

VCE Visual Communication Design Units 1 & 2

Chapter 9 — Designing interactive experiences

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Contents

Section	Page
9A UX/interaction design practice & good design	2
9B Diverse user needs & human-centred research	17
9C Visualising, testing & presenting interactions	34
Topic Test 4 — Visualising environments, cultural ownership and interactive experiences	55
Topic Test 4 — Resource Sheet	56
Topic Test 4 — Answers and marking guide	60

Chapter 9 Designing interactive experiences — 9A UX/interaction design practice & good design

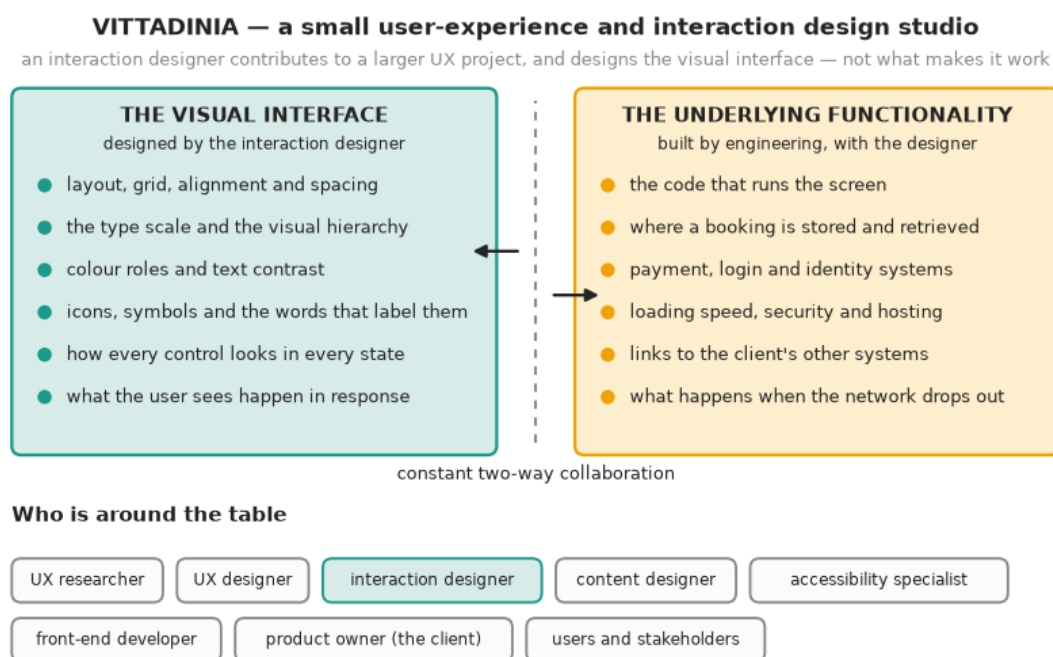
Theory

Interactive experiences is the fourth field of design practice, and the one where the person on the other side of the design does not merely read it — they **act on it, and it answers back**. A poster is finished when it is printed. A booking screen is only half of a conversation: the user taps, the design responds, and the next thing they see depends on what they just did. Designing for this field therefore means designing a **sequence of states**, not a single composition.

Two terms sit at the centre of the field, and they are not the same thing.

- **User-experience (UX) design** is the design of a person's *whole* experience of a product, environment or service — every point at which they meet it, before, during and after. For a community tool library that includes the poster at the library door, the sign-up form, the app, the shed itself, the volunteer who hands the drill over and the reminder to bring it back.
- **Interaction design** is the design of what happens *between a person and an interface*: what the user can do, what the interface shows in return, and what it makes obvious to do next.

An interaction designer therefore **contributes to a larger UX project**, and inside that project focuses on the design of the **visual interface** rather than on its **underlying functionality**. This boundary is the single most useful thing to be clear about in this chapter: you design what a user sees, reads, understands and can act on; other people build what makes it work.



In Units 1 and 2 you present your interaction design as **static visual representations** of content and intended interactions — sized screens, wireframes and mock-ups, with the states drawn side by side and annotated. You are **not** required to produce a functioning prototype. Not having to code anything is exactly why the boundary above matters: the interface is your work, and it must be communicated clearly enough that someone else could build it.

Watch-out — the interface is not the functionality. “I would design an app that stores every member’s borrowing history in a database” describes functionality you are not designing. “I would design the screen that shows a member which tools they currently have out, and when each is due” describes the visual interface, which is.

Watch-out — users, not just an audience. In messages and environments people mostly *receive* a design. In interactive experiences they **use** it: they have a task, a goal and a next action. Write about what a user is trying to *do*, not only about what they see.

Why this field is collaborative by nature. No single person holds everything a screen needs. One surface, perhaps 70 mm across, has to carry research findings, plain words, a legible type scale, an accessible colour scheme, a brand, a legal disclosure and a control that a developer can actually build. Those are different specialisms. So in user-experience and interaction design, collaboration is not a nice extra that happens when there is time — it is how the work is done at all.

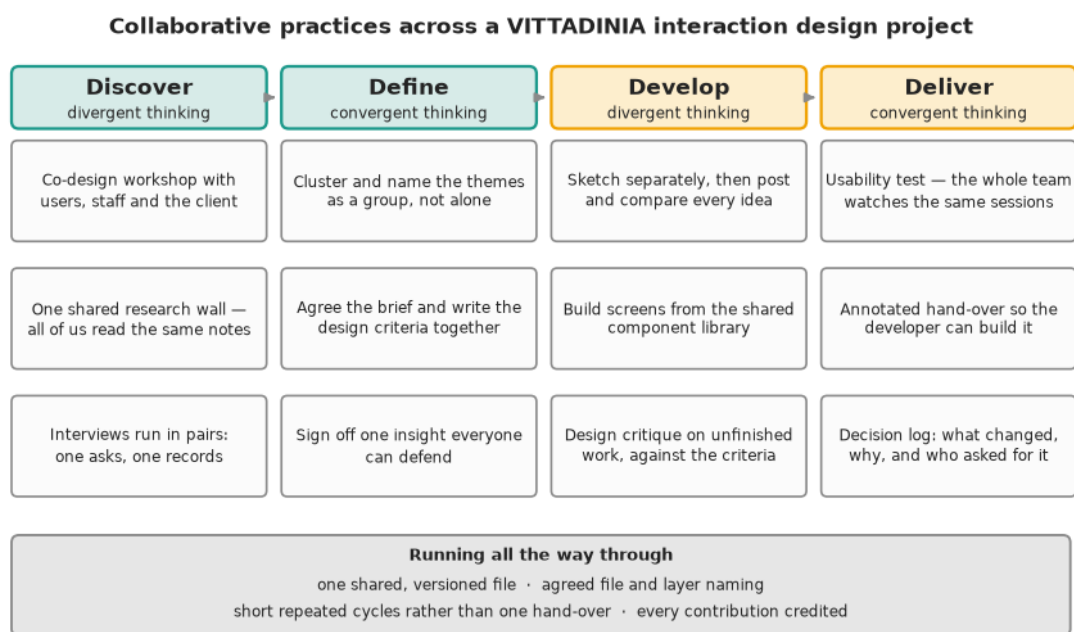
Who is around the table. Team names differ from studio to studio; what matters is the *contribution* each brings and what the interaction designer gets from working with them.

Collaborator	What they bring	What the interaction designer gets from them
UX researcher	Interviews, observation, usability testing; synthesised findings and insights	Evidence about real users, instead of the designer's own habits
UX designer	The whole journey across all touchpoints; how information is organised across screens	Where this screen sits in the journey, and what the user arrives already knowing
Content designer / UX writer	The words: labels, headings, error messages, plain English	Labels a user recognises — words are as much of the interface as the layout
Accessibility specialist	Standards, assistive-technology testing, inclusive practice	Contrast, target size, text size and labelling checked <i>while</i> the look is being decided
Front-end developer	What is technically possible, at what cost, on which devices	Early warning that a design cannot be built as drawn — before it is signed off
Product owner / client	The purpose, the budget, the timeline, the business need	The constraints and the decision-making authority
Users and stakeholders	Their own tasks, language, circumstances and workarounds	Correction of assumptions the team cannot see for itself

Named collaborative practices. These are the practices you can name in a response and use in your own folio work.

1. **Co-design workshops.** Users and stakeholders are brought *into* the design session, not merely researched from a distance. They sketch, sort and comment on ideas alongside the team.
2. **One shared research wall.** All the evidence is posted where the whole team can read it, so later arguments are settled by pointing at a finding rather than by seniority.
3. **A shared brief and agreed design criteria.** The brief is written together and signed off. It is the contract the collaboration runs on: every later decision is judged against it.
4. **Design critique.** Scheduled sessions on **unfinished** work, run against the agreed criteria. The reviewer describes what they actually see before judging it; the designer listens, records the feedback, and afterwards records what was changed and what was not, and why.
5. **A shared component library.** One agreed set of buttons, text styles, colour roles, icons and spacing steps, built once and reused on every screen by everyone. This is the most characteristic collaborative practice of interface work — and it is also an *aesthetic* instrument, because it is what makes screens drawn by four different people look like one design.
6. **Annotated hand-over.** Because you do not build the product, the static screens are annotated: what each control does, what every state looks like, what the words are, what happens on error. Annotation using correct design terminology is what makes a static presentation buildable.

7. **Shared, versioned files with agreed naming.** Several people edit the same interface. A version and naming convention is what stops two hours of somebody's work disappearing.
8. **Short repeated cycles.** Design a little, test it, refine it, repeat — rather than one long hand-over at the end. The VCD design process is iterative, and interaction design is where that iteration is most visible.
9. **Shared usability testing.** The whole team watches or reads the same test sessions, so the decision to change a screen is made on shared evidence rather than on opinion.
10. **Ethical, credited collaboration.** Consent before recording anyone; participants' own words reported rather than a convenient summary; every contribution credited by name.



What good collaboration actually produces is worth stating, because it is what a question about “the value of collaborative practice” is asking for: decisions that can be traced back to evidence; consistency across screens made by different people; problems found while they are still cheap to fix; and designs that work for people the design team is not.

Watch-out — collaboration is not dividing up the work. Splitting the screens between four people and emailing the files together is **coordination**. Collaboration means working on the same problem at the same time and converging on decisions the whole team can defend.

