

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

WHAT THIS LESSON TEACHES

A way of writing time where the hours keep counting up after midday instead of starting again at 1. So 1 pm is written 13:00 and 6 pm is written 18:00.

→ Irish Rail writes a 2:35 pm train as 14:35 on the timetable.

→ 9:15 pm becomes 21:15 ($9 + 12 = 21$); 18:30 becomes 6:30 pm ($18 - 12 = 6$).

MODEL THIS ON THE BOARD

FROM 14:35 TO ORDINARY TIME

- ① Look at the hour part **14**. It is greater than 12, so the time is pm.
- ② Subtract 12 from **14** to find the ordinary hour: $14 - 12 = 2$.
- ③ Keep the minutes the same. So 14:35 is **2:35 pm**.

LESSON ARC

Open with the Irish Rail 14:35 line on the IWB and take three hands-up guesses without confirming. On the clock interactive, walk 13:00, 18:30, 21:15, then the midnight edge 00:05, pulling the +12 rule from pupil talk. Pupils convert four times together at the board both ways, then fill a two-column 24-hour / 12-hour table in their copybooks. Class Challenge runs 16:15, 23:50, 00:25 and 13:05 briskly. Student Activity Book is the hand-off.

TEACHING MOVES

1. **Getting Started.** Display only 14:35 as pupils settle. Take three hands-up answers, not open call-outs. Hold any 'half two in the afternoon' without confirming — the lesson will prove it.
2. **Watch and Notice.** Keep the inner 13–24 ring and digital readout on. Start at 13:00 and ask what was added to 1 to get 13 so the +12 rule comes from them. At 18:30 point at hands and readout together. Pause before 21:15 for a silent +12 guess. Finish at 00:05 and say clearly the count restarts at zero past midnight — never 24:05.
3. **Try It Together.** Work 15:00, 19:45, 22:10, then 00:30. A pupil sets the hands; the class names both ways out loud. Keep –12 in their mouths: '19 take away 12 is 7, so 19:45 is quarter to eight in the evening.' Catch 00:30 as half past midnight, not midday.
4. **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; quietly redirect anyone writing 24:05. This is practice, not marking.
5. **Class Challenge.** Keep board turns brisk: set hands, read the digital, say the 12-hour form, class confirms, move on. Listen for 16:15 → quarter past four afternoon; 23:50 → ten to twelve at night; 00:25 → twenty-five past midnight; 13:05 → five past one afternoon. Do not re-teach the rule between items.

6. **What Did We Notice?** Ask why Irish Rail writes 14:35 not 2:35 pm. Revoice answers that name the am/pm muddle: 'the 24-hour clock removes the guessing — every time means exactly one moment.' Head off the idea that 24-hour time is harder; it is clearer.

COMMON MISCONCEPTIONS

⚠ Pupils write five past midnight as 24:05 because 'the day has 24 hours, so it should end on 24'.

Freeze the clock on 00:05. Say the count restarts from zero the moment we pass midnight — 24 never appears as an hour. Have the class chorus 'zero-zero' for any past-midnight readout.

⚠ Pupils convert 23:50 to 11:50 and call it morning — they subtract 12 but drop am/pm.

Point at the hands near the top of the clock and ask: is it light or dark outside at ten to twelve when the hour was 23? Push for 'at night / pm' every time the hour is bigger than 12.

⚠ Pupils add 12 to morning times too (e.g. 9:15 am becomes 21:15) because they treat +12 as always-on.

Return to the interactive at a clear morning time. 'Only after midday do we add 12. Before midday the 24-hour hours match the ordinary clock.'

DIFFERENTIATION

EMERGING

- Stay on afternoon times 13:00–16:00 first; leave 00: times until the class has the –12 rule secure.
- Pre-draw the two-column table headers in the copybook so pupils only fill the times, not invent the layout.

DEVELOPING

- After the copybook four, give 20:05 and ask them to say both the digital conversion and a spoken phrase ('five past eight at night').
- Ask: if a film starts at 19:40 and runs two hours, what does the 24-hour clock show when it ends — and how do you know?

PROFICIENT

- Pose: a night bus shows 00:40. What will it show 30 minutes later, and why is that still not 24-anything? Copybook justification, one sentence.
- Offer a blank timetable row: invent three Irish Rail departures after midday and write each both ways before the Student Activity Book page.

✓ **Cross-curricular:** Tie to Geography — convert a real Bus Éireann or Irish Rail departure before sketching a simple journey home.

ANSWER KEY

c) 3:00 pm, 1:00 pm, 6:30 pm, 9:15 pm, 11:50 pm, 12:05 am

Q1: 4:00 pm

Q2: 5:00 pm

Q3: 7:30 pm

Q4: 20:45

Q5: 10:40 pm

a) **Always** : Subtract 12 from the hour 14 to get 2 pm and keep the minutes.

b) **Always** : That is the rule that turns 1 pm into 13:00 and 9 pm into 21:00.

c) **Never** : 00:05 is five past midnight, not midday.

d) **Never** : 23:00 is 11 pm because $23 - 12 = 11$ and it is after midday.

EXTENSION SHEET · STRETCH ANSWERS

S1: 12:35 pm ↔ 12:35

S2: 12:50 pm ↔ 12:50

S3: 11:15 am ↔ 11:15

S4: 8:55 pm ↔ 20:55

S5: 10:15 pm ↔ 22:15