

## 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 a single Irish Rail line — 14:35 — and let pupils argue what o'clock that is before confirming. On the clock interactive in 24-hour mode (inner 13–24 ring + digital readout on), walk 13:00, 18:30, 21:15 and the make-or-break 00:05. Try It Together has pupils name four times both ways at the board. Pupils then build a two-column 24-hour/12-hour table in their copy before the Class Challenge reads times back the ordinary way.

### TEACHING MOVES

- Getting Started.** Put the single line 14:35 up as pupils settle and take just three hands-up answers — no open call-outs. Don't confirm it. Hold onto whoever says 'half two in the afternoon' and tell them you'll come back to it.
- Watch and Notice.** Work the four times one at a time on the clock interactive. At 13:00 ask 'what did we add to the 1 to get 13?' and draw out the +12 rule. Save your emphasis for 00:05 — pupils will want 24:05; stress the count restarts from zero just after midnight.
- Try It Together.** Pupils take turns setting 15:00, 19:45, 22:10 and 00:30 at the board; the class names each both ways out loud. Keep the -12 talk audible: '19 take away 12 is 7, so 19:45 is quarter to eight in the evening.' Catch 00:30 — that's half past twelve at night, not the day.
- Write Both Times in Your Copy.** Pupils draw a two-column table (24-hour left, 12-hour with am/pm right) for 13:00, 18:30, 21:15, 00:05, then circle every after-midday time. Walk the room glancing at the layout and the +12 conversions — watch for 24:05 on the midnight row and prompt quietly. This is practice, not marking.
- Class Challenge.** Brisk turns at the board reading 16:15, 23:50, 00:25, 13:05 the ordinary way — set the hands, read the digital number, say the 12-hour time with am/pm, class confirms, move on. Don't re-explain each one; the 00:25 past-midnight case is the one to slow down on.
- What Did We Notice?.** Push for the am/pm muddle: 2:35 could be the middle of the night or the afternoon, but 14:35 can only mean one moment. Revoice a strong answer — 'so the 24-hour clock removes the guessing.' Head off the idea that 24-hour time is harder; it's just clearer.

### COMMON MISCONCEPTIONS

⚠ Pupils read five past midnight as 24:05 — they keep counting up past 24 instead of restarting at zero. Stop at 00:05 on the clock interactive and ask 'what comes straight after 23:59?' Show the digital readout rolling to 00:00, not 24:00. The hour count restarts from zero the moment midnight passes.

⚠ Pupils subtract 12 from a morning time, turning 09:15 into something pm — they apply the -12 rule to every hour instead of only hours bigger than 12.

On the clock, point out that morning 24-hour times (00–11) already match the am clock, so there's nothing to take away. Only an hour over 12 needs the subtraction.

⚠ Pupils mishandle 00:30 in Try It Together — reading it as half twelve in the daytime rather than half past midnight.

Set 00:30 on the face and ask whether the sky would be light or dark. 00 is the first hour of the new day, in the dark — half past twelve at night. Contrast with 12:30 for midday.

## DIFFERENTIATION

### EMERGING

- Keep these pupils on whole-hour afternoon times first (13:00, 15:00, 18:00) before the :15 and :45 minutes — one conversion at a time on a printed clock face.
- Give the pre-drawn Convert the Times sheet so the two-column table is already ruled and they only fill in the conversions.

### DEVELOPING

- After the copy table, hand them a real Irish Rail line with a departure and arrival both in 24-hour time and ask which is later — no journey-length sum yet, just ordering after midday.
- Throw in 12:00 and 00:00 as a pair and ask which is midday and which is midnight, with the am/pm reason.

### PROFICIENT

- Pose: 'a night bus leaves at 23:50 and the journey takes 20 minutes — what does the arrival show on the display?' Let them wrestle with the roll past midnight to 00:10 before you confirm; pull them into the Student Activity Book if they crack it fast.

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

## ANSWER KEY

a) 2:30 PM = \*\*14:30\*\*.

b) 9:15 AM = \*\*09:15\*\*.

c) 8:45 PM = \*\*20:45\*\*.

d) 11:30 PM = \*\*23:30\*\*.

e) 12:05 AM = \*\*00:05\*\*.

Q1: 3:50 pm ↔ 15:50

Q2: 10:15 pm ↔ 22:15

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

b) **Never** — 1.5 hours is 1 h 30 m, not 1 h 50 m. 50 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 h 15 m more = 2 h 45 m total.

## EXTENSION SHEET · STRETCH ANSWERS

S1: 11:15 am ↔ 11:15

S3: 3:35 pm ↔ 15:35

S2: 8:55 pm ↔ 20:55