

Find a problem worth solving

Lesson at a glance

Open with the muddy-door story: a clever fix for the wrong problem wastes everyone's time. Name empathy and user, then lead a short class walk (outdoor watch points or indoor classmate-role stations) where groups watch, ask one polite question, and jot notes on clipboards. Back inside, pupils turn notes into the Investigation Journal page—user, need, success checks, then a first labelled sketch. Close with a display-only share that checks who it is for and what they need.

Learning objectives

- Use empathy to spot a real small problem for a chosen user in school
- Name the user need and what success would look like
- Sketch a first idea that could solve the problem

Before the bell – prep

Form groups of 3–4 before leaving. Set one full path: outdoor 2–3 watch points with willing users if possible, plus indoor stations (pegs, shelf, door) as equal backup. Print Investigation Journal pages for desks; clipboards and pencils for the walk only. Check weather and agree outdoor boundaries.

Materials

Item	Qty	Per	Source	Low-cost substitute
clipboard	1	pupil	classroom	a hardback book or stiff folder to lean on
pencil	1	pupil	classroom	any writing tool the pupil already has
Investigation Journal page	1	pupil	classroom	plain paper with teacher-prompted headings said aloud (problem, user, need, success, sketch)
ruler	1	pupil	classroom	estimate sizes by finger widths if rulers are short

Safety watch-point

Stay with the class outdoors; walk, do not run; keep pathways clear for others; return promptly. Switch to indoor stations in heavy rain.

**Teaching moves**

- **Start with the person, not the stuff:** Board only empathy and user now. Say the modelled muddy-strip cycle aloud (wonder–predict–watch–ask–need) without projecting it. Head off invention talk: person first, need second, idea third.
- **Walk, watch and ask:** Keep the class together; you announce each watch point. Model one polite question: 'What makes this bit awkward for you?' Look for watch-before-talk, a named user (not 'everyone'), and notes about awkwardness not inventions. If a planned job is not happening, move everyone to the next point or the prepared indoor stations.
- **Name the need and sketch a first idea:** Introduce user need and success with the board stems. Protect order: user and need first, sketch as soon as those are down, then one or two success checks. Around eight minutes in, call a time check so unfinished groups lock user and need before adding to the sketch. Ask invention-heavy groups: 'Which part of your sketch meets the need you wrote?'
- **Share your user and need:** Two-minute whisper scan: coach vague users or invention-first pages before anyone shares. Put the class check on the board: 'Can you say who it is for and what they need?' After each of three or four shares, run that check, then open why-problem-first talk. Collect or keep Investigation Journal pages for later prototype sessions.

What it should show

A successful brief names a real school user, states the need in plain words, lists one or two testable success checks, and links the sketch to that need—not a random gadget. Groups stuck on 'everyone' or a wild machine usually skipped watching; send them back to one concrete awkward moment from their notes.

Misconceptions & interventions

- **Pupils jump to a cool invention ('a robot door!') before naming who has the problem.** — Point at their notes: 'Who did you watch, and what felt awkward?' Hold the sketch until user and need are written on the Investigation Journal page.
- **They write the user as 'everyone' or 'the school', so the need stays vague.** — Ask which one person they watched. Reframe to a named role (younger pupil at the pegs, teacher at the shelf) and rewrite the need for that person only.
- **Success checks describe the invention ('it has wheels') instead of a fixed problem ('nothing falls when bumped').** — Use the stem 'Success looks like...' and ask what they would see or measure if the awkwardness was gone—no materials talk yet.

Differentiation

Emerging	Developing	Proficient
• Offer a short menu of watch places (cloakroom pegs, bookshelf, door mat) and keep the four sentence starters visible; allow drawing plus spoken stems if writing blocks them.	• After watching, refine one polite question of their own; aim for user, need, one success check and a labelled sketch linked to the need.	• Add one real limit to the brief (must be safe in a busy corridor; must use everyday materials) and say which sketch part meets the written need.

Cross-curricular hook

Links to English oral language: polite questioning on the walk and clear spoken briefs in the share.