

# 24-hour time

## CURRICULUM ALIGNMENT

MEA.TIM.4

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

INTERACTIVES [Analog Clock Builder · challenge, display, explore](#)

## LESSON ARC

Open with three Sunday fixture times on the IWB — 11:30, 14:00, 17:45 — and let pupils argue about what time 17:45 actually is. Walk through the take-away-12 rule on three clocks, then convert four match-day times together with one deliberate morning trap. Pupils build a two-column conversion table in their copybook. Class Challenge has four count-up elapsed-time problems, with the first modelled together before pupils rotate at the board.

## TEACHING MOVES

- Getting Started.** Write the three fixture times on the IWB and take hands for 17:45. Don't resolve it. If a pupil offers 'you take 12 away', revoice and bank the language — but don't write the rule yet. The unresolved 17:45 is what makes the next step land.
- Watch and Notice.** Say each time both ways aloud as you point: 'thirteen hundred, one o'clock in the afternoon'. After the third clock, write the rule on the side of the board and have the class read  $13 - 12 = 1$ ,  $18 - 12 = 6$ ,  $21 - 12 = 9$  aloud.
- Try It Together.** Walk the four examples in the order given — the 11:20 am trap is deliberately second so pupils don't pattern-lock on +12. When someone tries '23:20', revoice: 'morning times are already under 12, the rule doesn't apply'. Rotate four pupils across the four examples.
- Write the Times in Your Copy.** Walk the room scanning the circles. Every time except 09:15 should be circled. If a conversion is wrong, prompt with the rule ('take 12 off the hours') — don't supply the answer. Two minutes; don't let it stretch.
- Class Challenge.** Work the 07:30 + 1 h 45 m problem aloud first, narrating each landing: '07:30 plus 30 minutes is 08:00, then 1 hour to 09:00, then 15 more to 09:15'. Ask the class to name each landing as you go. Then rotate pupils at the board — keep it brisk, don't over-explain, the same bank reruns at home tonight.
- What Did We Notice?.** Listen for pupils naming the no-confusion reason rather than just 'it's shorter'. If they stall on the first question, push with the second: 'a 5 am match and a 5 pm match are twelve hours apart — that's a whole morning at the wrong pitch.'

## COMMON MISCONCEPTIONS

⚠ Pupils apply the take-away-12 rule to morning times — they convert 11:20 am to 23:20 because they think every conversion needs the +12 move.

Stop and point at the rule on the board: 'after midday'. Ask 'is 11:20 am before or after midday?' Rebuild on the analog clock — at 11:20 am the hour hand hasn't passed 12 yet, so the hours stay as they are. The rule only fires once we've crossed noon.

⚠ On the cross-noon elapsed-time problem (09:00 + 4 h 15 m), pupils count the hour hand round and write the answer as 1:15 or 1:15 pm instead of 13:15.

Praise the count-up — the time is right, the format is wrong. Point back at the rule on the side of the board and run it backwards: 'we want 24-hour, so 1 pm becomes  $1 + 12 = 13$ '. Have them write 13:15 underneath their 1:15.

⚠ On count-up problems, pupils add the hours and minutes separately and write  $13:45 + 2 \text{ h } 30 \text{ m}$  as  $15:75$ .

On the analog clock, count the 30 minutes from  $13:45$  in two steps — 15 minutes lands on  $14:00$ , then 15 minutes more lands on  $14:15$  — then add the 2 hours to reach  $16:15$ . The minute-count must pass through the next full hour, not pile up past 60.

## DIFFERENTIATION

### EMERGING

- Stay with on-the-hour 24-hour times only ( $13:00$ ,  $16:00$ ,  $19:00$ ) for the copybook table — drop the half-pasts and quarter-pasts until the +12 rule is secure.
- Pre-draw the two-column table headings on a sticky-note for pupils who lose time setting up the page.

### DEVELOPING

- After the copybook table, ask: which 12-hour times look the SAME in 24-hour form, and which look different? Have them mark a tick or a cross next to each row.
- Pose: a match starts at  $19:45$  and lasts  $1 \text{ h } 20 \text{ m}$  — what time does it finish, in both formats?

### PROFICIENT

- Pose: a flight leaves Dublin at  $22:30$  and lands in New York at  $01:15$  the next morning, local time. How long was the flight? (Don't tell them about time zones — let them notice the puzzle.) Pair with a copybook moment to write their reasoning.

↗ **Cross-curricular:** Tie to Geography — pupils read a real Irish Rail or Bus Éireann timetable for a route they know and convert two departure times to 12-hour.

## ANSWER KEY

a)  $2:30 \text{ PM} = **14:30**$ .

b)  $9:15 \text{ AM} = **09:15**$ .

c)  $8:45 \text{ PM} = **20:45**$ .

d)  $11:30 \text{ PM} = **23:30**$ .

e)  $12:05 \text{ AM} = **00:05**$ .

Q1:  $3:50 \text{ pm} \leftrightarrow 15:50$

Q2:  $10:15 \text{ pm} \leftrightarrow 22:15$

a) **Always** — 30 minutes = half an hour = 0.5 of an hour.

b) **Never** — 1.5 hours is  $1 \text{ h } 30 \text{ m}$ , not  $1 \text{ h } 50 \text{ m}$ .  $50 \text{ minutes} = 50/60 \approx 0.83$  of an hour.

c) **Always** — After midday the 24-hour clock keeps counting up.

d) **Sometimes** — Usually yes — but a 5-minute jump from  $11:58$  to  $12:03$  looks like a big number-jump but is short.

e) **Always** — 15 minutes to  $11:00$ , then 15 minutes more = 30 minutes.

f) **Never** — Cross midnight: 30 minutes to  $00:00$ , then  $2 \text{ h } 15 \text{ m}$  more =  $2 \text{ h } 45 \text{ m}$  total.

## EXTENSION SHEET · STRETCH ANSWERS

S1:  $11:15 \text{ am} \leftrightarrow 11:15$

S2:  $8:55 \text{ pm} \leftrightarrow 20:55$

S3:  $3:35 \text{ pm} \leftrightarrow 15:35$