

Lesson 52 MEASURES

Measures investigation: estimate then measure around the room and yard

CURRICULUM ALIGNMENT

MEA.MSR.3a

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

WHAT THIS LESSON TEACHES

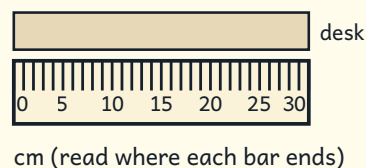
An estimate is a sensible guess of a measurement you make **BEFORE** using any instrument, using what you already know about sizes. After you estimate, you measure, then you work out the gap between your guess and the real measure.

- You guess the door is about 2 m tall, then a metre stick shows 210 cm.
- You guess a desk is 40 cm wide, you measure 45 cm, so your gap is 5 cm.

MODEL THIS ON THE BOARD

ESTIMATE THEN MEASURE A DESK

- 1 Look at the desk and estimate its width as about **50 cm**.
- 2 Measure along the ruler: the desk is **58 cm** wide.
- 3 The gap is **58 cm – 50 cm = 8 cm**, so the estimate was close.



DISCUSSION STARTER

REFLECT

When you estimated then measured around the room, were you usually close? What helped?

LESSON ARC

Open with a hands-up guess of the door height, planting the word estimate. From the front, run four demos in turn — ruler on a desk, pace-count for the yard, scales for a schoolbag, jug for a bottle — narrating 'estimate first, then measure' each time. Build the shared item/estimate/measure/unit table on the IWB, then pupils rule their own in copy. Four stations follow, ending with the paces-to-metres rename.

TEACHING MOVES

1. **Getting Started.** Take exactly three hands-up guesses on the door height — no open call-outs — and hold back which is right. Plant the word estimate as 'a sensible guess made before you measure' and leave the answer hanging for the stations.
2. **Watch and Notice.** Hold up the real ruler, metre stick, scales and jug in turn — these four demos anchor the lesson. Make the pace-to-metres bridge visible on the board: 10 paces × about 70 cm = 700 cm = about 7 m. Pupils need this exact working at Station 4, so write it up and leave it up.
3. **Try It Together.** Fill the shared table one row at a time using the data-collection interactive: a pupil states the estimate, the class agrees unit and instrument aloud, a pupil enters the measured value, then everyone works out the gap before the next row. Reconcile any unit disagreement before the number goes in. Keep all four rows inside 7 minutes.

4. **Rule Your Table in Your Copy.** Walk the room checking the four columns are ruled and headed and that each estimate carries a unit — this is copybook practice, not marking. Nudge anyone who wrote a bare number to add cm, m, g, kg, ml or l.
5. **Class Challenge.** Send groups of four round the four stations in order, three to four minutes each, keeping the pass-on rhythm brisk. Circulate to catch the two classic slips — reading the metre stick from the wrong end, and reading the jug from above. Push the strongest groups on to Station 4's pace rename. For share-back, sample only two or three groups, not all.
6. **What Did We Notice?.** Ask whose estimates got closer as the stations went on and listen for pupils explaining how — comparing the door to their own height, a bag to a known bag. Revoice a strong one: 'so you used something you already knew the size of as a yardstick.' Head off 'bigger number means bigger thing' — 700 cm and 7 m are the same length.

COMMON MISCONCEPTIONS

⚠ Pupils read the metre stick or ruler from the wrong end, lining the far end up with what they're measuring instead of the zero.

At the demo desk, deliberately slide the ruler so the 3 cm mark sits at the desk edge and ask the class what's wrong. Rebuild it with the zero lined up. Repeat the phrase 'zero at the start' when you set up the door station.

⚠ Pupils say 7 m is bigger than 700 cm because 700 is the bigger number — the digit count feels like the size.

On the board, write 700 cm and 7 m side by side with an equals sign between them and pace it out again: ten paces is both. 'Same length, two names — the words change, the distance doesn't.'

⚠ At the yard station pupils record their raw pace count as the answer — '10' — without renaming to metres.

Point them back to the worked bridge still on the board and do one line with their own count: their paces × about 70 cm, then rename to metres. Don't let a bare pace number sit in the measure column.

DIFFERENTIATION

EMERGING

- Keep these pupils on the two length stations (desk and door) where the ruler and metre stick give a direct read, and skip the pace rename for now.
- Pre-rule and head the four table columns for them so they only place items and numbers, not build the structure.

DEVELOPING

- At the door station, ask them to record the height two ways — as metres-and-centimetres (1 m 95 cm) and as centimetres only (195 cm).
- After the bag station, ask them to estimate the gap in grams between the lightest and heaviest bag before checking on the scales.

PROFICIENT

- At the IWB during Class Challenge, narrate a harder variant: if one pupil's pace is 65 cm not 70, how does their 10-pace yard measure change? Have them redo the rename aloud.
- Pose: 'design a fifth station — pick something in the room, say the tool, the unit and a fair estimate, and explain why that tool and not another.'

✂ **Cross-curricular:** Tie to Geography — pace out the yard's length and width and sketch a rough scale plan of the school grounds using the metre measures.

ANSWER KEY

Scaffold: visual check on the page

Q1: 15 cm

Q2: 5 cm

Q3: kilograms

Q4: 10 cm

Q5: 45 cm

EXTENSION SHEET · STRETCH ANSWERS

S1: 20 cm

S2: 1 cm

S3: 46000 m

S4: 85000 mm

S5: 71000 m