:15 is 15, total 45. Say each hop aloud so the class hears the two chunks.

DIFFERENTIATION

EMERGING

- Give these pupils only the single-step problems on the board (one snack total, one change) before the two-step ones, so they practise naming the step type without holding two answers at once.
- On the coin tray, pre-place the euro coins for €4.99 so the pupil only builds the 99c with small coins.

DEVELOPING

- After their copybook problem, ask them to write the arrival time in both forms — 15:00 and 3:00 p.m. — and note which the bus screen would show.
- Swap the €5 in the change problem for €10 and ask whether the change step changes or just the number.

PROFICIENT

- Narrate a three-step variant at the board for fast finishers: two snacks plus a €3.50 ticket, change from €10, and the bus home at 17:05 — how long until it leaves if it's now 16:20? Ask them to justify the order they solved it in.

✓ **Cross-curricular:** Tie to Geography — plan a real bus journey between two Irish towns using an actual timetable and work out the elapsed time from the 24-hour times shown.

ANSWER KEY

Scaffold: visual check on the page

Q1: 2:30

Q2: €2.10

Q3: 45 min

Q4: €2.40 total, €2.60 change

EXTENSION SHEET · STRETCH ANSWERS

S1: €4.90 (€4.09 = 409 cent; €4.90 = 490 cent)

S2: €40.49

S3: €1.40

S4: €2.35

S5: €1.50 (€1.50 = 150 cent; €1.05 = 105 cent)