

Draft and choose a design

Lesson at a glance

Open by holding up loose pencils that have rolled under a desk and name Sam as the shared user who needs a holder. Model two tiny drafts on the board (open tray vs tube stand), think aloud, then circle one — no full plan yet. Pairs call out two ideas, then on the Investigation Journal page sketch two rough drafts, choose one, and draw a labelled plan naming parts and tray materials (card, tape, sticks). Close with partner “I like... I wonder...” talk and one change each pair might make.

Learning objectives

- Draft two quick design ideas for Sam's pencil problem
- Choose one idea and draw a labelled plan naming parts and materials

Before the bell – prep

Set one sample materials tray per group the day before: card scraps, paper, masking tape, lolly sticks, and a small box if you have one — look-and-touch only, no build. Check each Investigation Journal page (or blank A4) leaves room for two small drafts plus one larger labelled plan. Pencils and coloured pencils ready; keep journals closed until the drafting step.

Materials

Item	Qty	Per	Source	Low-cost substitute
Investigation Journal page	1	pupil	provided printable	a blank A4 sheet with room for two small drafts and one larger labelled plan
design paper for extra drafts	1	pupil	classroom	the back of used paper
coloured pencils	1	group	classroom	ordinary pencils only
sample build materials tray (card scraps, paper, masking tape, lolly sticks)	1	group	classroom	card from cereal boxes cut into strips, scrap paper, and sticky tape

Safety watch-point

Plan-only day — no cutting or building. Trays are look-and-touch; keep tape rolls and sticks on the tray so they are not waved or thrown.

**Teaching moves**

- **Getting Started:** Hold up a few loose pencils from the floor and name Sam as a shared made-up user so everyone solves the same problem. Ask who we are helping and what a good helper must do. Capture two or three short phrases on the board (holds pencils, does not tip, easy to make). Do not hand out journals or trays yet.
- **Drafts, then a plan:** Keep pencils and journals away. Live-model under five minutes: sketch two tiny drafts only (open tray; tube stand), think aloud about tall sides vs easy grab, point to one good and one tricky part of each, then circle the tray. Stop — do not draw a full labelled plan. Reveal briefly that a plan is a clearer labelled drawing of the chosen idea, then ask why makers sketch more than one idea.
- **Imagine ideas:** Leave the sample tray visible for look-and-touch. Run think-pair-share: 30 seconds quiet think, about a minute of pair talk, then collect simple shapes on the IWB (open box, tall pot, divided tray, clip-on cup). If pairs stall, prompt: Could it stand up? Stick to the desk? Hold more than pencils?
- **Draft, choose and plan:** Show one instruction at a time on the board so nobody races to the plan. Drafts ~5 min: two quick rough sketches — praise different ideas, not neatness. Choose ~3 min: pairs name one good and one tricky part of each, then circle. Labelled plan ~10 min: redraw larger, add part labels (base, side, opening) and name two things from the tray. Minimum bar: two drafts, a circled choice, two part labels, two materials named.
- **Share and reflect:** Model once: I like... I wonder... Give about 2 minutes each way for partner feedback, then take one change-sentence from three volunteers only. Revoice design comments (shape, materials, how it holds pencils), not neat colouring. A tiny star on the plan is fine; no written reflection required.

What it should show

Every pupil should leave with two rough drafts, one circled choice, and a clearer plan showing at least two part labels (e.g. base, side, opening) and two tray materials (card, tape, stick). Plans will vary — tray, pot, divided box are all valid if they hold pencils. A plan with no materials named usually means the tray was not looked at; send them back to touch and name what is stiff enough.

Misconceptions & interventions

- **“My first idea has to be the best one, so I only need one draft.”** — Remind them: a draft is for thinking, not for hanging on the wall. Ask them to change one thing on the first sketch (taller, wider, with a lid) to make a second different draft before choosing.
- **“A draft has to look neat and finished or it doesn’t count.”** — Hold up your own messy board sketches and praise rough, different ideas as you walk. Say out loud that neat colouring is not required — two quick sketches and a clear labelled plan are the success bar.
- **Pupils label the plan with colours or decorations instead of parts and materials.** — Point to a part on their drawing and ask: What will you call this bit? What on the tray is it made of? Add base, side, opening as brief board examples when the plan instruction appears.

Differentiation

Emerging	Developing	Proficient
• Offer spoken starters: One idea is... Another idea is...; let the pupil dictate part/material labels while a partner or you scribes a word or two. • If only one draft appears, ask them to change one thing (taller, wider, lid) rather than invent a whole new idea.	• Prompt the good/tricky talk with: What might tip over? What on the tray is stiff enough? • Encourage a simple size note on the plan (fits five pencils) once parts and materials are labelled.	• Ask who else might use this holder and whether one change would help that user too. • During share, push for a design-based wonder (wide base vs tip risk) rather than a neatness comment.

Cross-curricular hook

Links to Visual Arts drawing and English labelling — parts named clearly so a partner can read the plan.