

Measuring with cupfuls

CURRICULUM ALIGNMENT

MEA.MSR.2

compare, approximate and measure length, weight, capacity and area using appropriate instruments and record using appropriate units of measurement.

INTERACTIVES Estimation Game · challenge, display, explore

WHAT THIS LESSON TEACHES

A cupful is one full cup poured into a container. Counting the cupfuls tells you the container's capacity (how much it holds). Always use the same cup, filled to the top each time.

→ The small jug took 6 cupfuls to fill, so its capacity is 6 cupfuls.

→ The same small jug took only 3 mugfuls with the big mug, because the cup size changed.

MODEL THIS ON THE BOARD

FILLING THE CLASS JUG

- 1 Pour the small cup full to the top into the empty class jug.
- 2 Count each full pour: 1, 2, 3, 4, 5, 6.
- 3 The jug is full after 6 cupfuls, so its capacity is 6 cupfuls.

LESSON ARC

Open with five seconds of quiet think-time: how many small cupfuls would fill a class jug? On the estimation interactive, fill the jug (6) and flask (4) cup by cup, then rerun the same jug with a big mug (3) so pupils see the cup changed, not the container. Try It Together locks quiet estimates on a watering can and basin before anyone comes to the board. Class Challenge runs teapot, tall jug and large watering can — estimate, count, confirm. Maths-talk seals the rule: the number only counts when every pour uses the same full cup.

TEACHING MOVES

1. **Getting Started.** Pose the class-jug question and hold a full five seconds of silence before any hands. Take only two or three estimates — write them up without judging — and leave the switch-cup idea closed for now.
2. **Watch and Notice.** Run the jug first: class estimates, then reveal 6. On the flask, estimate about 5, reveal 4, and name the gap out loud. Switch the same jug to the big mug, estimate, reveal 3. Ask what stayed the same and what changed; hold out for 'jug same, cup bigger, fewer pours.' Revoice the board line: the number only means something when every pour uses the same full cup. If you have a physical large mug, hold it beside the small cup so the size gap is visible.
3. **Try It Together.** Lock every pupil's quiet estimate before anyone touches the board. Reveal the small watering can first (about 10), then the basin (about 12). Rotate a few pupils to count pours; class agrees or corrects in unison. Stress same cup, full to the top, on every pour.
4. **Class Challenge.** Keep it brisk practice, not reteach. Call the quiet estimate first every round, then a pupil counts on the board and the class confirms. Teacher-only targets: teapot 5, tall jug 8, large watering can 15. After each reveal ask why we must keep the very same cup. Watch for estimate-copying from a neighbour — hold the quiet-estimate rule.

5. **What Did We Notice?**. Point back at the three board moments. Take two or three voices on each stem: bigger cup → smaller total; smaller cup → larger total. Accept everyday words (huge cup, less pours) and revoice once: the number only means something when every pour uses the same full cup. Display-only — no writing.

COMMON MISCONCEPTIONS

⚠ Pupils treat 6 small-cup pours and 3 big-mug pours as if both numbers describe the jug the same way — ‘so the jug holds 6 and it holds 3’.

Freeze on the two jug reveals side by side. Ask: did the jug shrink? No — only the cup grew. Have the class say together: different cup, different number, same jug.

⚠ A pupil at the board tips a half-full cup and still counts it as one cupful.

Stop the pour. Show full-to-the-brim beside half-full on the interactive (or with the physical cup). ‘A cupful means full. A half pour is not a cupful — tip it back and fill properly.’

⚠ After seeing a neighbour’s estimate, pupils quietly change theirs before the reveal.

Name the habit without shaming: ‘Your first quiet number is the one that counts — keep it.’ Reset with a thumbs-on-chest signal so estimates stay private until the count.

DIFFERENTIATION

EMERGING

- Stay on the small cup only through Try It Together; skip the big-mug comparison until the main class has moved on, then rerun just the jug-vs-mug pair with the pupil at the board.
- Pre-write the container names (teapot, tall jug, large watering can) on scrap paper so the pupil only records the estimate and the count, not the labels.

DEVELOPING

- After each Class Challenge reveal, ask how far their estimate was from the count and whether they would adjust up or down on the next container — and why.
- On the flask gap (guessed 5, got 4), press: ‘What made the flask look like five?’ so they justify the visual, not just the number.

PROFICIENT

- After the large watering can (15), pose from the front: ‘If we switched to a cup twice as big halfway, would 15 still be a true cupful count? Say why without running the pours.’
- Fast finishers move straight into the Student Activity Book page while the class finishes the core three containers.

✂ **Cross-curricular:** Link to SPHE/home: baking scones — every pour of milk must use the same cup or the dough goes wrong.

ANSWER KEY

Q1: 4 cupfuls

Q2: 5 cupfuls

Q3: 8 cupfuls

Q4: fewer

Q5:

12 small-cupfuls; number smaller because mug holds more (cup must stay same for fair count)

Q6: 11 cupfuls

a) **Always** : That is exactly how capacity in cupfuls is found.

b) **Always** : A bigger cup means fewer pours, so the number changes.

c) **Never** : A bigger mug means fewer pours, so the number gets smaller.

d) **Sometimes** : It depends which cup is larger; usually the mug is bigger so the number is smaller.

EXTENSION SHEET · STRETCH ANSWERS

S1: 16 paperclips

S2: 15 cubes

S3: 21 lollipop sticks

S4: 13 paperclips