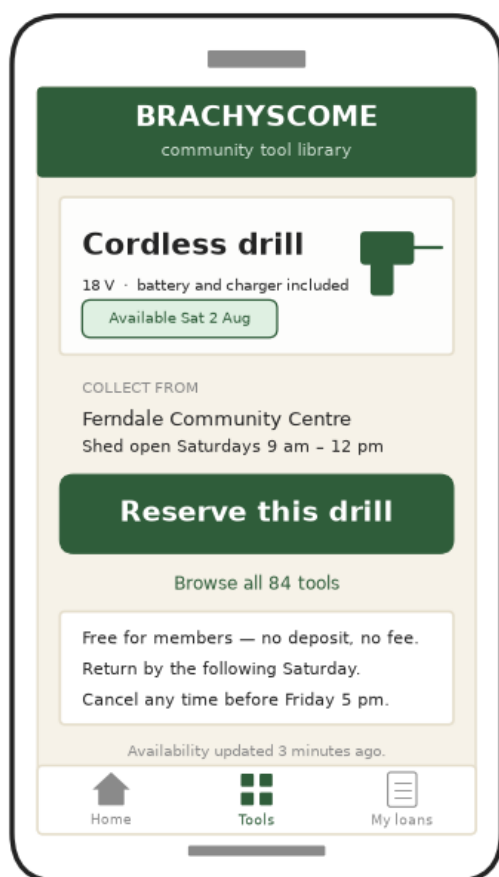
Watch-out — a specialist consulted at the end is not a collaborator. If the accessibility specialist first sees the design after the client has approved the look, the only advice they can give is expensive. Bringing specialists in during Develop is the practice; bringing them in at Deliver is a hand-over.

Aesthetic considerations for interactive experiences. The **aesthetic** of a design is its overall look and feel — its sensory and emotional character. Screens are built from the same design elements and principles as any other design (Chapter 2), but interface work concentrates those choices into a small number of decisions that get made once and then apply everywhere.

- **Colour roles.** Every colour is given one job: a **surface** colour for the ground, a **text** colour with strong contrast against it, one **action** colour that means “this is the thing to tap”, and quiet **status** colours for availability, warnings and errors. If everything is an accent, nothing is.
- **A type scale.** A small, fixed set of sizes and weights — heading, sub-heading, body, caption — rather than a new size chosen for each screen. The scale *is* the hierarchy, made systematic.
- **A grid, alignment and consistent spacing.** Elements share a left margin and a repeated spacing step. Space does the grouping: things close together are read as belonging together (the Gestalt principle of proximity), so the gaps carry meaning as much as the boxes do.
- **Icons and symbols, with words.** Drawn to one style on one grid, and labelled — an icon is reliable only where its meaning is genuinely universal.

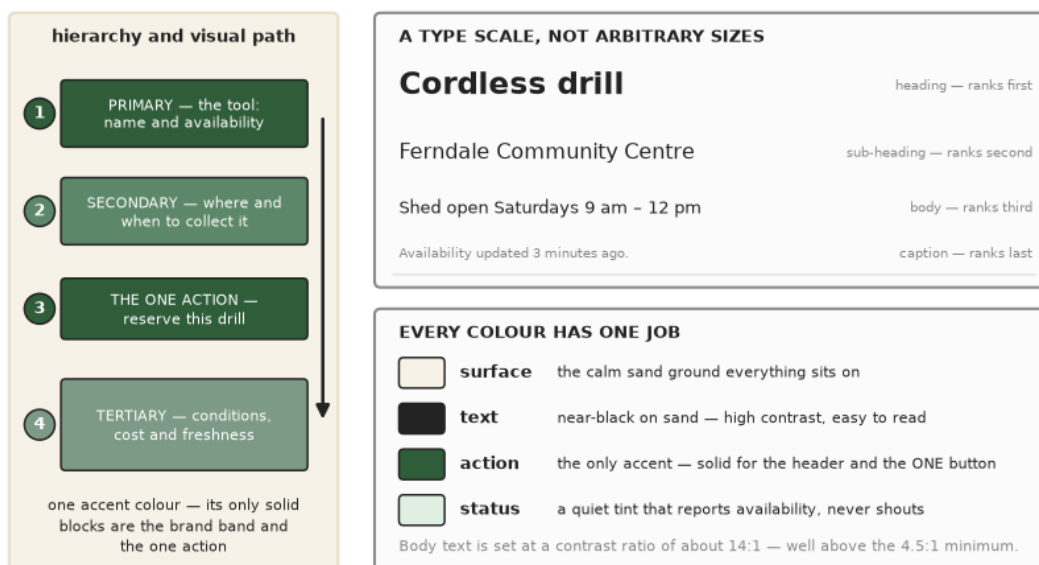
- **Consistency across screens.** The same thing looks the same, means the same and sits in the same place everywhere. Consistency is simultaneously an aesthetic decision and a usability one.
- **States shown, and feedback given.** A control has a default state, a pressed state, a disabled state and an error state; every action produces a visible change so a user is never left wondering whether it worked. In a static presentation you draw the states side by side.
- **The words themselves.** “Reserve this drill” and “Submit” set two different tones. Content is part of the aesthetic.

Below is **BRACHYSCOME**, an original design example: the tool-detail screen of a community tool library’s app, used on a phone by residents who borrow tools rather than buying them.



Its aesthetic is **calm, civic and trustworthy**. A warm sand surface and a single deep eucalypt green carry the whole design; near-black text on sand gives strong contrast; and the green is rationed — the brand band at the top and the one button are its only solid blocks, while everywhere else (the drill icon, the availability chip, the active navigation item, the “Browse all 84 tools” link) it shrinks to a small mark or a line of text. Type sizes step down cleanly from the tool name to the caption, generous space separates the four blocks of content, and every navigation item carries an icon **and** a word.

The aesthetic decisions behind BRACHYSCOME — a calm, civic, trustworthy screen



Read the annotated breakdown above. The hierarchy ranks the content — what the tool is, then where and when to collect it, then the one action, then the conditions — and the visual path runs straight down the screen to the green button. Nothing else on the screen competes with that button, because it is the only control carrying a solid block of the accent colour.

The aesthetic–usability relationship. People consistently judge an attractive interface to be easier to use, and are more forgiving of its small faults. This cuts two ways. It is a reason to take aesthetic decisions seriously: a screen that looks considered is more likely to be trusted, particularly by a first-time user deciding whether a service is legitimate. It is also a warning: a handsome screen can hide a genuine usability problem from the very team that made it. Only testing with real users separates “this looks good” from “this works”.

Conceptions of good design for interactive experiences. A **conception of good design** is a criterion you can test a design against (1A). Conceptions are personal, contextual and political, and you are expected to formulate your own — but a conception is only useful if you can turn it into a question that has an answer. Translated into this field, the conceptions designers most often work to look like this.

Conception	What it looks like on a screen	The test question
Usable	The user can finish the task they came for, first time, without help	Can a new user complete the task unaided?
Accessible	Strong text contrast, resizable text, labelled controls, targets big enough to hit, never colour alone	Does it meet the accessibility guidelines, and does it work with assistive technology?
Inclusive	Designed with people whose circumstances differ from the designer’s	Who was in the room, and who is excluded by this decision?
Understandable	One obvious next action; labels in the user’s own words; conventions used as conventions	Can a user say what this screen is for and what to do next?
Consistent	The same meaning, appearance and position everywhere	Does this control look and behave as it does elsewhere?
Forgiving	Mistakes are prevented, visible and reversible; a user’s input is never lost	What happens when the user gets it wrong? Can they undo it?
Responsive	Every action produces a visible	After a tap, does the user know

Conception	What it looks like on a screen	The test question
	change; waiting is acknowledged	something happened?
Honest	The interface tells the truth about cost, data and what it is doing	Is anything hidden, pre-selected or made to look urgent when it is not?
Unobtrusive	It does not interrupt without cause	Does this interruption serve the user or the client?

Accessibility is an aesthetic constraint, not a final check. Contrast is a colour decision; text size is a type decision; target size is a layout decision. All three are made when the look is decided, which is why they cannot be “fixed at the end” without redesigning the look. The Web Content Accessibility Guidelines (WCAG) are the international standard, and Australian government digital services are expected to meet them at **Level AA** — which requires, among other things, a contrast ratio of at least **4.5:1** between normal-size text and its background (**3:1** for large text). In Australia the *Disability Discrimination Act 1992* (Cth) applies to services delivered online, so this is a legal question as well as an ethical one. (The diverse needs of users are the subject of 9B; here they matter as a **criterion** you design to.)

Honesty, and the failure that has a name. Interfaces can be designed to work against the person using them: a pre-ticked box that adds a charge the user never asked for, a fee that appears only at the last step, a countdown that resets forever, a “decline” option greyed out to look unavailable, a cancel path buried three screens deep. These are **deceptive design patterns** (widely called *dark patterns*), and some of them — a fee that only appears at the last step, a claim that is not true — can breach the Australian Consumer Law’s prohibition on misleading or deceptive conduct. They are the clearest demonstration that conceptions of good design are **political**: the same aesthetic skill that makes one button obvious can be used to make another one hard to find, and the designer chooses whose interests the screen serves.

From conception to design criteria. In an interaction project the conceptions you hold become the **design criteria** written into the brief, which is what makes a later evaluation something other than opinion. “It should be user-friendly” is untestable. “A member who has not used the app before can reserve a tool in under one minute without asking for help” is a criterion — you can run it with five people and count.

Watch-out — name the aesthetic. “It looks clean and modern” is a description of your reaction. Name the character — *calm, civic, playful, technical, premium, urgent* — then show which decisions build it.

Watch-out — attractive is not the same as good. The aesthetic-usability relationship means a good-looking screen feels easier to use than it is. Evidence for “good design” is a user completing the task, not the design team liking the look.

Watch-out — a conception needs a test. If you cannot write a question that a user session or a measurement could answer, you have written a preference, not a criterion.

Watch-out — the field is not the presentation format. *Interactive experiences* is the field. A static mock-up of a phone screen is the **presentation format**. The **context** is where and when it is used: in a shed, in bright sun, in a queue, with wet hands, on patchy mobile coverage.

Watch-out — consistency is not sameness. Consistency means one meaning per pattern. It does not mean every screen is identical, and it is not an excuse for a design without character.

Watch-out — evaluate with both hands. An evaluation that lists only strengths is incomplete. Give at least one limitation, tie both to evidence in the design, then state an overall judgement.

