

Estimating then measuring – length

CURRICULUM ALIGNMENT

MEA.MSR.4b

find, interpret and deduce measures experimentally with increasing precision.

MEA.MSR.4a

determine and calculate units of measurement in fractional and/or decimal form to solve practical problems.

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 with the corridor-vs-playground bet — three hands-up guesses, no walking allowed, so the disagreement is the hook. Hold the demonstration metre stick against the board rail, a Maths book, then the door, always estimating before measuring. Pupils rule a three-column estimate/actual/difference table in their copybooks, then measure three classroom lengths in groups of four or five. The Class Challenge sends each group to one marked route; readings get pooled on the board.

TEACHING MOVES

1. **Getting Started.** Take exactly three hands-up bets on which space is longest — corridor, playground, or classroom — and refuse to settle the argument. Ask 'how could we settle this without walking each one?' and leave it hanging; that unsettled bet is what the whole lesson pays off.
2. **Watch and Notice.** Hold the metre stick at eye level against the board rail, the Maths book, then the door — estimate aloud before each measure, every time. On the door, revoice: 'a door is about 2 m, so now you know what 2 m looks like to judge other heights against.' Name that the book is under a metre, so centimetres are the sensible unit.
3. **Set Up Your Estimate Table.** Walk the room checking the three column headings — estimate, actual, difference — and that rules are straight. No marking; this is just getting the recording frame ready. Don't move on until every pupil has it ruled, or hand out the printable sheet.
4. **Try It Together.** Insist the estimate is written before the metre stick comes out for each length. Circulate and catch alignment slips on the spot — start at zero, no gaps. Watch pupils lose count on the front-to-back distance where the stick goes end-over-end several times.
5. **Class Challenge.** Assign each group one route only and keep it brisk — they measure, then you pool all three readings on the board so everyone ends with the full set. Have pupils calibrate one step against the metre stick first so their pacing estimate is their own. Confirm each reading aloud as it comes in.
6. **What Did We Notice?.** Listen for a strategy, not a number — comparing to a known anchor, or splitting a long route into chunks. Revoice the strongest: 'you didn't guess the whole 12 m at once, you pictured it as two of the 5 m route plus a bit.' Name that the reliable estimates all leaned on a known length.

COMMON MISCONCEPTIONS

⚠ Pupils measure first, then write that figure in the 'estimate' column — so the estimate is just a copy of the answer and no real judging happens.

Make the estimate a written commitment before the metre stick is allowed near the length. If you catch a group reaching for the stick first, cover the length, take their estimate aloud, then uncover it to measure.

⚠ When laying the metre stick end-over-end for a long route, pupils leave a small gap each time or lose track of how many lengths they've laid, so the total drifts low.

Stop the group and watch one lay-down together — finger stays on the end mark before the stick moves, and someone tallies each metre out loud. Re-lay the route counting in unison.

⚠ Pupils try to pace Route A (under 1 m) and report a wildly long figure because one step is bigger than the route.

Hold up half a metre stick and a Maths book lengthways beside Route A — it's shorter than a single step, so pacing can't work. Have them compare to those and read it in centimetres.

DIFFERENTIATION

EMERGING

- Give these pupils the door-frame and desk to measure (whole-metre-ish lengths) and skip the long front-to-back route where the end-over-end counting overwhelms.
- Pre-rule their estimate/actual/difference table or hand them the printable sheet so all their effort goes on the measuring, not the layout.

DEVELOPING

- After the three classroom lengths, ask them to estimate a fourth length you haven't named yet using the door as their anchor — then check it.
- Have them predict, before pooling on the board, which group's route had the biggest estimate-to-actual difference, and say why.

PROFICIENT

- While the class confirms route readings, pose: 'using only the three pooled route lengths, estimate the total perimeter of the room without measuring it — explain which lengths you leaned on.'

- **Cross-curricular:** Tie to Geography — pupils estimate then check the metre-by-metre length of a marked map scale or the school's own corridor to the nearest metre.

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