TEACHER RESOURCE BOOK · MATHS FOR 6TH CLASS

Lesson 69 MEASURES

Time and money problem-solving review

CURRICULUM ALIGNMENT

MEA.TIM.4 solve and pose practical tasks and problems involving the interpretation and calculation of time.

MEA.MON.4 solve and pose practical tasks to investigate and make informed judgements about transactions and financial plans.

NUM.OPS.4 build upon, select and make use of a range of operation strategies.

INTERACTIVES

Timetable Reader · display, explore

WHAT THIS LESSON TEACHES

Solve chained clues where a time answer leads to a money calculation using Irish train routes and ticket prices.

→ Train leaves at 15:40 and takes 1 hour 50 minutes.

→ €18 ticket with 20 percent off if before 12:00.

MODEL THIS ON THE BOARD

CHAINED CLUE SOLUTION

1. Add the journey time to the departure to find arrival.
2. Check if arrival is before the cutoff time for discount.
3. Calculate the discounted price and any change.

DISCUSSION STARTER

REFLECT Which do you find easier to keep track of — time or money? Why?

LESSON ARC

Put the example timetable and the €18 ticket card side by side on the board and read off the 09:00 service. Model the count-up (07:00 on to 09:00, then 35 min) so pupils confirm the journey rather than subtract digits. The worked example pivots on one move: the arrival time from clue one decides whether the 20% early-bird fare applies in clue two. Pupils then chain time-then-money clues in their copybook before the five-clue Class Challenge.

TEACHING MOVES

1. **Getting Started.** Give five seconds of quiet think-time, then take three hands-up answers — not open call-outs. Listen for who counts up (09:00 on to 11:00, then 35 min to 11:35) versus who tries to subtract the digits; flag the count-up as today's safe route.
2. **Watch and Notice.** Point to the depart cell then the arrive cell as the class reads them, and model the count-up on screen. Do NOT say the ticket-clue answer before the class works it — hold out and ask 'which number carries forward?' Say the carry-forward move aloud once: the arrival time from clue one is what tells us whether the early-bird fare applies.
3. **Try It Together.** Pupils take turns tapping the depart and arrive cells for the 09:00 service; the class reads 11:35 and counts up to confirm 2h 35m. Point to the card — 11:35 is before 12:00, so 20% off — then move to the money: 20% of €18 is €3.60, fare €14.40, change from €20 is €5.60. Hold each pupil to naming which earlier answer they are feeding in.

4. **Work Each Clue in Your Copy.** Walk the room glancing for whether each pupil carried the right number forward. The commonest slip is starting clue two from the €18 marked price instead of from the arrival-time decision — catch that at the desk, not at the board. No individual marking.
5. **Class Challenge.** Brisk practice management: run clues 1–4 quickly with pupils taking turns at the board and the class confirming each answer before moving on. Save your working time for clue 5, which chains a time result back to the clue-1 arrival. Revoice 'which number carries forward?' at every step.
6. **What Did We Notice?.** Listen for pupils naming the carry-forward idea — a number you can only find once you know an earlier one has to come first. Revoice a strong answer: 'so the arrival time had to come first, because it decided which price we used.' Head off the notion that time always comes before money.

COMMON MISCONCEPTIONS

⚠ A pupil finds the fare and change correctly but starts clue two from the €18 marked price, ignoring that the arrival time is what triggered the 20% off.

Stop them and ask 'why is 20% off allowed here?' Make them point back to the 11:35 arrival against the 12:00 card before touching the money. Draw the short line between clues in the copybook so the passed-on number is visible.

⚠ Pupils subtract the times digit by digit — 11:35 minus 09:00 — and get muddled when minutes don't line up neatly.

Rebuild it as a count-up on the timetable: 09:00 on to 11:00 is two hours, then 35 minutes more to 11:35. Frame counting-up as the safe route whenever a time problem appears today.

⚠ In the challenge, a pupil solves each clue correctly but feeds the wrong earlier answer into clue 5.

Before clue 5, ask 'which of our answers so far does this clue need?' and have them say it aloud. Point to the clue-1 arrival on the board so the correct number is in front of them, not remembered.

DIFFERENTIATION

EMERGING

- Give these pupils the arrival time already read off the timetable so they only work the money half of the chain.
- Have them draw and label the between-clue line in copybook first, writing the carried number on it before doing any calculation — the structure before the arithmetic.

DEVELOPING

- After the copybook page, change the discount from 20% to 15% and ask whether the change from €20 is bigger or smaller, and why.
- Pose it backwards: the change was €5.60 from €20 — what was the fare, and what was the discount off €18?

PROFICIENT

- During the Class Challenge, hand these pupils a teacher-narrated harder clue 5 variant: a return journey where they must add two elapsed times before checking the arrival against the card.
- Ask them to write a two-clue chain of their own where money must be worked out before time — then explain to the class why the order flips.

↗ **Cross-curricular:** Tie to Geography — pupils use a real Irish Rail Cork–Dublin timetable to plan a day trip, reading actual departure and arrival times.

ANSWER KEY

a) 18:40

b) €3.60

c) €5.60

Q1: 17:30

Q2: Yes

Q3: €5.60

a) Always — The cutoff time decides the price so arrival must be found first.

b) Always — 20 percent of 18 is always 3.60 so 18 minus 3.60 is always 14.40.

c) Sometimes — It depends on whether the discount was applied or not.

d) Never — The puzzle rule requires passing the number to the next clue.

EXTENSION SHEET · STRETCH ANSWERS

S1: €4.8 (write both as cent: 460 cent vs 480 cent)

S2: €1.6 (write both as cent: 160 cent vs 138 cent)

S3: €1.75 (write both as cent: 130 cent vs 175 cent)

S4: €4.90 (€4.09 = 409 cent; €4.90 = 490 cent)

S5: €3.80 (€3.80 = 380 cent; €3.08 = 308 cent)