Units 3 & 4 preview — beyond the Units 1&2 study design. Units 3 & 4 take the same material and change the *method*. There you analyse the professional practice of a **named contemporary designer** (one practising from 2000 onwards) — their **relationships** with clients, collaborators and specialists, and their legal, ethical and sustainable **obligations** — and you analyse design examples using the examination method of naming a specific aesthetic, then one design **element** and one design **principle**, then the mechanism by which that pairing builds the aesthetic. In Units 1 & 2 you learn collaborative practice as something you *do* in your own folio, and you evaluate against conceptions of good design. The Units 3 & 4 method is shown here only so you can see where the course leads; it is **not** required or assessed in any Units 1 & 2 task in this book, and no question in this subtopic uses it.

Worked examples

Example 1 — scaffolded

The VITTADINIA studio used a co-design workshop during Discover and a design critique during Develop while designing BRACHYSCOME. Explain how each practice could change the interface. (4 marks)

Working	Comment
Co-design workshop (Discover). Members and shed volunteers were brought into the session and asked to sort real borrowing tasks, rather than being surveyed at a distance.	Name the practice AND the stage — “collaboration” on its own names nothing.
Volunteers said the question they are asked most often is “ <i>is it actually there this Saturday?</i> ”, so availability was moved into the item card as a dated chip instead of sitting on a later screen.	Show the change to the interface . The question asks how the practice changes the <i>design</i> , so a concrete design consequence is required.
Design critique (Develop). The team reviewed unfinished screens against the agreed criteria; the content designer pointed out that “Submit” told a member nothing about what they were agreeing to.	Critique happens on unfinished work, against criteria, with the wider team — that is what makes it a practice rather than an opinion.
The label was rewritten as “ <i>Reserve this drill</i> ”, and the change and its reason were recorded in the decision log.	Close the loop: a critique is only a practice if the response is recorded. Two practices × (what it is + what it changed) = 4 marks.

Example 2 — scaffolded

Evaluate the BRACHYSCOME screen against the conception that **good design is forgiving**. (4 marks)

Working	Comment
A forgiving design prevents mistakes where it can, makes them visible, and lets the user undo them without penalty.	State the conception as a criterion before you judge anything against it.
BRACHYSCOME does this well in one respect: the panel states “ <i>Cancel any time before Friday 5 pm</i> ”, so a member who reserves the wrong Saturday has a stated, cost-free way out, and the caption “ <i>Availability updated 3 minutes ago</i> ” tells them how current the information they are acting on is.	A strength, quoted from the design example. Evidence must come from what is actually on the screen.
It is weaker in another: the screen shows no way to change the collection date or location before reserving, and no confirmation state is shown, so a member who taps the green button cannot see from this screen whether the reservation was accepted.	A limitation — and note that it is a limitation of the interface , which is what the interaction designer controls.
∴ BRACHYSCOME partly meets the conception: it is forgiving <i>after</i> the decision but does not yet prevent or confirm the decision itself.	An “evaluate” answer must end in a judgement, and a partial judgement is a legitimate one.

Example 3 — unscaffolded

Analyse how **colour** and **type** have been used to create the aesthetic of the BRACHYSCOME screen. (4 marks)

BRACHYSCOME has a **calm, civic, trustworthy** aesthetic, and colour and type are the two decisions that build it. Colour is used by **role** rather than for decoration: a warm sand surface, near-black text and a single deep eucalypt green. Because that green is rationed — the brand band and the one button are its only solid blocks, and elsewhere it is reduced to an icon, a chip outline and a line of link text — it reads as meaning “*this is the action*”, and the quiet sand ground around it keeps the screen unhurried rather than promotional. Type works the same way: a small fixed scale steps down from the tool name, to the collection point, to the shed hours, to the caption, so a member’s eye is ranked

through the content in the order they need it and arrives at the green button last. Together the restricted palette and the disciplined scale produce a screen that feels like a community service rather than a shop — appropriate for a library that lends tools free to members and needs to be trusted rather than to sell.

Example 4 — unscaffolded

Discuss why an interaction designer must collaborate with a content designer, an accessibility specialist and a front-end developer, referring to what each changes about the visual interface. (6 marks)

An interaction designer is responsible for the visual interface but not for the underlying functionality, and the interface itself draws on knowledge the designer does not hold alone — which is why these three collaborations change the drawing rather than merely commenting on it.

The **content designer** owns the words, and on a screen the words *are* the interface. On BRACHYSCOME a generic “Submit” tells a member nothing; “Reserve this drill” states the object and the outcome, and it changes the button’s width, and therefore the layout. Labels also decide whether an icon can stand alone, so content decisions reach straight into the composition.

The **accessibility specialist** turns inclusion into specific visual constraints: a text contrast ratio of at least 4.5:1, text that survives being enlarged, targets big enough to hit, and never relying on colour alone to carry meaning. These are colour, type and layout decisions, so they must be made while the look is being decided; consulted afterwards, the specialist can only ask for the look to be redone.

The **front-end developer** knows what can actually be built, for this budget, on the devices these members own. Learning during Develop that a layout will not hold at a larger text size, or that a control behaves differently on an older phone, lets the designer change the drawing while changing it is still cheap.

∴ each collaborator changes the visual interface itself, not just opinions about it. Collaboration here is structural: it is how a screen comes to be usable, legible and buildable at the same time, and it is the reason UX and interaction design are practised in teams rather than alone.

Practice questions

Scaffolded

Q1. User-experience and interaction design: (a) Define **user-experience (UX) design**. (1 mark) (b) Define **interaction design**. (1 mark) (c) State **one** thing an interaction designer designs and **one** thing they do not. (2 marks)

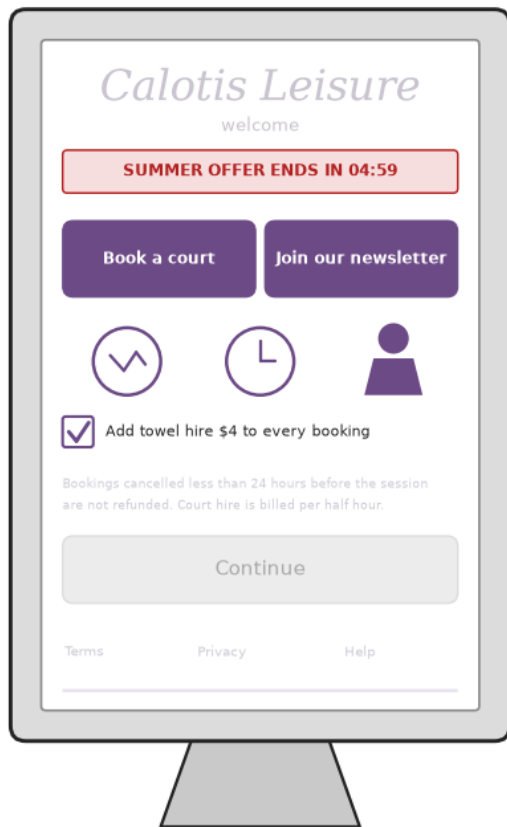
Q2. Using the VITTADINIA team diagram: (a) Identify **two** collaborators other than the interaction designer, and state what each contributes. (2 marks) (b) Explain **one** thing a UX researcher contributes that an interaction designer cannot supply from their own experience. (2 marks)

Q3. Design critique: (a) State **two** features of an effective design critique. (2 marks) (b) Explain why a critique is held on **unfinished** work. (2 marks) (c) Describe what the designer should do after the critique. (2 marks)

Q4. A shared component library: (a) List **three** things a shared component library contains. (3 marks) (b) Explain how it helps a team of four designers work on one interface. (2 marks) (c) Explain why it is also an **aesthetic** decision, not only a collaborative one. (2 marks)

Q5. Using the BRACHYSCOME screen and its annotated breakdown: (a) Identify the primary, secondary and tertiary information on the screen. (3 marks) (b) Describe the visual path a member’s eye takes to the primary action. (2 marks) (c) Explain how **spacing** groups related information on this screen. (2 marks)

Q6. Conceptions of good design: (a) State what a **conception of good design** is. (1 mark) (b) Name **three** conceptions relevant to interactive experiences. (3 marks) (c) Write **one** testable design criterion for BRACHYSCOME, derived from a named conception. (2 marks)



Questions 7–21 refer to the **CALOTIS** self-service kiosk screen shown above, unless otherwise stated. The kiosk stands in the foyer of a community leisure centre. Visitors use it standing up, often in a hurry, sometimes with wet hands and a queue behind them, to book a court or a class.

Q7. Identify the **field of design practice**, describe the **users** and state the **task** a user has come to the kiosk to complete. (3 marks)

Q8. Name the aesthetic of the CALOTIS screen and explain how **two** decisions create it. (4 marks)

Q9. Evaluate the CALOTIS screen against the conception that **good design is understandable**. (4 marks)

Q10. The screen offers two buttons of equal size, weight and colour. Explain the problem this creates for a user, and describe the aesthetic change you would make. (3 marks)

Q11. Identify **one** decision on the CALOTIS screen that fails the conception that **good design is honest**, and explain why it fails. (3 marks)

Q12. Explain how the colour and type decisions on the CALOTIS screen affect **accessibility**, referring to at least two specific elements of the design. (4 marks)

Q13. The three icons on the CALOTIS screen carry no words. Discuss the consequences of this decision for the users described above. (3 marks)

Q14. The “Continue” button works, but is pale grey with grey text. Explain what a user is likely to conclude, and name the conception of good design this breaches. (3 marks)

Q15. Compare the aesthetic of BRACHYSCOME with the aesthetic of CALOTIS, referring to **colour** and **type** in each. (6 marks)

Q16. A member of the leisure centre’s board says, “The kiosk screen looks tidy and attractive, so it must be working.” Explain why this is not sufficient evidence that the interface is good design. (3 marks)

- Q17.** VITTADINIA has been engaged to redesign the CALOTIS kiosk. Describe **three** collaborative practices the studio should use, and for each explain what it would change about the design. *(6 marks)*
- Q18.** Explain the difference between **researching** the kiosk's users and **co-designing** with them, and state one thing co-design would reveal that a survey would not. *(3 marks)*
- Q19.** Distinguish between the work a **UX designer** and an **interaction designer** would do on the CALOTIS project. *(4 marks)*
- Q20.** Explain what an **annotated hand-over** is, and why it matters that the interaction designer does not build the product. *(3 marks)*
- Q21.** Write **three** testable design criteria for the redesigned CALOTIS screen, each derived from a different named conception of good design. *(6 marks)*
- Q22.** *(BRACHYSCOME.)* Evaluate the extent to which BRACHYSCOME can be considered good design for a first-time member aged 70 who has never used the app before, referring to at least **two** conceptions of good design. *(6 marks)*

