

Estimating then measuring – length

CURRICULUM ALIGNMENT

MEA.MSR.4b

find, interpret and deduce measures experimentally with increasing precision.

DAT.DAT.4a

pose questions, collect, compare, summarise and represent data selectively to answer those questions.

WHAT THIS LESSON TEACHES

Before measuring, **estimate** first using a familiar reference (a '**benchmark**'). Your hand span, a known object, or a memorised length lets you make a sensible guess that you check by measuring.

- **Hand span** is roughly **20 cm** for a 5th-class pupil.
- **A4 paper** is **30 cm** long and **21 cm** wide.
- **Door height** is about **2 m** in most rooms.
- **One adult step** is about **70 cm**.

LESSON ARC

Open at the IWB comparing the corridor to the playground by sight, no measuring. Walk pupils through four anchored predictions (IWB rail, Maths book, door, playground), then run three classroom rounds where pupils name the anchor before revealing the actual. Pupils set up an Estimate–Actual–Difference table in their copybook. The lesson then moves outdoors: small groups estimate then measure three real yard routes with a metre stick.

TEACHING MOVES

1. **Getting Started.** Give five seconds of silent think-time, then take three hands-up answers — no call-outs. Resist the urge to settle the question; the point is that pupils commit to a prediction before any measuring happens.
2. **Watch and Notice.** For each of the four lengths, hold the anchor up physically beside the object on the IWB before any number is revealed. Ask 'how many metre sticks fit along the rail?' and wait for a count, then reveal. The pattern you want pupils to internalise: anchor first, predict second, actual last.
3. **Try It Together.** Take three predictions per round, then a pupil enters one on the board. After the reveal, push every pupil who speaks to NAME their anchor — 'I used the metre stick', 'I used the Maths book'. Don't accept 'I just knew'.
4. **Set Up Your Estimate Table.** Walk the rows and glance at column alignment, but don't mark. If a pupil's Difference column reads zero every time, ask them aloud whether they wrote the estimate first or copied it after — the honesty matters more than the closeness.
5. **Class Challenge.** Before heading out, calibrate one of your own paces against a metre stick at the IWB so every pupil leaves with a personal anchor. Outside, circulate and intercept any group reaching for the stick first — send them back to the copybook to predict. Listen for anchor-naming as you move group to group.
6. **What Did We Notice?.** Revoice anchor-language back at pupils: 'so you compared the corridor to about ten metre sticks lined up — that's the anchor doing the work'. Push back gently on any pupil claiming a perfect estimate; the lesson's goal is closeness and refinement, not zero difference.

COMMON MISCONCEPTIONS

⚠ Pupils call out a number with no anchor — 'about 12 metres' for the corridor — and treat it as an estimate. It's a guess, not an estimate, because nothing known is doing the comparison work. Stop and ask 'what did you compare it to?' If they can't name something (metre stick, Maths book, the door), hold a metre stick up beside the object and ask them to count how many fit. The naming is what turns a guess into an estimate.

⚠ On the half-metre yard route, pupils round to 'one metre' because they're estimating to the nearest metre by habit. They lose the sense that short distances want centimetres. Hold the metre stick beside the chalk line and fold it in half visually with your hand. Ask 'is the chalk closer to half a stick or a full stick?' Then re-pose: 'in centimetres, what would that be?' Reinforce that the unit follows the size of the thing.

⚠ Pupils measure first, then write the same number in the Estimate column — so Difference is always zero and the table looks perfect. Surface it openly during the copybook walk: 'a zero difference every time tells me the estimate was written after the actual'. Reframe the lesson's goal — being close is the win, being perfect is the giveaway. Have them predict the next route in pen before the stick comes out.

DIFFERENTIATION

EMERGING

- Pair the pupil with a partner who calls out the anchor first ('metre stick or Maths book?') before the pupil commits to a number — naming-then-numbering, not numbering-then-naming.
- On the outdoor routes, give the pupil the metre-stick job for their group. Laying the stick down end-over-end builds the count-the-anchors habit physically.

DEVELOPING

- After each yard route, ask the pupil to predict the next route's actual before the group estimates — using how close they were on the previous one as their refinement.
- Add a fourth column to the copybook table: 'Better estimate next time?' Pupils write a sharper estimate for a similar length based on what the difference told them.

PROFICIENT

- Pose: can you estimate a length you can't walk — the height of the school roof, the length of the GAA pitch — using only anchors you have? Pupils write the chain of reasoning in copybook (e.g. 'the door is 2 m, the roof looks about three doors stacked, so about 6 m').
- Direct fast finishers to the extension tiles in the Try It Together interactive (corridor, flagpole, car park) on a device while you circulate the outdoor groups.

- **Cross-curricular:** Tie to PE — pupils estimate the length of the running track or the GAA pitch sideline using paces, then measure with the metre stick to refine.

ANSWER KEY

W1: 4 cm

Q2: 11 cm

W2: 2 cm

Q3: 5.9 cm

Q1: 19 cm

Q4: 8.7 cm

EXTENSION SHEET · STRETCH ANSWERS

S1: 2.5 cm

S3: 16 cm

S2: 11 cm