

Your studio, ready to teach

An original one-week mini-course for a beginner around 11 who can read a sustained passage with support and add whole-number centimetres. Two 45-minute sessions. This sample demonstrates Course Studio with original teaching material.

Open and print

Use Pocket-Lab-Learner.pdf (8 pages) and this separate guide (5 pages). Print learner pages 1-8 in black-and-white. Page 7 must be single-sided at actual size / 100%; verify the 2 cm mark. Other pages may be double-sided. Keep this answer guide for adult use; printing it is optional.

Supplies and preparation

Allow about 10 minutes before session 1 to review this guide and gather a centimetre ruler, pencil, tape, scissors, at least two usable scrap sheets plus paper for three 5×7 cm cards, and a backing sheet. No purchase is assumed. Check the template scale. For session 2, allow about 3 minutes to set out supplies.

What the learner will demonstrate

Identify a design need; explain a constraint; add allowances to two dimensions; compare feasible paper sizes; generate two options; record an observation; revise and explain a choice using evidence.

Your role

Launch each session, check the math before cutting, support reading or scissors as needed, and lead the final reflection. Keep help focused on questions and safe handling. This is a taped paper model; it is not designed for sewing, wearing, or holding valuable/heavy objects.

Total core learning time: 90 minutes. Estimates depend on the learner; optional challenges are outside the core schedule.

Session 1: notice and measure

45-minute route

Launch/start task, 5 min (p. 1). Read together or independently, 12 min (pp. 2-3). Discuss Q01-Q03, 10 min (p. 4). Teach the model and try Q04-Q05, 13 min (p. 5). Review and put materials away, 5 min. If reading takes longer, use oral answers and finish the math next session; update the plan accordingly.

Teach the key idea

A pocket solves a need for someone. Its appearance can be creative, but choices also have consequences. Ask: “Who needs this?” “What would count as working?” For measurement, draw the finished face first, then add strips outside it. Width and height get different allowances.

Hints before answers

Q01: return to the end of section 1. Q02: ask which description points to a fix. Q04: trace both side margins with a finger, then the top and bottom. Q05: compare both dimensions; a large area alone cannot prove a rectangle will fit.

Common confusions

An allowance is not part of the finished face. It must be added before cutting, not subtracted. For Q05, rotating sheet B still leaves one dimension too short. In reading discussion, encourage section evidence rather than guessing what a designer “always” does.

Adapt the session

More support: shared reading, read one section then summarize aloud, draw colored or patterned allowance strips, accept dictated answers. Go further: calculate cut areas and explain why comparing areas alone is insufficient. Short 20-minute route: 3 min launch, 7 min adult summary plus section 4, 7 min worked example/Q04, 3 min oral reflection. Read the full passage later; this shorter route defers it.

Quick check

Ask the learner to explain where each added centimetre goes. Note whether the explanation is independent, prompted, or needs another example.

Reading and math answers

START / p. 1

Open baseline. Possible ideas: hold objects, stay attached, be easy to reach. Record the learner's own starting ideas; revisit specificity at the end.

Q01 / p. 4

Any two: hold three message cards; allow quick access; stay closed at the bottom during movement. Evidence: section 1, final sentence. Accept faithful paraphrases.

Q02 / p. 4

The specific observation names the location and what loosened, so Ari can choose a targeted change and compare a repeat test. Evidence: section 5. "Bad pocket" gives little guidance about what to fix.

Q03 / p. 4

Open answer. Example: "The actor must find the pocket in low light, so I would add a large raised paper marker beside its opening." Look for a genuine constraint and a plausible consequence. Other defensible choices are welcome; the learner need not build this idea.

Q04 / p. 5

Cut width = $12 + 1 + 1 = 14$ cm. Cut height = $14 + 1 + 2 = 17$ cm. Check both dimensions and units. The template outside dimensions must match.

Q05 / p. 5

A fits: 15 14 and 20 17. B does not fit: its 13 cm side is shorter than either 14 or 17 cm. Turning B cannot solve that limit. The question restricts edges to parallel placement; do not introduce diagonal nesting.

Optional stretch / p. 5

One cut rectangle: $14 \times 17 = 238$ cm². Two: $2 \times 238 = 476$ cm². A larger area does not guarantee a usable shape; compare actual dimensions.

Accept oral, written, or drawn explanations. Score the mathematics and reasoning separately from handwriting and spelling.

Session 2: build and improve

45-minute route

Recall the brief, 3 min. Sketch/choose Q06 (p. 6), 8 min. Build with pp. 6-7, 12 min. Initial test Q07 (p. 8), 7 min. Revise/retest Q08, 8 min. Label/reflection Q09, 5 min. Cleanup, 2 min.

Demonstrate the model

Check template scale and cut size first. Fold side, bottom, and top allowances backward. Tape folded side and bottom tabs to the backing sheet; leave the opening free. Make three paper cards 5 × 7 cm. Model a gentle tilt of the backing sheet. Support scissors and folding as needed; no sewing or body measurements.

Open-task criteria and examples

Q06: two distinct, labeled ideas and a chosen feature linked to the user. Example: a large symbol helps the actor locate the pocket. Q07: record what actually happens; there is no predetermined result. Useful observations name card retention, attachment, or access. Q08: name one change, a prediction, and the repeated test result. A change need not work to demonstrate learning.

Q09 sample: "This pocket is for an actor carrying message cards. I chose a large arrow to show the opening. My finished face is 12 cm wide. After the lower corner loosened, extra tape kept all three cards in during the repeat tilt test." This is an illustrative response, not a result students must copy.

Adapt the session

Support: adult cuts/pre-folds, learner directs choices and tests; dictate the label. Challenge: compare a second attachment with the same test or discuss strength versus ease of opening. Short 20-minute route: 3 min choose an idea, 6 min assemble a pre-cut model, 7 min test/change/retest, 4 min oral label. Defer the second sketch or complete it another day.

Facilitation prompt

"What happened?" before "Was it good?" If everything works, invite a usability improvement or a thoughtful reason to keep the design. Evidence matters more than a dramatic failure.

Notice growth, choose next steps

Three useful levels

Starting: identifies a need with help, needs the allowance example repeated, or describes a result vaguely. Working: calculates with a prompt, links a feature to a need, and records a specific test. Secure: explains dimensions independently, compares options using criteria, and connects a change to evidence. Apply these separately to measurement, reasoning, and communication; one overall label can hide uneven strengths.

Portfolio and ending check

Keep the initial ideas, Q04 calculations, two sketches, model, and test notes. Ask: “What makes this pocket useful, and how do you know?” Compare with the starting response. An observable gain is moving from “it looks good” to a specific user need plus test evidence. A polished object alone does not prove learning.

Family check-in

Record each session’s time, enjoyment, frustration, independence, and one adjustment. Example: split the reading across two days and accept a spoken explanation.

Where this could go next

For a longer course, investigate material properties, compare pockets for different users, or design a small paper accessory collection. Add new math or research only after checking readiness and available time.

Content and asset notes

The story and activities are original fictional teaching material. Ari and the costume studio are invented. Measurements are constructed examples, checked arithmetically. Pocket outlines and the exact-size template are original vector drawings. No external images, fabric-performance claims, or historical quotations are used. Reading length: 630 words. This sample has not been piloted with a child.

Editable sources and the original vector template are included in the starter kit.