

## Lesson 51 MEASURES

## Measures word problems (length, weight, capacity)

## CURRICULUM ALIGNMENT

MEA.MSR.3a

compare, estimate and measure length, weight, capacity, area and volume using appropriate instruments and record and communicate appropriately.

MEA.MSR.3b

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

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

## INTERACTIVES Word Problem · challenge, display, explore

## WHAT THIS LESSON TEACHES

In measures word problems on length, weight or capacity, action words tell you the operation: altogether means add, while left or used means take away. Keep the same unit in your answer.

→ Two ribbons of 30 cm and 40 cm joined altogether means add the lengths.

→ 1 litre is 1000 ml, so 400 ml poured out leaves the rest.

## MODEL THIS ON THE BOARD

## RIBBON LEFT AFTER WRAPPING

- 1 Saoirse has 50 cm of ribbon and uses 20 cm to wrap a present.
- 2 The word uses tells us to take away.
- 3 Work out  $50 \text{ cm} - 20 \text{ cm}$ .
- 4 The ribbon left is 30 cm.

## DISCUSSION STARTER

**REFLECT** How did you decide whether to add or take away in each story problem?

## LESSON ARC

Open with Saoirse's ribbon story on the IWB — pupils say what it's asking, not just repeat numbers. Work four measures stories live from the front, spotting the action word each time and holding out for the unit; in the fourth, the key step is swapping 1 litre for 1000 ml before subtracting. Try three together at the board, then two full write-ups in the maths copy. The Class Challenge has four more stories, getting trickier up to the one that swaps litres for millilitres.

## TEACHING MOVES

1. **Getting Started.** Read the ribbon story aloud, then take two or three hands. Don't accept answers that just repeat '50 and 20' — hold out for a pupil who names the actual question: how much ribbon is left.
2. **Watch and Notice.** Work all four stories live — ask the class to spot the action word (altogether, used, poured, left) before you reveal each one. On story 4, stop before anyone calculates and ask 'can we take ml away from a litre yet?' Write 1 litre and 1000 ml side by side so the swap is visible, then  $1000 - 400 = 600 \text{ ml}$ .
3. **Try It Together.** Pupils take turns at the board: underline the action word, say add or take away, build the number sentence. On the middle story force the litre swap out loud. Keep pushing the unit every time — '35 what? cm.'

4. **Work It in Your Copy.** Walk the room glancing for the unit written beside each answer and a full number sentence — this is practice, not marking. If a pupil writes a bare 70, prompt '70 what?' rather than correcting it for them.
5. **Class Challenge.** Brisk board practice — pupils take turns, the class confirms each answer before moving on. Don't re-explain each story. On challenge 3 ask 'can we take ml away from a litre yet?' before anyone answers; let a stronger pupil lead challenge 4 with the bigger numbers while the class checks each step.
6. **What Did We Notice?** Listen for pupils naming the action word as the clue, not the numbers. Revoice a strong answer: 'so joined and altogether told you to add, used and left told you to take away.' If someone raises the litre story, revoice the swap to 1000 ml.

### COMMON MISCONCEPTIONS

⚠ Pupils try to take 400 ml straight off '1 litre' and either freeze or write '600 litre' — they subtract across two different units without converting.

Stop before the calculation and write '1 litre' and '1000 ml' one above the other on the board. Ask the class which form lets us subtract ml. Only then run  $1000 - 400 = 600$  ml, pointing at the matching units.

⚠ Pupils write a bare number as the answer — '70', '500' — dropping the unit because the sum came out right.

Point at the answer and ask '70 what?' every single time, in the copybook moment and at the board, until pupils add the unit themselves before you ask.

⚠ Pupils reach for the numbers to decide the operation rather than the words, adding whenever two amounts appear in a story.

In the maths-talk, show two stories with identical numbers but different action words. Underline 'altogether' in one and 'used' in the other, and let the class see the same numbers give two different sums.

### DIFFERENTIATION

#### EMERGING

- Underline the action word for them on the board so they only decide add or take away, then find the unit.
- Stay on length-only stories in the copy while the class also tackles weight; the flour story is teacher-supported at the front.

#### DEVELOPING

- After the copy stories, ask them to write a fresh story of their own that uses the word 'left' and a weight in grams.
- Give a two-step chain: join a 40 cm and a 30 cm ribbon, then cut 15 cm off the total — what's left?

#### PROFICIENT

- Narrate a harder litre-link variant at the board — 2 litres with 750 ml poured out — and ask them to talk the class through the double swap to 2000 ml before subtracting.
- Ask them to invent a story where the numbers tempt you to add but the words mean take away, and explain the trap to the class.

✂ **Cross-curricular:** Tie to home economics — a juice recipe where you swap 1 litre for 1000 ml before measuring out portions for the class.

### ANSWER KEY

**Scaffold:** visual check on the page

**Q1:** 60 cm

a) **Always** : Altogether is the action word that tells us to join or add.

b) **Always** : Used is the clue word for subtraction in measures stories.

c) **Never** : Units must stay the same; never add or subtract different measures.

d) **Always** : Poured out or used signals subtraction for capacity.

### EXTENSION SHEET · STRETCH ANSWERS

**S1:** She pays €3 and gets €2 change.

**S2:** 500 ml

**S3:** 800 g, which is less than 1 kg

**S4:** 125 cm (1 m 25 cm)

**S5:** 450 ml