Answers

Q1. (a) The design of a person's whole experience of a product, environment or service, across every touchpoint. (b) The design of what happens between a person and an interface. (c) Designs: the visual interface (layout, type scale, colour roles, states). Does not: the underlying functionality (code, data storage, payment systems). **Q2.** (a) Any two of the collaborators in the table, with their contribution. (b) Evidence about real users. See solutions. **Q3.** (a) Any two of: held against the agreed criteria; on unfinished work; describe before judging; the whole team present; feedback recorded. (b) So the work can still change. (c) Record the feedback, decide the response, log what changed and why. **Q4.** (a) Any three of: buttons and their states; text styles / type scale; colour roles; icons; spacing steps; form fields. (b) & (c) See solutions. **Q5.** (a) Primary = the tool ("Cordless drill" and its availability); secondary = where and when to collect it; tertiary = conditions, cost and the update caption. (b) Down the screen to the green button. (c) See solutions. **Q6.** (a) A criterion you can test a design against. (b) Any three of: usable, accessible, inclusive, understandable, consistent, forgiving, responsive, honest, unobtrusive. (c) See solutions. **Q7.** Interactive experiences; standing users in a leisure-centre foyer, hurried, possibly wet-handed, in a queue; the task is to book a court or class. **Q8.** *Loud, promotional, sales-driven* (accept: urgent, commercial, decorative). Two decisions — see solutions. **Q9.** Not understandable — no single obvious next action, unlabelled icons, a pale heading, a working button that looks disabled. See solutions. **Q10.** No primary action; the user must decide which one is theirs. Make "Book a court" the one accent-coloured button and demote the newsletter to a text link. **Q11.** The pre-ticked towel-hire box (accept: the countdown, or the pale small print). See solutions. **Q12.** Contrast failures in the pale heading, the pale grey small print and the grey-on-grey "Continue". See solutions. **Q13.** Ambiguity, guessing and mis-taps; add a word under each icon. See solutions. **Q14.** That it is disabled and the kiosk is broken or not ready; breaches "understandable" (accept: consistent, or responsive). **Q15–Q22.** See fully-worked solutions.

Fully-worked solutions

Q1. (a) **User-experience (UX) design** is the design of a person's whole experience of a product, environment or service — every point at which they meet it, before, during and after, not only the screen. (b) **Interaction design** is the design of what happens between a person and an interface: what the user can do, what the interface shows in return, and what it makes obvious to do next. (c) An interaction designer **designs the visual interface** — for example the layout, the type scale, the colour roles and how each control looks in each state. They **do not design the underlying functionality** — for example the code, where the booking is stored, or the payment system (*1 mark each; the response must name one from each side of the boundary*).

Q2. (a) *Any two, each with its contribution.* The **content designer** brings the words — labels, headings and error messages in plain English. The **front-end developer** brings knowledge of what can be built, at what cost, on the devices the users actually own. (*Accept UX researcher, UX designer, accessibility specialist, product owner, or users and stakeholders, correctly described.*)

- (b) A **UX researcher** brings evidence about how real users behave, in their own words — from interviews, observation and usability testing. An interaction designer working from their own experience designs for someone very like themselves: a person who already knows what the service is, who is comfortable with apps, and who is not standing in a queue. Research replaces that assumption with a finding, and findings are what a team can argue from **(2 marks: what the researcher supplies*
- *why the designer's own experience is not a substitute)*.*

Q3. (a) *Any two of:* it is run against the **agreed design criteria** rather than on personal taste; it is held on **unfinished** work; reviewers **describe what they see before judging it**; the wider team, including specialists, is present; the feedback is **recorded**.

- (b) Critique is held on unfinished work because the point is to change the design. Once a concept is resolved and signed off, the cost of acting on a criticism is high and the team is invested in what it has made, so useful feedback tends to be softened or ignored. On unfinished work the same comment is cheap to act on, and the designer is still genuinely deciding (*2 marks*).
- (c) Afterwards the designer **records the feedback**, decides a **response** to each point, **makes the refinements** they accept, and **logs what was changed, what was not, and why**. Feedback that is not recorded and answered is a conversation, not a practice — and the decision log is what lets the team avoid re-arguing the same point later (*2 marks*).

Q4. (a) *Any three of:* buttons and their states (default, pressed, disabled, error); text styles / the type scale; colour roles; the icon set; spacing steps; form fields and their error states.

- (b) With four designers working on one interface, the library means that a button drawn by one person is the same button drawn by any other: the same shape, colour, text size and spacing. Nobody re-invents a decision that has already been made, review time goes to the design problem instead of to tidying inconsistencies, and a screen can be assembled quickly from parts the whole team has already agreed on (2 marks).
- (c) It is an aesthetic decision because the library **is** the aesthetic, written down. Choosing the type scale, the colour roles, the corner radius, the icon style and the spacing steps *is* choosing the look and feel; every screen built from those components inherits it. That is why a design system makes screens drawn by four people read as one design rather than four (2 marks).

Q5. (a) **Primary** — the tool itself: the name *Cordless drill*, set in the largest type, with its availability chip.

Secondary — where and when to collect it: *Ferndale Community Centre* and the shed hours. **Tertiary** — the conditions panel (free for members, return by the following Saturday, cancel before Friday 5 pm) and the caption stating when availability was updated.

- (b) The eye enters at the green brand band, drops to the largest type — the tool name — then steps down the decreasing type sizes through the collection details, and is caught by the full-width green button, which is the only other solid block of the accent colour on the screen. The path runs straight down the screen and ends on the one action (2 marks: *order + what creates it*).
- (c) Spacing groups the screen into four blocks — item, collection, action, conditions — by putting more space *between* the blocks than *within* them. Items separated by a small gap are read as belonging together, and the larger gap signals a new kind of information; this is the Gestalt principle of **proximity** doing the organising, so the screen can be scanned without any dividing lines (2 marks).

Q6. (a) A **conception of good design** is a criterion you can test a design against — a stated standard for what makes a design good, rather than a personal preference.

- (b) *Any three of:* usable; accessible; inclusive; understandable; consistent; forgiving; responsive; honest; unobtrusive.
- (c) *Model* — *any criterion that names a conception and is testable is acceptable*. From **understandable**: “A member who has not used the app before can say, within ten seconds of opening this screen, what the tool is and what the one action on the screen will do.” This is testable because it can be run with several members and the answers counted; “the screen should be clear” is not (2 marks: *conception named + criterion stated in testable form*).

Q7. The field of design practice is **interactive experiences**. The **users** are visitors to a community leisure centre using a touchscreen while standing in the foyer — often in a hurry, some with wet hands, some with a queue behind them, and many using this kiosk for the first time. The **task** they have come to complete is to **book a court or a class** (1 mark each).

Q8. The CALOTIS screen has a **loud, promotional, sales-driven** aesthetic. Two decisions create it. First, the **red urgency strip** — “SUMMER OFFER ENDS IN 04:59” — is the only warning colour on an otherwise pale screen and sits above the buttons, so the first thing that catches a visitor’s eye is a countdown rather than the booking they came for; red and a ticking clock read as pressure. Second, **the newsletter sign-up is given a button identical in size, weight and colour to the booking button**, which tells the user that collecting their email matters to the centre as much as their booking does. Both decisions put the centre’s promotional interest above the user’s task, and that is what the screen feels like (4 marks: *aesthetic named + two decisions, each with its effect*).

Q9. The conception that **good design is understandable** asks whether a user can say what the screen is for and what to do next. CALOTIS partly fails it. There is a genuine strength: the layout is orderly — a consistent left margin, aligned blocks and generous space — so the screen does not look chaotic. But nothing tells a user which action is theirs. The two buttons are identical in weight, so the screen offers two equally-loud next steps; the three icons carry no words, so their meaning must be guessed; the heading is set in a pale decorative italic that is hard to read at standing distance and does not say what the kiosk does; and the working “Continue” button is styled as though it were disabled. ∴ the screen is not understandable: an orderly composition is doing the work that hierarchy and labelling

should be doing, and a first-time visitor cannot tell what to do next (4 marks: *conception stated, a strength, at least two evidenced failures, an overall judgement*).

Q10. Because the two buttons are identical in size, weight and colour, the screen has **no primary action**. Every user must stop and read both before acting, which for a visitor standing at a kiosk with a queue behind them is exactly the wrong moment to be given a choice; some will tap the wrong one, and the newsletter — which serves the centre, not the visitor — has been given the same importance as the booking. The aesthetic change is to give the accent colour **one job**: make “Book a court” the single filled button, full width, and demote “Join our newsletter” to a plain text link below it. The hierarchy then states which task the screen is for (3 marks: *problem + effect on the user + a specific design change*).

Q11. The **pre-ticked box adding \$4 towel hire to every booking** fails the conception that good design is **honest**. The user did not ask for towel hire; the design has made agreement the default and left the user to notice a small line of text and untick it, which many standing at a kiosk will not do. The charge therefore arrives because of an interface decision rather than a choice, which is a deceptive design pattern, and adding a cost the user has not agreed to can also raise questions under the Australian Consumer Law. An honest version leaves the box unticked and states the price beside it (3 marks: *decision identified + why it is dishonest + accept the countdown or the pale small print, argued equally well*).

Q12. Both decisions work against accessibility. **Colour**: the heading “Calotis Leisure” is set in a very pale grey on white, and the small print about refunds is paler still, so neither comes close to the 4.5:1 contrast ratio required for normal text at Level AA — and the small print is the information with financial consequences. The grey-on-grey “Continue” button has the same problem, made worse because low contrast is also the conventional signal for “disabled”. **Type**: the heading is a decorative italic serif, which is harder to read than a plain typeface at kiosk distance, and the refund conditions are set smaller than anything else on the screen. In a bright foyer, standing at arm’s length, a visitor with even mildly reduced vision is excluded from the information that matters most (4 marks: *at least two specific elements, contrast and type identified, and the consequence for a real user*).

