

Empathy and User Needs, Risks and Limits

Lesson at a glance

Open by asking whether a thing was ever made for the wrong person (a too-high door handle, right-handed scissors) to spark the idea of empathy. Read the three concept rows — empathy, user need, risk and limit — one at a time. You then act out the full six-beat research cycle at the front, since there is no clip. Groups interview a real school user (caretaker, SNA, buddy-class pupil) about one small genuine problem, then record the need, risk and limit and sketch two first ideas on their Design Brief page.

Learning objectives

- Use empathy to consider a real user's needs, risks and limits
- Research a design problem by interviewing a real user
- Sketch first ideas that respect those needs and limits

Before the bell – prep

Sort the logistics the day before: line up one or two familiar in-school users (caretaker, SNA, staff member, buddy-class pupil) and decide whether they sit with groups or rotate. Print interview prompt cards and one Design Brief page per group. If no visitor can come, plan the role-play fallback so every group still runs the interview.

Materials

Item	Qty	Per	Source	Low-cost substitute
interview prompt cards	1	group	classroom	write the three prompt questions on the board for groups to copy
Design Brief page	1	group	classroom	rule up the four boxes (user, need, risk and limit, sketches) on a plain copybook page
clipboard	1	group	classroom	a hardback book to rest paper on
design sketch paper	2	group	classroom	plain copybook pages
pencils	1	pupil	classroom	any writing pencil already in the classroom



Safety watch-point

If users rotate or groups meet a visitor around the school, set clear boundaries: agree where each group goes and that no group wanders off unsupervised.



Teaching moves

- **Design With Empathy:** Read the concept table one row at a time and point at each cell rather than letting all three rows land at once. Pause after each row for a real classroom example. Head off the leap to solutions now: say "We are not designing yet — today we only find out what our user needs."
- **Watch an Engineer Ask First:** You are the engineer the class watches — there is no clip, so act out all six beats aloud: ask, listen, write the need in the user's words, spot one risk, name one limit, then sketch. Use an imagined caretaker as your user. Hand out prompt cards and one Design Brief page per group now so they can write during the interview.
- **Interview Your User:** At the start of this step, tell each group who their user is and where to go. Walk the room and watch for pupils leaping to solutions — redirect with "Ask, don't tell." Groups record on the Design Brief page from the previous step.
- **Record and Sketch First Ideas:** Have groups reuse the same Design Brief page, not a fresh sheet. Check the user and need are in the user's own words, then add the agreed risk and limit and two simple sketches. Circulate and ask each group to point to where a sketch answers the user's need.



What it should show

This is a design brief, not a fair test, so success is a completed Design Brief page: the user named, the need written in the user's own words, one genuine risk, one real limit (space, cost, safety or time), and two simple sketches that each respect the need and the limit. A group whose sketch ignores its own stated limit — a design too big for a small press — has skipped checking; send them back to compare sketch against limit.



Misconceptions & interventions

- **Pupils jump straight to "I'll make a robot that..." before finding out what the user actually needs.** — Pause them with "Ask, don't tell — today we only find out." Point back to your worked cycle at the front, where you wrote the need before any sketch.
- **Pupils record what they imagine the user needs rather than what the user actually said.** — Ask the group to point to the exact words on the Design Brief page and check they came from the user, not the group. Revoice a strong example so the class hears real user language.



Differentiation

Emerging	Developing	Proficient
• Give the group a single starter prompt card and let them capture one need only.	• Ask the group to find two needs and decide which matters most to the user, and why.	• Have them critique their own sketch against the limit — does it truly fit, cost little, stay safe? — and revise the line explaining how it meets the need.

Cross-curricular hook

Link to the Nature of STEM: engineers who planned the Waterford and Great Western greenways asked walkers, wheelchair users, cyclists and farmers first.