Day 22 · Start at zero, then make it fit

Make a bookmark that fits. Try an estimate first.

Useful purpose: Estimate and measure length with a labelled ruler; distinguish its physical edge from the zero line.

1 · Find the starting point

Revisit cm versus mL. Ask which of two strips looks longer and why; do not assume a child's finger width is a universal centimetre.

2 · Prepare a suitable invitation

Adult offers a checked ruler, paper strip and book or described rectangle. No scissors required: fold or mark a line; adult cuts only if wanted and suitable. Check zero, equal markings and alignment, and independently verify any printed scale before using it as a real tool.

3 · Brief worked model

This MODEL diagram begins at the 5 cm mark and ends at 14 cm. The length is 14 − 5 = 9 cm, not 14 cm. On a real ruler I can start at zero and read the end, or subtract the two end readings. A decorative printed diagram is not a calibrated ruler.

4 · Guided new try

Align a new safe strip with zero and read a whole-centimetre end together. Slide the strip without changing it; ask whether its length changed. Model reading from above rather than an angled view.

5 · Own attempt

Estimate, choose the start and end, then measure or direct a helper. Record unit and reading. If using only the supplied diagram, say so and answer its mathematical question instead.

6 · Observe and respond

Look for zero alignment, correct unit and the distance between end readings. Record who positioned the tool and who chose/read. A supplied subtraction answer is not evidence of physically aligning a ruler.

Specific next teaching

If the child reads only the last number, compare a new strip from 2 to 8 cm with the same strip from 0 to 6 cm. If alignment is secure, compare two own readings and decide whether a strip actually fits.

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Pick a route

1 · Bookmark maker

Will it fit this book?

Estimate a familiar book edge, then measure or direct measuring. Fold a strip to the measured length and compare the fit. Keep the real reading instead of forcing the model's answer.

Observe: Unit, start/end and fit agree; label who handled the tool.

Next teaching: Measure a different edge and explain a mismatch before changing the strip.

Evidence boundary: Observed measuring/directing and fit; adult handling recorded.

2 · Broken-start puzzle

How long is the strip?

Use a MODEL start of 3 cm and end of 12 cm. Show 12 − 3 = 9 cm with a number line, gesture, words or jottings; explain why 12 cm counts an unused section.

Observe: 9 cm with a reason about the start.

Next teaching: Use an unrelated diagram from 7 to 16 cm and hide the written equation.

Evidence boundary: Supplied diagram interpretation only.

3 · Two readings, same strip

Did moving it make it longer?

For a MODEL paper tail, reading pair A is 0 to 7 cm and pair B is 4 to 11 cm. Compare both differences and choose one clear measuring instruction for a helper.

Observe: Both lengths 7 cm; a usable alignment instruction.

Next teaching: Invite a real safe alignment attempt if wanted, separately recorded.

Evidence boundary: Comparison and plan; no physical action inferred.

Ordinary aids and full words · Choose another ordinary day

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