Q13. Icons without words leave meaning to be guessed. Not one of the three marks on CALOTIS states what it does here: the first is an abstract squiggle with no established meaning at all, and although a clock and a figure are familiar symbols, neither says whether the clock leads to opening hours, session times or a booking history, or whether the figure leads to an account, a membership or the front desk. A first-time visitor must therefore work them out or ignore them; for users in a hurry, or whose first language is not English, an unlabelled icon is a barrier rather than a shortcut. The likely consequences are hesitation, mis-taps and users simply not discovering a function that was put there for them. The fix is the practice BRACHYSCOME follows — an icon **and** a word for every item — which costs a few millimetres and removes the guessing entirely (3 marks).

Q14. A pale grey button with grey text is the standard visual convention for a **disabled** control, so a user will conclude that “Continue” cannot be pressed yet — that something else must be done first, or that the kiosk is broken. Some will stand and wait, some will tap the coloured buttons above instead, and some will walk away. This breaches the conception that good design is **understandable**: the appearance of a control must state what it can do. It also breaks **consistency**, because the same styling means “unavailable” everywhere else (3 marks: *the conclusion + why + a named conception*).

Q15. Both screens use colour and type to build an aesthetic, but they point in opposite directions.

BRACHYSCOME is *calm, civic and trustworthy*. Its **colour** is used by role: a warm sand surface, near-black text and a single deep eucalypt green whose only solid blocks are the brand band and the one button, so the accent means “this is the action”. Its **type** is a small fixed scale that steps down from the tool name to the caption, ranking the content for the reader.

CALOTIS is *loud and promotional*. Its **colour** is used for emphasis rather than for meaning: the same plum fills two competing buttons and three icons, a red strip shouts a countdown, and the one control the user needs is grey. Its **type** works against the hierarchy — the largest text on the screen is a pale decorative heading that says nothing useful, while the smallest and palest is the refund condition that costs money.

The similarity is that in each case the aesthetic follows from a handful of repeated decisions about colour and type. The difference is whose interest those decisions serve: BRACHYSCOME’s restraint ranks the user’s task first, while

CALOTIS's emphasis ranks the centre's promotion first — and a visitor feels that difference before they can explain it (6 marks: *element-by-element treatment of both, congruent comparison, similarity and difference*).

Q16. “It looks tidy and attractive” is a statement about the board member's reaction, not about what a visitor can do. Because of the **aesthetic-usability relationship**, people judge an attractive interface to be easier to use than it is and forgive its faults, so an orderly look actively hides usability problems from the people closest to the product — and on this screen it does exactly that, because the consistent margins and generous space sit over a design with two competing primary buttons, three unlabelled icons and a working button styled as though it were disabled. Evidence for good design is a user completing the task: a first-time visitor finishing a court booking unaided, contrast measured against the 4.5:1 guideline, a mistake recovered from. ∴ attractiveness is one aesthetic consideration among several, not the test (3 marks).

Q17. Any three practices, each with a design consequence.

1. **A co-design workshop with visitors and front-desk staff.** Bringing in the people who actually use the kiosk — and the staff who are asked for help at it — would establish what visitors come to do and where they currently get stuck. It would change the design by settling what the single primary action on the screen should be, which is the decision CALOTIS never made.
2. **A design critique against agreed criteria.** Reviewing unfinished screens against criteria such as “one obvious next action” and “meets Level AA contrast” would catch the identical buttons and the grey-on-grey “Continue” while they are still cheap to change, and would put the pre-ticked towel-hire box in front of the whole team as an honesty question rather than leaving it to one designer.
3. **Bringing an accessibility specialist in during Develop.** Contrast, text size and target size are colour, type and layout decisions, so a specialist working alongside the designer would change the palette and the type scale as they are chosen — the pale heading and the pale small print would not survive to the mock-up.

(Accept also: a shared component library, annotated hand-over, shared usability testing, a decision log, short repeated cycles. 6 marks: three practices named and correctly described, each tied to a specific change in the interface.)

Q18. **Researching** users means gathering evidence *about* them — a survey, an interview, an observation session — and then taking it away to design from. **Co-designing** means bringing them into the design session itself, to sketch, sort and comment on ideas alongside the team, so they correct the team's thinking while it is forming rather than afterwards. Co-design would reveal something a survey cannot: watching a visitor stand at the kiosk with wet hands and a queue behind them shows *where* they hesitate and what they tap by mistake — behaviour a survey respondent would never think to report, because they do not remember it (3 marks: *both defined + one thing co-design reveals*).

Q19. The **UX designer** works across the whole experience of booking a court at this centre: the signage that directs a visitor to the kiosk, whether the kiosk is the right channel at all or a phone booking would serve better, what happens when someone arrives without a membership, the confirmation they receive, and how the kiosk fits with the front desk. They organise the journey and the information across screens.

The **interaction designer** works inside that journey on the visual interface of the kiosk itself: the layout and grid, the type scale, the colour roles, which control is primary, what each control looks like in each state, the labels and icons, and what the user sees after each tap.

The distinction is one of **scope**: the UX designer decides what the sequence of screens must achieve and in what order; the interaction designer decides what each screen looks like and how it answers the user. Neither designs the underlying functionality — the payment system and the booking database belong to engineering (4 marks: *both roles described + the scope distinction drawn*).

Q20. An **annotated hand-over** is the set of static screens the interaction designer supplies to the people who will build the product, with written notes attached: what each control does, what every state looks like (default, pressed, disabled, error), the exact words, the type sizes and colour roles, and what should happen when something goes wrong. It matters because the interaction designer designs the **visual interface** and does not build the **underlying functionality** — anything not drawn and annotated will be decided by somebody else, usually by default. Annotation in correct design terminology is what makes a static presentation buildable, which is precisely why Units 1 and 2 ask for annotated static representations rather than a working prototype (3 marks).

Q21. Model — any three criteria, each naming a different conception and each testable.

1. **Understandable** — “A first-time visitor can identify, within five seconds of arriving at the kiosk, the one button that starts a court booking.” (*Testable: run it with ten visitors and count.*)
2. **Accessible** — “All text on the screen meets a contrast ratio of at least 4.5:1 against its background, and remains fully legible when text size is increased.” (*Testable: measure it.*)
3. **Honest** — “No optional charge is selected on the user’s behalf, and the total price, including every fee, is shown before the user confirms.” (*Testable: inspect the screens and check no box is pre-ticked and no cost appears after confirmation.*)

(Accept criteria drawn from usable, inclusive, consistent, forgiving, responsive or unobtrusive. 6 marks: three different conceptions named, each converted into a statement that could actually be checked. A criterion such as “the screen should be user-friendly” earns nothing, because there is no way to answer it.)

Q22. For a first-time member aged 70, BRACHYSCOME can be considered good design to a substantial but not complete extent.

Against **understandable**, it does well. There is exactly one obvious next action — a single full-width green button reading “Reserve this drill”, which names both the object and the outcome — and the content is ranked so that the tool, then the collection point, then the conditions are read in that order. Every navigation item carries a word as well as an icon, so nothing has to be guessed from a symbol. A member who has never opened the app can tell what this screen is for.

Against **honest**, it also does well, and this matters for a first-time user deciding whether to trust a service. The panel states plainly that borrowing is free with no deposit, when the tool must come back, and that a reservation can be cancelled before Friday 5 pm; nothing is pre-selected and no cost appears later. The caption “Availability updated 3 minutes ago” tells the member how current the information they are acting on is.

Against **accessible**, it is strong but not complete: near-black text on a sand ground gives high contrast for the main content, but “Browse all 84 tools” is small green text on sand with no button styling, so a member with reduced vision may not see it as tappable at all — and within the content it is the only route to the rest of the catalogue, leaving a member who misses it to find the small “Tools” icon in the bottom navigation instead.

There are two further limitations. The screen shows no confirmation state, so after tapping the green button a first-time member has nothing on this screen telling them the reservation worked; and “18 V” is trade language that means nothing to someone who has not bought a drill.

∴ BRACHYSCOME is good design for this member in the respects that matter most at a first encounter — it is understandable and honest — but it falls short of being fully accessible and forgiving, and the fixes are small: a properly styled secondary button, a confirmation state, and plainer wording (6 marks: at least two conceptions named and applied with evidence, at least one limitation, an overall judgement referenced to the named user).

Chapter 9 Designing interactive experiences — 9B Diverse user needs & human-centred research

Theory

In Unit 2 Outcome 3 you apply the VCD design process to design an **interface** for a digital product, environment or service. The study design draws the boundary of the job clearly: interaction designers focus on **the design of visual interfaces rather than their underlying functionality**. You are not writing the code that processes a booking. You are designing what the user sees, reads and taps — and therefore whether they can complete the task at all.

The purpose of that work is a **positive and inclusive interactive experience**. Two things decide whether you get one. The first is whether the interface fits the **diverse needs** of everyone who has to use it. The second is whether you found those needs out *before* you designed, using **human-centred research**. The document that carries both into the design work is the **brief**.

*Running example — **SENECIO** is a volunteer-driver community transport service in a western Victorian shire. It drives residents to medical appointments, shopping and social visits. Bookings are taken either through an online form on the shire website or by phone to a volunteer coordinator, two mornings a week. Most passengers are over 70; many bookings are made by a son, daughter or partner on someone else's behalf. The committee arrived with the problem already solved: "we need a booking app."*

Devices, systems and services. The key knowledge names all three, and they are not the same thing.

- A **device** is the physical thing the user interacts *through* — a phone, a tablet, a fixed touchscreen, a ticket machine, a watch. The device sets the screen size, the input method and the posture the user is in.
- A **system** is the organised set of screens, rules, fields and data that a task runs on — a booking system, a library catalogue, a payment flow. The system sets how many steps a task takes.
- A **service** is the whole thing an organisation provides over time, of which any screen is only one **touchpoint** — SENEICIO's service includes the phone line, the volunteer coordinator, the driver, the vehicle and the trip itself.

A designer who redesigns a screen without understanding the service will fix the wrong thing. The SENECIO form is not the whole service; it is one touchpoint in a journey that starts with hearing the service exists and ends when someone is dropped home.

The diverse needs of users

Everyone who must use a device, system or service has to be able to. But users differ — in what they can see, hear and hold, in what they can read and remember, in the language they think in, in how confident they are with technology, in the device they own, and in the situation they happen to be in at the moment of use. **Diverse needs** is the whole of that variation.

The most common beginner's error is to treat "diverse needs" as a synonym for disability. It is wider than that, and the width is what makes it a design problem rather than a special case.

