

Capacity: estimate and measure in l and ml with a jug

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.

INTERACTIVES Measurement Rulers · display, explore

WHAT THIS LESSON TEACHES

Capacity is how much liquid a container can hold when it is full. We measure small amounts in millilitres (ml) and big amounts in litres (l), where 1 litre is 1000 ml.

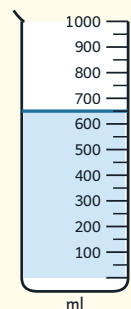
→ A small cup holds about 250 ml; a carton of milk holds 1 litre.

→ A spoon of medicine is about 5 ml but a bath holds many litres.

MODEL THIS ON THE BOARD

READING A JUG OF JUICE

- 1 The jug is marked every 100 ml up to 1000 ml. The nearest big mark below the liquid is **600** ml.
- 2 Count the little 50 ml marks up from 600 to the liquid line: one mark = **50** ml.
- 3 Add: $600 \text{ ml} + 50 \text{ ml} = \mathbf{650 \text{ ml}}$.



DISCUSSION STARTER

REFLECT

When you estimated the jug first, how close were you — and what helped your next estimate?

LESSON ARC

Open with the juice-carton-and-cup image and take three hands-up guesses at how many cups fill the carton. On the measurement interactive, walk one jug through 250, 500, 750 and 1,000 ml, modelling jug-flat and eye-level each time. Pupils drag the explore jug to off-mark amounts (100, 300, 600, 950), counting 50 ml lines. They record three estimates on the Capacity Record Sheet, then measure real containers at stations. Wrap with the unit-choice maths-talk.

TEACHING MOVES

1. **Getting Started.** Display the carton-and-cup image as pupils settle and take three hands-up guesses at the cup count — not open call-outs. Hold back the answer: the aim is to get them feeling big-versus-small before any unit is named.
2. **Watch and Notice.** Walk the four jugs one at a time on the interactive. At 250 ml, crouch to show your eye level with the line and say both golden rules aloud — jug flat, eye level. At 500 ml ask 'what big

number are the marks climbing towards?' and pause. Land 1 litre = 1,000 ml as the pay-off and have the class say it back in unison.

3. **Try It Together.** Call pupils to drag the single explore jug to 100, 300, 600 then 950 ml in turn. The class calls the reading first, then the pupil confirms. Teach the off-mark method live: for 600, start at the 500 mark and count two 50 ml lines up. On 950 ask 'how much more to reach a full litre?'
4. **Estimate First in Your Copy.** Pupils list three containers on the Capacity Record Sheet and write an estimate with a unit for each, leaving space for the measured value. Walk the room checking they picked ml for small and l for large — glance, don't mark.
5. **Class Challenge.** Keep the pass-on brisk — egg cup, mug, small bottle, smallest to largest, each logged as estimate then measured. Watch for the two reading errors as you circulate: jug tilted, or eye above the line. Confirm each reading aloud with the class at the end.
6. **What Did We Notice?.** Ask why medicine is in ml but a bath is in litres. If a pupil says a bath holds 'lots of millilitres', agree it's true but ask which number is easier to say. Revoice: we pick the unit that gives a sensible number, not a huge or tiny one.

COMMON MISCONCEPTIONS

⚠ Pupils read the jug from above, looking down at the line, so 600 ml reads as more than it is. Stop and crouch at the station so your eye is level with the mark; have the pupil do the same and re-read. Point out the reading shrinks when their eye drops to the line — that's the true amount.

⚠ At an off-mark amount like 600 ml, pupils count the little lines as 10s or 100s and read '510' or '700'. On the interactive, point to two adjacent minor lines and establish they are 50 ml apart. Rebuild the count aloud from the 500 major mark: 550, 600. Have the pupil count the lines up themselves before reading.

⚠ Pupils label a mug or bottle in litres — 'mug: about 2 litres' — reaching for the bigger unit without sizing it. Hold the litre carton beside the mug so the class sees the mug is a fraction of it. Ask how many mugs fill the carton — then they'll re-choose ml.

DIFFERENTIATION

EMERGING

- Keep these pupils on jugs that land exactly on the 250, 500, 750 major marks first — no minor-line counting until the majors are secure.
- Give them the egg cup and mug only at their station, both clearly ml, so unit choice isn't an extra load while they master reading the line.

DEVELOPING

- After the three core containers, ask them to measure a fourth and predict its reading before pouring — did the estimate hold?
- Pose an off-mark target they must fill the jug to exactly, e.g. 'pour until the line reads 350 ml' — reading in reverse.

PROFICIENT

- Give the stretch task teeth: find two station containers that together hold about 1 litre, then a third combination that also makes a litre — record both and explain which was closer.
- Ask them to narrate the eye-level rule to the group gathered at the front jug as if teaching a younger pupil, then check a reading that group makes.

✂ **Cross-curricular:** Tie to the science strand — read the ml or litre marking off real kitchen packaging (juice cartons, medicine bottles) brought in and sort them small-unit versus large-unit.

ANSWER KEY

a) Read each instrument carefully against its marks.

Q2: 500 ml

Q1: 750 ml

Q3: 250 ml

EXTENSION SHEET · STRETCH ANSWERS

S1: 17.7 cm

S2: 7800 cm

S3: 7 cm

S4: 20 cm

S5: 28.4 cm

Investigation: How much water in a day? — open-ended; scan pupils' working for valid solution paths rather than a single answer.