

Units of time and how they relate

CURRICULUM ALIGNMENT

MEA.TIM.3b

identify the relationship between different units and representations of time.

MEA.MSR.3b

identify the relationship between equivalent units of measurement, and rename measures using equivalent units.

INTERACTIVES Analog Clock Builder · display, explore

WHAT THIS LESSON TEACHES

Each unit of time is made of a fixed number of the unit below it: 60 seconds fill one minute, 60 minutes fill one hour, 24 hours fill one day, and 7 days fill one week. To change a bigger unit into a smaller one, multiply.

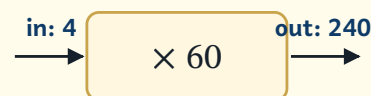
→ 3 hours = $3 \times 60 = 180$ minutes.

→ 6 weeks = $6 \times 7 = 42$ days.

MODEL THIS ON THE BOARD

MINUTES IN 4 HOURS

- ① One hour holds **60** minutes.
- ② There are **4** hours, so multiply 4×60 .
- ③ $4 \times 60 = 240$.



LESSON ARC

Build the chain seconds → minutes → hours → days → weeks on the board from pupils' hands-up guesses. Read three analog-clock snapshots: one second-hand lap makes a minute, one minute-hand lap makes an hour, then build the day from two twelves. Pupils write the four nesting facts in copies, then rename units at the board using the printed reference strip. Student Activity Book is the follow-on practice; the strip stays glued in for elapsed time next.

TEACHING MOVES

1. **Getting Started.** Give five seconds of silent think-time, then take three hands-up answers per question — not open call-outs. As they answer, write the chain seconds → minutes → hours → days → weeks across the board and leave it up all lesson. Don't confirm the numbers yet; the clocks do that.
2. **Watch and Notice.** Take a hands-up guess before each snapshot so pupils commit before they read the clock. On the third clock, do NOT claim pupils can see 24 markers — build the day as twelve hours midnight-to-noon plus twelve noon-to-midnight. Write each times fact beside its pair: $\times 60$, $\times 60$, $\times 24$, $\times 7$.
3. **Try It Together.** Set the clock to 12:00 and have a pupil sweep the minute hand one full turn while the class counts 'sixty minutes, one hour'. Then 12:30 and 12:15 for half and quarter hours. For two hours stay off the clock and hold out for the doubling — 2×60 — don't say it for them.
4. **Write the Facts in Your Copy.** Walk the row watching the last line: the $\approx$ means 'about', because 4 weeks is 28 days, near a month. This is copybook practice, not marking — glance, don't collect.
5. **Class Challenge.** Brisk practice on paper with the printed reference strip — pupils take turns at the board and the class confirms each answer before moving on. Watch for the reflex $\times 60$ when the jump is hours-to-days or days-to-weeks. Don't re-explain each one; keep it moving.

6. What Did We Notice?. Trace round the clock face landing on each of the twelve numbers, counting up in fives with the class so they see $12 \times 5 = 60$ for themselves. Revoice a strong answer: 'so the clock and the minute count share the same sixty.' Then point back at the strip — 60, 24, 7 are all different.

COMMON MISCONCEPTIONS

⚠ Pupils say a day is 12 hours — they read the twelve numbers on the clock face and stop there. Don't correct with a number. Build it on the clock: twelve hours from midnight to noon, then twelve more from noon to midnight. Two sweeps of the hour hand, one day, 24 hours.

⚠ In the renaming round pupils reach for $\times 60$ by habit — 3 days becomes 3×60 , or 6 weeks becomes 6×60 . Send them to the reference strip first: find the two units, then name the fact for THAT jump aloud before any multiplying. Hours-to-days is $\times 24$, days-to-weeks is $\times 7$ — the strip shows the three jumps are all different sizes.

⚠ Pupils assume the next unit up is always ten times bigger, expecting an hour to be 100 minutes. Use the maths-talk clock trace: 12 numbers, each worth 5 minutes, $12 \times 5 = 60$. Point back at the strip where the jumps read 60, 24, 7 — no ten anywhere.

DIFFERENTIATION

EMERGING

- Keep these pupils on the minute-to-hour pair only during the renaming round — the $\times 60$ fact they saw twice on the clock — while the class tackles the $\times 24$ and $\times 7$ jumps.
- Pre-fill the copybook sentence stems ('1 minute = ____ seconds') so pupils supply only the number, not the whole sentence structure.

DEVELOPING

- After the Class Challenge items, ask them to reverse one: 180 minutes is how many hours? Which fact do they divide by now?
- Give a two-step off-strip chain: how many minutes in 2 days? Days to hours, then hours to minutes — name both facts before working.

PROFICIENT

- Narrate the year extension aloud: a year is about 52 weeks, so 52×7 lands near 365 days. Ask why it isn't exact — and note that a year isn't one of our nesting units, so it's off the strip.
- Pull them ahead into the Student Activity Book page while the class finishes the board round.

✂ **Cross-curricular:** Tie to Geography — time zones mean it can be a different hour in Dublin and New York, but a day is still 24 hours everywhere.

ANSWER KEY

a) 1 minute: 60 seconds

b) 1 hour: 60 minutes

c) 1 day: 24 hours

d) 1 week: 7 days

e) 1 year: 12 months

Q1: 300 minutes

Q2: 72 hours

Q3: 35 days

Q4: 120 minutes

Q5: 216 hours

Spot: There are 60 minutes in an hour, not 100. $3 \times 60 = 180$ minutes.

EXTENSION SHEET · STRETCH ANSWERS

S1: 7 h 15 min

S2: 12:28

S3: 23:43

S4: 00:47

S5: 03:11