Diverse user needs — the same barrier, three durations

	PERMANENT	TEMPORARY	SITUATIONAL	WHAT THE INTERFACE MUST THEREFORE DO
 SEEING	blind or low vision; colour vision deficiency	eye drops after an appointment	full afternoon sun on an outdoor screen	strong tonal contrast; large, adjustable type; never colour alone
 HEARING	deaf or hard of hearing	a head cold or an ear infection	a noisy platform, and no headphones	show every sound cue on screen as words as well
 HOLDING & TOUCHING	limb difference; tremor; arthritis	an arm in a sling; a fresh sprain	one hand on a pram; cold or wet hands	large, well-spaced targets; no fine drag or double-tap
 UNDERSTANDING & READING	dyslexia; intellectual disability	grief, illness or plain exhaustion	first time using it, in a hurry, in a second language	plain English; one task per screen; consistent placement

A need is not only a disability. Counting only permanent needs under-counts the users by a very long way — and an interface built for the widest range serves everybody.

Read the figure across, not down. The same barrier — *cannot see the screen clearly* — arrives as a **permanent** need for someone with low vision, a **temporary** need for someone whose eyes have just been dilated at an appointment, and a **situational** need for anybody standing in front of an outdoor screen in full afternoon sun. The interface decision that solves it is identical in all three cases. That is the practical argument for inclusive design: you are never designing for a minority.

Grouped by what they change in an interface, the needs you should expect to find are:

- **Sensory** — vision (blindness, low vision, colour vision deficiency: about one man in twelve and one woman in two hundred has a red–green deficiency) and hearing.
- **Physical and motor** — dexterity, strength, tremor, reach, limb difference, and whether the user has one hand free or two.
- **Cognitive, literacy and numeracy** — memory, attention, reading level, neurodivergence, and how much the user can hold in mind while stepping through a task.
- **Language and culture** — English as an additional language; name, date, address and currency formats; imagery and iconography that does not carry the same meaning to everyone.
- **Experience and digital confidence** — a first-time user and a daily user need different things from the same screen; so does someone who has never used a self-service machine before.
- **Access to technology** — an older or borrowed device, a small screen, expensive or patchy data, no email address, no smartphone at all.
- **Situational and environmental** — glare, rain, noise, cold hands, a queue behind you, a child on your hip, two minutes before the bus goes.

Accessibility, usability and inclusive design are three different things. Students lose marks for using them interchangeably.

Term	What it asks	The test
Accessibility	<i>Can</i> this person use it at all?	Does the interface remove barriers for people with disability — contrast, target size, text alternatives, no colour-only cues?
Usability	How easily and efficiently can they achieve their goal?	Can a user learn it, work it quickly, avoid errors, and remember it next time?
Inclusive design	Is this one solution that the widest range of people can use, without a separate version?	Was the range of users designed for from the start, rather than adapted for afterwards?

The distinction has teeth. An interface can be highly **usable** for the people it was tested with and still be **inaccessible** — a fast, elegant screen that shows status by colour alone is easy for most people and impossible for some.

Accessibility is a floor; usability is a slope; inclusive design is the practice that gets you both from one design rather than two.

What diverse needs actually change in a visual interface. This is where interaction design stops being a checklist and becomes visual communication design. Each need pushes on specific design elements and principles.

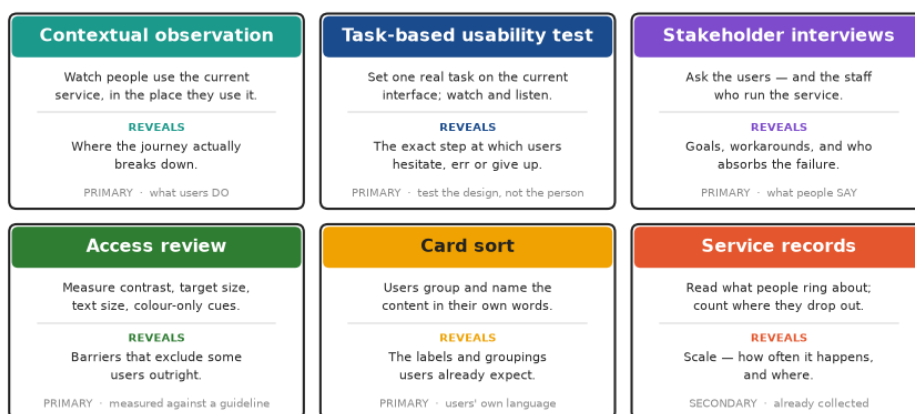
A diverse user need	What it forces in the visual interface	Elements and principles at work
Low vision; a screen in full sun	Strong tonal contrast — at least 4.5:1 for body text, 3:1 for large text; type the user can enlarge	tone, colour · contrast, scale
Colour vision deficiency	Never let colour alone carry meaning — every state also carries a word and a shape	colour, shape, type · contrast
Tremor, arthritis, cold hands, one hand full	Large, well-separated targets (about 9 mm square is a common minimum); no fine drag, pinch or double-tap	shape · scale, proportion
Low literacy; English as an additional language; first use	Plain English, short lines, one task per screen ; an icon <i>and</i> a word, never an icon alone	type · hierarchy
Deaf or hard of hearing; a noisy place; no headphones	Every sound cue also shown on screen as words	type · hierarchy
Memory, attention, stress, hurry	The same control in the same place on every screen; visible progress; no time-out that cannot be extended	line, shape · pattern, balance
Screen-reader use	A text alternative for every image and icon; a logical reading order	type · hierarchy
An older device, costly data, no email	Light pages; nothing that depends on the newest gesture; more than one way to be told the outcome	—

The contrast figures above are the minimums published by the **Web Content Accessibility Guidelines (WCAG 2.1, level AA)** of the World Wide Web Consortium, the reference designers use for on-screen contrast. Reach and control heights for a fixed screen are set in Australia by **AS 1428 Design for access and mobility**. You are not asked to memorise standards, but a criterion drawn from one is worth far more in a brief than “make it accessible”, because somebody else can check it.

Human-centred research methods for an interaction design problem

You met human-centred research in Chapter 1: research **with people**, distinguishing **primary** data you gather from **secondary** data others have published, and distinguishing what people **say** from what they **do**. All of that still applies. What changes in an interaction project is that you now have an artefact to test — an existing screen, form or machine that people are already failing at — and that failure can be watched, measured and counted.

Human-centred research for an interaction design problem — what each method reveals



No single method is enough. Triangulate: one that hears users, one that watches them, one that measures the interface, and records for scale.

Identifying a problem or an opportunity. The first key skill of this outcome is to *identify and research* an interaction design problem or opportunity. A **problem** is something that fails for users now — a form nobody can finish. An **opportunity** is something that could serve someone it currently does not — a service only reachable by people who have email. Clients usually hand you neither. They hand you a solution (“we need a booking app”) or a symptom (“people aren’t paying”). The research exists to find the problem underneath.

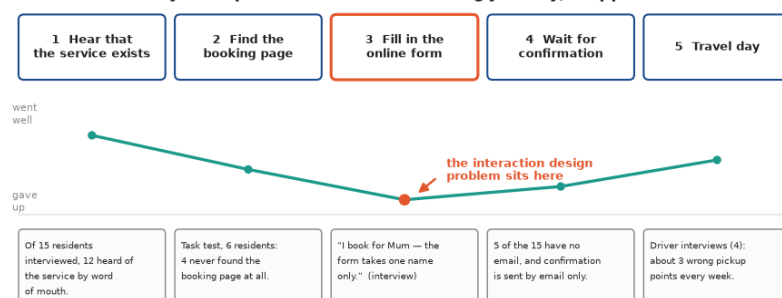
Stakeholders in an interaction project. A **stakeholder** is any individual, group or organisation involved in the project or with an interest in its process or outcome. In an interaction project the list is longer than “the client and the user”:

- the **client** or service owner, who commissions and pays;
- the **users** — plural, and diverse, including the people who use the service *on behalf of* somebody else, such as a carer booking for a parent;
- the **staff who operate the service** — the volunteer coordinator, the driver, the branch librarian. These people absorb every failure of the interface, so they hold evidence no user can give you;
- **support staff**, who know the ten questions people ring about;
- the **build team** who will implement the screens, and whoever writes the content;
- **advisers on access**, and the community organisations that represent users with access needs.

Research only the client and you will confirm the client’s theory. Research only the users and you will miss that the drivers are correcting three wrong pickup points a week.

Synthesising what you find. Research is only useful once it is condensed. Two techniques do most of the work in interaction design. A **user journey map** (or experience map) lays out the steps a user takes through the *current* service, marks how each step goes, and attaches the evidence to the step it came from. **Personas** condense the research into a small set of representative users — and in an interaction project it is worth building personas that deliberately differ in their access needs, not just in their age and postcode.

SENECIO community transport — the current booking journey, mapped from the research



Evidence: 15 resident interviews · a 6-person task-based usability test · 4 driver interviews · one access review · the service's own booking records (online bookings 40 → 22 a month, -45%).

The SENECIO map earns its keep because it locates the problem. The committee’s theory was that residents did not know the service existed; the map shows step 1 going comparatively well, while step 2 — finding the booking page — dips and step 3 — the form itself — collapses. Two independent sources land on those two adjacent steps: four of the six people in the task-based usability test never found the booking page (step 2), and a carer’s interview explains why the form defeats her once she reaches it (step 3: “the form takes one name only” — she is booking for her mother, so the form cannot represent what she is doing). The service’s own records agree, because online bookings have fallen from 40 to 22 a month (a change of **−45%**) while phone bookings have risen from 62 to 91: people are not giving up on the service, they are giving up on the screen. ∴ the interaction design problem is the form and the way it is found, not awareness of the service.

Ethical practice in interaction research. The obligations from Chapter 1 all hold — informed and voluntary consent, de-identification, secure storage, honest reporting, written parental consent for participants under 18 — and three more matter particularly here.

1. **Test the design, not the person.** Say so out loud before a usability test, and mean it. When a participant cannot complete a task, the interface has failed, and your notes must record it that way. A participant who feels examined will stop telling you what is wrong.
2. **Record the screen, not the face.** You need to see where a finger went and what the screen did. You almost never need a recording of the participant, and you should not make one by default.
3. **Work with people who have access needs, not on them.** Invite users with access needs into the design as **co-designers** who review and shape concepts, pay or properly acknowledge their time, and never require anyone to disclose a disability they have not volunteered.

