

Measures investigation: estimate then measure around the room

CURRICULUM ALIGNMENT

MEA.MSR.3a

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

INTERACTIVES

Measurement Rulers · display, explore

WHAT THIS LESSON TEACHES

Estimate a measurement first using something you know as a guide, then measure it with the right tool.

- A metre stick is about as tall as your waist, so you might estimate the desk is about 60 cm long before measuring.
- You estimate 70 cm and measure 65 cm - you were only 5 cm out.

MODEL THIS ON THE BOARD

ESTIMATE THEN MEASURE A CLASSROOM DESK

- 1 Look at the desk and think of something you know like your waist height.
- 2 Say your estimate out loud using centimetres.
- 3 Choose the metre stick and measure the length.
- 4 See how close your estimate was to the measured length.

DISCUSSION STARTER

REFLECT When you estimated before measuring, were you usually close? What helped?

LESSON ARC

Open by pointing at three real objects — a desk, a lunchbox, a mug — and having pupils name the right tool for each. Model the two-step rhythm on the measurement interactive: say the estimate aloud, then read the scale. Groups of four rotate through length, weight and capacity stations, saying estimates before measuring. Pupils rule a three-column copybook table, then a recording round adds reading to the nearest mm as ___ cm ___ mm.

TEACHING MOVES

1. **Getting Started.** Take just three hands-up answers matching object to tool — desk to metre stick, lunchbox to scales, mug to jug. Keep it to two minutes; the goal is only to surface that different measures need different instruments before stations begin.
2. **Watch and Notice.** Model the estimate-then-read rhythm on the measurement interactive. On the desk reading, physically point to lining the zero up with one end; on the weight, point to where the needle rests and count on in the step size. Say your estimate aloud before every single reading — that habit is the whole lesson.
3. **Try It Together.** Groups of four rotate through the three stations. Circulate and catch two slips on the spot: pupils not lining the ruler's zero to the end, and reading the jug from above rather than at eye level. Listen for each pupil saying their own estimate aloud before they measure — prompt any who skip it.

4. **Rule Your Investigation Table.** Glance down the columns as you walk — check the estimate column is filled before the measured column, not after. If a pupil measures first and back-fills a 'guess', quietly cover the measured value and ask for the estimate properly.
5. **Reading a ruler to the nearest mm.** Drive this interactive from the front. Point to how each small line is 1 mm, and read a length together as 14 cm and 5 mm. Make the ___ cm ___ mm way of writing it explicit now — this is the exact format pupils write in the round that follows.
6. **Class Challenge.** Keep the recording round brisk. Pupils use their own ruler and metre stick at the length station; the single shared set of scales circulates group to group for the weight. Have the class confirm each reading aloud at the end. Praise a run of estimates that got tighter and name what made the good guess.
7. **What Did We Notice?.** Ask whose estimates got closer as the lesson went on. Listen for pupils naming a reference — 'a metre stick is about as tall as my waist', 'a bag of sugar is about a kilogram'. Revoice one strongly, and head off the idea that a lucky guess counts as a good estimate.

COMMON MISCONCEPTIONS

⚠ Pupils read a small length like 14 cm 5 mm and write it as '14.5 cm' or '145' — they lose the mm as a distinct part or run the numbers together.

On the ruler interactive, point again to the small lines and count them aloud: 'five little lines past the 14, so five millimetres.' Have pupils write it in two labelled parts — ___ cm ___ mm — before any decimal shorthand.

⚠ Pupils measure the object first, then write a 'guess' in the estimate column that matches — treating the estimate as something to fill in afterwards.

At the station, cover the scale reading with your hand and ask for the estimate out loud before they touch the instrument. Remind them the estimate column earns its place only if it comes first.

⚠ Pupils read the measuring jug from above, so the water line looks higher than it is.

Crouch to eye level with them at the capacity station and show how the reading changes when you look straight across at the line rather than down. On the jug interactive, read it at the marked line together.

DIFFERENTIATION

EMERGING

- Pre-rule the copybook table headings for pupils who lose time drawing columns, so they only fill in values.
- Keep them on whole centimetres at the length station while the class reads to the nearest mm; the mm round is teacher-supported.

DEVELOPING

- Ask them to record whether each estimate was over or under the measured value, not just how far apart.
- Add a fourth row of their own choosing — pick an object, predict its weight, then check.

PROFICIENT

- Once their table is done, pose: across your three rows, which measure were you closest on — length, weight or capacity — and why do you think that is? A copybook sentence, then narrate it back to the class.
- Challenge them to estimate the classroom width in metres from the doorway alone, using a known reference, before pacing it out to check.

✓ **Cross-curricular:** Tie to the science strand — pupils weigh a classroom seedling's pot of soil in grams and estimate before checking, building the same estimate-then-measure habit.

ANSWER KEY

a) 60 cm

b) 65 cm

c) 5 cm

Q1: Pupil's own estimate and measurement, in cm

Q2: Pupil's own estimate and measurement, in g

Q3: (none)

a) Always : The rule says estimate first using something you know.

- b) Sometimes : True if you guess 10 cm and it is 10 cm; false if you are a bit off.
- c) Always : The right tool depends on the size of the object.
- d) Sometimes : You compare only when the estimate and measure are both recorded.