TEACHER RESOURCE BOOK · MATHS · 6TH CLASS

Lesson 47 MEASURES

Choosing and converting metric units of length

CURRICULUM ALIGNMENT

MEA.MSR.4a determine and calculate units of measurement in fractional and/or decimal form to solve practical problems.

NUM.PVT.4 investigate how decimals and percentages (and fractions) can be compared, ordered and expressed in related terms.

INTERACTIVES Unit Converter · challenge, display, explore

WHAT THIS LESSON TEACHES

Metric units of length step by **×10, ×100, ×1000**. Choose the unit that suits the size, and convert by multiplying or dividing.

→ 1 km = 1000 m; 1 m = 100 cm; 1 cm = 10 mm.

→ 2.5 m = **250 cm**; 3400 m = **3.4 km**.

MODEL THIS ON THE BOARD

CONVERT 2.45 M TO CM, AND 3200 M TO KM

1. m → cm: × 100 → 2.45 × 100 = **245 cm**.
2. m → km: ÷ 1000 → 3200 ÷ 1000 = **3.2 km**.

LESSON ARC

Open with the absurd corridor-in-millimetres figure on the IWB and let pupils feel why the wrong unit sounds silly. Trace the km–m–cm–mm ladder on the board, then drive the unit-converter through 2.5 m to 250 cm, stressing the point stays put while digits step columns. Pupils write four real lengths two ways in their copies, underlining the sensible unit. The Class Challenge bank builds to the 1250 cm-to-km two-jump route.

TEACHING MOVES

1. **Getting Started.** Read the corridor as '30,000 millimetres' with a straight face, then give five seconds of silent think-time before three hands-up answers. Don't get them calculating the pencil-in-km figure — the point is that it sounds clumsy. Revoice: 'we pick the unit that gives a number easy to say and picture.'
2. **Watch and Notice.** Trace the km–m–cm–mm ladder on the board first and say it aloud — the decimal point is nailed down, the digits do the moving. Run the converter through each example slowly; for 1200 cm to km, do it as two separate jumps (cm to m, then m to km) and name each jump, because pupils need this route for the Class Challenge stretch.
3. **Try It Together.** Before each conversion ask the class in unison: 'up the ladder or down — multiply or divide, and by how much?' Remind the pupil at the board to reset both units each time so nothing is pre-converted. This round is for talking it through, not marking — watch for the slip of stepping the point only one or two places between mm and m.
4. **Write the Lengths Two Ways in Your Copy.** Walk the room glancing at which unit pupils underline and whether their two-unit lines actually line up column-for-column. No marking. If you've handed out the conversion-ladder worksheet, point weaker readers to its labelled columns; everyone else rules the same km–m–cm–mm columns in their copy.

5. **Class Challenge.** Keep the board work brisk — a pupil comes up for each conversion, checks the answer, class confirms, move on. Don't re-explain each one. For the final 1250 cm to km, let a confident pupil unpack the two-jump route, then revoice it so the whole class hears cm-to-m then m-to-km.
6. **What Did We Notice?.** Display only — no writing. Push for the link between the number of places and the size of the step: three places for mm-to-m because 1000 mm in a metre, two for cm-to-m because 100 cm in a metre. Head off 'the point moves' by re-voicing 'the digits shift columns, the point stays put.'

COMMON MISCONCEPTIONS

⚠ Pupils convert 1750 mm to m by moving the point only one or two places — 'about 175 m' or '17.5 m' — instead of three, because they default to the cm-to-m habit.

Stop and put the ladder back up: count the rungs from mm to m aloud — that's a thousand, so three columns. Drive the same value on the converter and have the class confirm the three-place step before anyone writes.

⚠ Pupils say the decimal point itself 'moves three places' and start treating the point as the thing that travels along the number.

On the converter, freeze the point with your finger on the board and show the digits sliding into new columns underneath it. Re-voice every time: 'the point stays, the digits move.'

DIFFERENTIATION

EMERGING

- Give the conversion-ladder worksheet so the columns are already labelled — pupils place digits rather than build the structure. Keep them on single-jump conversions (cm to m, m to cm) while the class tackles mm and km.
- In the copybook moment, restrict to two objects — pencil and door — so they convert once each rather than four times.

DEVELOPING

- After the Class Challenge, ask: 0.62 km is how many centimetres? Make them chain m then cm, naming each jump.
- Pose a missing-unit puzzle: '450 = 4.5 ___ ' — which unit pair fits, and is there more than one answer?

PROFICIENT

- Narrate a harder variant at the board: express 1250 cm in millimetres AND in kilometres, then ask which gives the silliest-looking number and why. Pull them straight into the Student Activity Book page when they finish.
- Ask them to explain to an imaginary younger pupil why mm-to-m needs three steps but cm-to-m only two, using the ladder without the converter.

Cross-curricular: Tie to Geography — pupils convert a few real road distances between Irish towns from km to m and judge which unit a road sign actually uses.

ANSWER KEY

a) 1 km: 1000 m

b) 1 m: 100 cm

c) 1 cm: 10 mm

d) 2.5 m: 250 cm

e) 3000 m: 3 km

Q1: 4.95 m

Q2: 0.981 kg

Q3: 3.29 km

Q4: 0.07628 km

EXTENSION SHEET · STRETCH ANSWERS

S1: 0.05969 km

S2: 7.17 m

S3: 0.892 l