The role of the brief in guiding the development of design solutions

Research does not guide anything while it is still a pile of notes. The **brief** is where research becomes **requirements** — the document that states the communication need you have identified and the criteria the solution must satisfy. In Units 1 and 2 you document **one** interaction design need in the form of a brief; in this outcome you write it yourself, from your own research.

CRASPEDIA REGIONAL LIBRARY SERVICE		interaction design brief
CLIENT	CRASPEDIA Regional Library Service — eleven branches across western Victoria.	
OPPORTUNITY	From March, three branches have no staff after 4 pm. Borrowing in that hour must be done by the borrower alone, at the fixed screen in the branch foyer.	
COMMUNICATION NEED	Borrowers arriving at an unstaffed branch need to be shown, on the borrowing screen itself, how to borrow and return items without help from anyone.	
PURPOSE	To instruct, and to guide.	
CONTEXT OF USE	A fixed 1024 × 768 landscape screen in a public foyer; bright afternoon side-light; no staff after 4 pm; no headphones; borrowers standing or seated.	
AUDIENCE / USERS	Every borrower: children 5–12; older borrowers (the largest group); borrowers with low vision or colour vision deficiency; borrowers who use a wheelchair; borrowers with English as an additional language; first-time users.	
DESIGN CRITERIA	1. A first-time borrower can complete a loan in four steps or fewer, unaided. 2. All body text holds a contrast ratio of at least 4.5:1 against its background. 3. No state is shown by colour alone — every state also carries a word and a shape. 4. Every control is at least 9 mm square and no higher than 1100 mm above the floor. 5. Instructions are plain English at a Year 5 reading level, visible without scrolling. 6. Nothing times out in under 60 seconds, and any timer can be extended.	
CONSTRAINTS	Library palette, three colours · the existing screen, no new hardware · no audio · presented as static wireframes and mock-ups, not a functioning prototype · due 12 June.	

*Every criterion above is a test somebody else can run on the finished screens.
“Modern and clean” is not a criterion — it cannot be failed, so it cannot guide anything.*

An interaction design brief carries:

- the **client** and the **opportunity or problem** the research uncovered;
- the **communication need** — what must be communicated, to whom, and where. Not the artefact;
- the **purpose** — what the interface must *do*: instruct, guide, inform, promote, identify;

- the **context of use** — the device, the place, the light, the noise, the connection, the posture, whether staff are present, how long the user has. Context of use is the most under-written part of a student interaction brief and the one that decides most of the visual decisions;
- the **audience or users**, written so their **diverse needs** are visible rather than averaged away;
- the **design criteria** — testable requirements the solution must meet;
- the **constraints** — palette, hardware, screen size, no audio, deadline, and the Unit 2 condition that the solution is presented as **static** representations, not a functioning prototype.

How the brief guides development. In the Develop stage the brief does four jobs that ideation cannot do for itself.

1. **It sets the target.** Divergent thinking without a target produces attractive screens that answer no question. The communication need and the purpose say what the interface must achieve.
2. **It bounds the search.** “Design a library screen” is paralysing. “Design a screen a first-time borrower can finish in four steps, unaided, reading at Year 5 level, with no control above 1100 mm” is a problem you can start sketching. Constraints make ideation productive.
3. **It supplies the grounds for annotation.** Every annotation on a wireframe should be able to name the criterion it serves. “I made the buttons bigger” is a caption; “targets enlarged to 12 mm so the screen is operable with a tremor (**criterion 4**)” is an argument.
4. **It breaks the tie at critique.** Two concepts are rarely equally good; they are usually good against *different* criteria. The brief decides which difference counts.

In the Deliver stage the same criteria change function and become the instrument you **test** the resolved solution against — the subject of 9C.

Criteria must be testable. This is the single most useful thing to learn about an interaction brief. A criterion that cannot be failed cannot guide anything.

A criterion that cannot guide anything	The same requirement, made testable
“The screen must be easy to use.”	“A first-time borrower can complete a loan in four steps or fewer, with no staff help.”
“The design should be accessible.”	“All body text holds a contrast ratio of at least 4.5:1 against its background.”
“It should look clean and modern.”	“No screen carries more than one task, and no control needs scrolling to reach.”
“It must work for everyone.”	“Every control is at least 9 mm square and no higher than 1100 mm above the floor.”
“Users shouldn’t get confused.”	“The same action sits in the same place on every screen, and every icon carries a word.”

Notice that each testable criterion on the right can be traced back to a **diverse user need** found in the research. That traceability is the whole point of the document: research → need → criterion → design decision → test.

Units 3 & 4 preview — beyond the Units 1&2 study design. In Units 3 and 4 the School-assessed Task requires a designer to derive **two distinct communication needs for a single client** from one body of research and write **one** brief that serves both — for an interaction project that might mean a booking interface *and* a printed timetable for the same service, each able to stand on its own. That method — deliberately splitting one insight into two divergent needs — is **not** required in Units 1 and 2, where you document **one** interaction design need. It is previewed here only so that the habit of writing needs rather than artefacts is already in place, and it is **not assessed** in any question in this subtopic.

Watch-out — diverse needs are not only disabilities. A complete answer includes permanent, temporary and situational needs. Glare, cold hands, a second language, a first attempt and an old phone are all diverse needs.

Watch-out — accessibility, usability and inclusive design are distinct. Accessibility asks *can* they use it; usability asks *how easily*; inclusive design is designing one solution for the widest range from the start. Do not swap the words.

Watch-out — colour alone is never enough. Any state carried by colour only (valid/expired, selected/unselected, error/no error) is invisible to some users and washed out for everybody in sunlight. Pair colour with a word and a shape.

Watch-out — you are designing the interface, not the functionality. The study design says so. Marks come from visual decisions — hierarchy, contrast, type, grids, icons, wireframes — not from describing what the database would do.

Watch-out — a communication need is not a design solution. “We need an app” names an artefact. “People booking for someone else need to be shown, on the booking screen, whose trip they are arranging” names a need.

Watch-out — a design criterion must be testable. If nobody else could run the test and get the same verdict, rewrite it with a number, a count or an observable behaviour.

Watch-out — research the operators as well as the users. The staff who run a service hold evidence of failures that users never report, because the staff are the ones quietly fixing them.

Watch-out — usability testing tests the design. Never write up a participant as having “failed”. The interface failed; that is the finding.

Worked examples

Example 1 — scaffolded

The *SENECIO* research identified three groups whose needs the current online booking form does not meet. Explain how **three different** diverse user needs must change the design of a new booking interface. (6 marks)

Working	Comment
Need 1 — low vision and a sunlit screen (sensory). Many <i>SENECIO</i> passengers are over 70, and some book on a phone outdoors. The interface must hold a tonal contrast of at least 4.5:1 for body text, set type large enough to read at arm’s length, and let the user enlarge it.	Name the need AND the group it belongs to. A need with no user attached is a guess, not a research finding.
Need 2 — arthritis and reduced dexterity (physical). The form must use large, well-separated targets of about 9 mm or more, with no fine drag or double-tap, so a booking can be completed with an unsteady finger.	Choose needs from <i>different</i> categories — three sensory needs would not answer “three different”.
Need 3 — booking on behalf of someone else (a need of use, not of the body). A carer books for her mother, so the interface must show two names, make clear at every step <i>whose</i> trip is being arranged, and confirm to whichever person needs the confirmation.	The strongest answer includes a need the research surfaced rather than one from a general list — this one comes straight from the interview quote.
Each of these is a visual decision — contrast and scale for the first, scale and proportion for the second, hierarchy and labelling for the third. ∴ the three needs change the interface, not the booking system behind it.	Tie back to design elements and principles, and stay on the right side of the study design’s boundary: the interface, not the functionality.

Example 2 — scaffolded

Recommend **two** human-centred research methods the *SENECIO* team should use to identify the interaction design problem, and justify each choice. Name the stakeholders each method involves. (6 marks)

Working	Comment
Method 1 — a task-based usability test of the existing form, with six residents recruited to include a carer, a person with low vision and a first-time user. Each is given one real task (“book a lift to a Thursday appointment”) and observed.	“Recommend” needs a method, its participants and the task. Naming <i>who</i> is recruited is where diverse needs enter the research design.

Working	Comment
It is justified because the committee’s theory is about awareness , and only watching someone attempt the task can show whether the form is findable and finishable. It records what users do , not what they say. Four of the six never found the booking page — evidence no survey would have produced.	Justify against <i>this</i> problem, and say what the method yields that others cannot.
Method 2 — interviews with the volunteer drivers and the booking coordinator — the people who operate the service.	A genuinely different method, aimed at a different stakeholder group.
It is justified because operators absorb the interface’s failures and therefore hold evidence users never report: the drivers described about three wrong pickup points a week, which points at how the form asks for an address. Together, one method that watches users and one that hears operators triangulate the problem.	Close on triangulation — it shows you chose a <i>set</i> of methods rather than two of the same kind.

Example 3 — unscaffolded

*Explain the role of the brief in guiding the development of the CRASPEDIA borrowing screen, referring to **two** of its design criteria. (4 marks)*

The brief’s role in Develop is to turn the research into requirements that every idea can be generated against and judged by. It states the **communication need** — borrowers at an unstaffed branch need to be shown, on the screen itself, how to borrow without help — so the target of ideation is instruction and guidance rather than decoration. Its criteria then bound the search. Criterion 1, that a first-time borrower completes a loan in **four steps or fewer, unaided**, forces the designer to work out the step structure before drawing anything, and rules out any concept that hides a control behind a menu. Criterion 3, that **no state is shown by colour alone**, decides how every confirmation, error and selected item on every wireframe is drawn, because each must also carry a word and a shape. The criteria also supply the grounds for annotation and settle disagreement at critique: a concept with fewer steps beats a prettier one because the brief says so. ∴ the brief guides development by fixing what the interface must achieve and what it must satisfy, while leaving *how* open.

Example 4 — unscaffolded

Evaluate the extent to which the CRASPEDIA brief will guide the design of an inclusive borrowing screen. (6 marks)

The brief will guide the work well, though not completely.

