

Full, empty and holds more: comparing capacity

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 (Drag Sort · challenge, display, explore)

WHAT THIS LESSON TEACHES

Capacity is how much a container can hold when it is full. We sort containers as full, half full or empty and compare which one holds more.

→ A classroom jug holds more water than a cup.

→ A paint pot can be full, half full or empty.

MODEL THIS ON THE BOARD

TALL BOTTLE INTO SHORT JAR

- 1 The tall skinny bottle starts **full** of juice.
- 2 Pour every drop into the short fat jar.
- 3 The short jar is now full and some juice is left over, so the short jar **holds more**.

LESSON ARC

Open with a tall skinny bottle beside a short fat jar and take a silent vote on which holds more. Run the fair-test pour on the tray: fill the bottle, tip every drop into the jar, and hold both up so the class sees space left at the top. Sort full / half full / empty pictures, then order cup, jug and bucket from holds-least to holds-most. Pupils drag-sort more containers together at the board, draw a full glass and an empty glass in their copybook, then bank the same sorts in Class Challenge.

TEACHING MOVES

1. **Getting Started.** Show the tall skinny bottle and short fat jar on the tray or board as pupils settle. Take a quick hands-up vote for each, then hold five seconds of quiet think-time on ‘how could we actually find out?’ before any answers.
2. **Watch and Notice.** Keep the full / half full / empty cards brisk — class predicts each one before you reveal. Then fill the tall bottle and pour every drop into the short jar; hold both up and say together: the short jar holds more. Lock the line ‘tall does not always mean more — pouring shows us’ before the cup-jug-bucket order.
3. **Try It Together.** Pupils take turns dragging containers into holds-least to holds-most. Before each drop, take a class vote. Watch for sorting by height alone and revoice: pouring shows us, not looking — point back at the bottle-and-jar tray if it is still out.
4. **Draw full and empty in your copy.** Pupils draw one full glass and one empty glass. Walk the room: full must reach the rim; empty is a clear outline with nothing inside. Whole-class glance only — no individual marking.
5. **Class Challenge.** Brisk board turns: full/half-full/empty sorts, cup-jug-bucket order, bottle-vs-jar holds-more, then five-container order. After each card the class confirms together; on the bottle-jar card pause for a vote, then lock the pour result without re-teaching.

6. What Did We Notice?. Ask how the pour showed which container holds more. Listen for ‘the jar still had space’ and ‘height can trick us’. If a pupil only says ‘the big one’, push: big how — taller, or holds more?

COMMON MISCONCEPTIONS

⚠ Pupils pick the tall skinny bottle as holding more because it looks higher.

Repeat the pour in front of them: every drop from the full bottle leaves space in the short jar. Hold both up and revoice together — tall does not always mean more; pouring shows us.

⚠ Pupils treat ‘full’ as the same as ‘holds more’ — they rank a full cup above an empty jug.

Point at the jug and the cup side by side. ‘Full tells us how much is inside right now. Capacity is how much it can hold when it is full.’ Re-sort one pair by capacity only.

⚠ When ordering five containers, pupils line them up by height and call that holds-least to holds-most.

Stop the drag. Ask: ‘If we poured the tallest into the shortest, what might we see?’ Point back at the bottle-and-jar result, then rebuild the order by capacity.

DIFFERENTIATION

EMERGING

- Stay on two-way full vs empty sorts at the board while the class moves to half full; pupil only places the full and empty cards.
- On the cup-jug-bucket order, pre-place the bucket at holds-most so the pupil only chooses between cup and jug.

DEVELOPING

- After a three-container order is confirmed, hide the labels and ask the pupil to justify the middle one in one sentence: why not least, why not most?
- On the bottle-vs-jar card, ask what would happen if we poured the other way — jar into bottle — before the class votes.

PROFICIENT

- Stretch the five-container order: ‘swap two and tell us whether holds-most changed’ — same board set, tighter reasoning.
- Pose: ‘find two containers that look different in height but might hold about the same — how would pouring show us?’ Keep it as a class think-aloud at the IWB.

➤ **Cross-curricular:** Link to SESE science — pupils watch a classroom plant-watering jug and cup and say which holds more before the pour into the pot.

ANSWER KEY

Q1: empty

Q2: the jug

Q3: full

Q4: cup, jug, bucket

Q5: the vase

Q6: the bowl

a) Always : When full it contains its whole capacity; empty holds nothing.

b) Sometimes : Shape can trick us; only pouring or measuring shows which really holds more.

c) Never : Half full means it still has space left and is not at full capacity.

d) Always : A bucket is made to hold a much larger amount when full.

EXTENSION SHEET · STRETCH ANSWERS

S1: a desk

S2: a pencil, a lunchbox, a chair

S3: a ruler, a metre stick, the school yard

S4: a feather, a school bag, a chair