Its major strength is that its criteria are **testable**, and each one is traceable to a stated user. “Contrast of at least 4.5:1”, “9 mm square”, “no higher than 1100 mm”, “four steps or fewer”, “under 60 seconds” can all be checked by somebody other than the designer, and they answer named needs — low vision, unsteady hands, borrowers who use a wheelchair, first-time users. A second strength is that the **audience is written as a range rather than an average**: children, older borrowers, borrowers with low vision or colour vision deficiency, wheelchair users and borrowers with English as an additional language are each named, so the designer cannot quietly design for one imagined borrower. Third, the **context of use is specific** — a fixed screen, bright afternoon side-light, no staff after 4 pm, no headphones — and that context does real work, because it explains why contrast and self-sufficiency matter more here than they would on a phone indoors.

There are limitations. The brief is thorough on **accessibility** but thinner on **usability**: criterion 1 counts the steps and criterion 5 requires plain-English instructions, so a borrower is at least told what to do — but nothing says how they recover from a mistake or know the loan succeeded, and error recovery is where an unstaffed branch will actually fail. That same criterion 5 sets a Year 5 reading level but says nothing about **languages other than English**, although borrowers with English as an additional language are named in the audience; the brief has identified a need it does not then require anything about. The three-colour palette constraint also sits in slight tension with criterion 3, since removing colour-only cues while holding to three colours will demand shapes and words to do more work — a tension the brief does not acknowledge.

Overall, the brief will guide the design of an inclusive screen to a substantial extent, because its criteria are specific, testable and tied to named users, and a designer could not satisfy them with an exclusive design. It would guide it fully if it added a criterion for error recovery and confirmation, and one for language support. *∴ largely, but not wholly, fit to guide the work.*

Practice questions

Three projects are referred to below: the **SENECIO** community transport service and the **CRASPEDIA** library brief from the Theory section, and the **PYCNOSORUS** foreshore parking screen shown before Question 7.

Scaffolded

Q1. Diverse user needs: (a) Explain what is meant by the **diverse needs of users**. (2 marks) (b) Using the SENECIO booking interface, give one example each of a **permanent**, a **temporary** and a **situational** need. (3 marks) (c) Explain one design decision that would serve all three of your examples. (2 marks)

Q2. Accessibility, usability and inclusive design: (a) Distinguish between **accessibility** and **usability**. (2 marks) (b) Define **inclusive design**. (1 mark) (c) Explain why an interface can be usable and still not accessible, using one example. (2 marks)

Q3. Devices, systems, services and stakeholders: (a) Distinguish between a **device**, a **system** and a **service**, using SENECIO. (3 marks) (b) Identify three stakeholders in the SENECIO project and state each one's interest. (3 marks) (c) Explain why the volunteer drivers must be researched as well as the passengers. (2 marks)

Q4. Choosing research methods for SENECIO: (a) Name two human-centred research methods you would use to identify the interaction design problem, and state whether each is primary or secondary. (2 marks) (b) State what each method would reveal that the other could not. (2 marks) (c) Explain why one method alone is not enough. (2 marks)

Q5. A task-based usability test of the current SENECIO form: (a) Describe how the test would be run. (3 marks) (b) State two things the designer should record during it. (2 marks) (c) Explain one ethical practice that applies particularly to usability testing. (2 marks)

Q6. The interaction design brief: (a) Identify four parts of an interaction design brief. (2 marks) (b) Explain why a design criterion must be testable. (2 marks) (c) Rewrite “the screen should be easy for everyone to use” as **two** testable criteria. (2 marks)

Un scaffolded

THE SCREEN AS FOUND

Context of use: an open-air foreshore car park; a fixed screen, no shelter, full afternoon sun; about 40 000 summer visitors, many from outside the district; the nearest staffed office is 6 km away.

Access review, measured on the installed screen: body text 2.0:1 against its background (the guideline minimum for body text is 4.5:1) · number keys 6 mm square, 1 mm apart · the top control sits 1430 mm above the ground · the session times out after 20 seconds · no on-screen text is larger than 3 mm.

Questions 7–14 refer to the **PYCNOSORUS** foreshore parking-and-permit screen shown above, recorded as found by a student design team, together with the team’s access review. The Foreshore Committee that owns the screen believes the problem is simply that “people are not paying”.

Q7. Identify **three different** diverse user needs the PYCNOSORUS screen fails to meet, and for each, describe the effect on the user. (6 marks)

Q8. Explain how the screen’s “BAY STATUS” indicator disadvantages users with a colour vision deficiency, and describe how you would redesign it. (3 marks)

Q9. Analyse how the screen’s **context of use** creates situational needs, and explain two design consequences that follow. (4 marks)

Q10. Recommend two human-centred research methods that would test the committee’s belief that “people are not paying”, and justify each choice. (4 marks)

Q11. Identify four stakeholders in the PYCNOSORUS project and explain why two of them must be researched separately. (4 marks)

Q12. Write a **communication need** for a redesigned PYCNOSORUS screen, and explain why a communication need is not a design solution. (4 marks)

Q13. Write **four testable design criteria** for a redesigned PYCNOSORUS screen, and for each, name the diverse user need it answers. (4 marks)

Q14. Evaluate the extent to which the current PYCNOSORUS screen supports a positive and inclusive interactive experience. (6 marks)

Q15. (SENECIO.) Compare an **access review** and a **task-based usability test** as methods for identifying an interaction design problem. (4 marks)

Q16. (SENECIO.) Explain how the user journey map shown in this subtopic was used to identify the interaction design problem. (3 marks)

Q17. (SENECIO.) Explain how a set of **personas** built from the SENECIO research would guide the design of a new booking interface, and why the personas must differ in their access needs rather than only in age and postcode. (4 marks)

Q18. (CRASPEDIA.) Explain how the constraint “presented as static wireframes and mock-ups, not a functioning prototype” affects what the designer produces and how the solution can be tested. (3 marks)

Q19. Discuss two ethical practices a designer must follow when researching with participants who have access needs. (4 marks)

Q20. Explain why designing for an “average user” produces an interface that excludes people, using one example from any project in this subtopic. (3 marks)

Q21. Choose **one** of the three projects in this subtopic. Outline how you would identify and research its interaction design problem, naming two research methods, two diverse user needs you would expect to find, and two testable criteria you would write into the brief. (6 marks)

Answers

Q1. (a) The full range of variation in what users can see, hear, hold, read and afford, and in the situation they use it in. (b) & (c) See solutions. **Q2.** (a) Accessibility = *can* they use it; usability = how easily/efficiently. (b) Designing one solution the widest range of people can use, without a separate version. (c) See solutions. **Q3.** (a) Device = the thing you interact through; system = the screens/rules/data a task runs on; service = the whole provision, of which a screen is one touchpoint. (b) e.g. the shire (client), passengers (users), carers who book, volunteer drivers, the booking coordinator. (c) See solutions. **Q4.** (a) e.g. task-based usability test (primary) + the service's own booking records (secondary). (b) & (c) See solutions. **Q5.** (a) One real task, an existing form, an observed participant, think-aloud. (b) Any two of: where they hesitated, what they tapped, the step they abandoned, what they said, time taken, errors. (c) Test the design, not the person. **Q6.** (a) Any four of: client, opportunity/problem, communication need, purpose, context of use, audience/users, design criteria, constraints. (b) & (c) See solutions. **Q7.** Any three from different categories: low vision (2.0:1 text, 3 mm type); reduced dexterity (6 mm keys, 1 mm apart); reach (top control 1430 mm); colour vision deficiency (colour-only status); literacy/EAL (all-caps dense block); time pressure (20-second time-out); visitors without a member number. **Q8.** Status is carried by colour alone — add a word and a shape to each state. See solutions. **Q9.** Full sun, no shelter, standing, hurried, no staff within 6 km → contrast and type size; no time-out; self-explaining screen. **Q10.** Any two justified, e.g. contextual observation of the car park + service records of transactions and infringements. **Q11.** e.g. the Foreshore Committee (client), day visitors, local permit holders, the ranger who issues infringements, the committee's phone contact. **Q12.** Model need in solutions; a need names what must be communicated, to whom and where — not the artefact. **Q13.** Four criteria, each numeric or observable, each tied to a named need. See solutions. **Q14.** Not effective; strengths and limitations plus an overall judgement — see solutions. **Q15–Q21.** See fully-worked solutions.

Fully-worked solutions

Q1. (a) The **diverse needs of users** are the whole range of variation among the people who must use a device, system or service — differences in what they can see, hear and hold, in what they can read, remember and understand, in language and culture, in digital confidence, in the device and data they have access to, and in the situation they are in at the moment of use (2 marks: *variation across users* + *at least two dimensions named*).

(b) *Any one example in each column, for instance:* **permanent** — a passenger with low vision, or with arthritis in her hands; **temporary** — a passenger whose eyes have been dilated at the appointment she has just been driven to, or whose wrist is in a splint; **situational** — a carer completing the booking on a phone in the sun outside the surgery, one-handed, before the pharmacy closes (1 mark each).

(c) One decision serving all three: **set the form in large type with strong tonal contrast, and make every control a large, well-separated target of at least about 9 mm.** Large high-contrast type is readable with low vision, with dilated pupils and in glare; large separated targets can be hit with arthritic fingers, with a splinted wrist and with one hurried thumb. ∴ a single inclusive decision removes a permanent, a temporary and a situational barrier at once, which is why inclusive design is not a special case (2 marks: *one decision* + *shown to work for all three*).

Q2. (a) **Accessibility** asks whether a person *can* use the interface at all — whether barriers have been removed for people with disability, through contrast, target size, text alternatives and cues that do not depend on colour. **Usability** asks how **easily and efficiently** a user can achieve their goal — whether the interface can be learned, worked quickly, remembered, and used without error (2 marks: *one for each, distinguished by “can” versus “how easily”*).

(b) **Inclusive design** is designing a single solution that the widest possible range of people can use, considering that range from the start rather than adapting for it afterwards.

(c) An interface can be **usable** for the people it was tested with and still be **inaccessible** to others, because usability is measured on the users you had in the room. On the PYCNOSORUS screen the bay status is shown by three coloured squares. For a user with full colour vision this is fast and easy — highly usable. For a user with a red–green colour vision deficiency, and for anybody in full sun, the squares carry no information at all, so the state of the bay is not merely harder to read: it is unavailable. ∴ accessibility is a floor that has to be met before usability is worth measuring (2 marks: *the distinction applied* + *a specific example*).

Q3. (a) The **device** is the physical thing the user interacts through — here, the resident's own phone or computer, or the coordinator's telephone; it sets the screen size, the input method and the posture. The **system** is the organised set

of screens, fields and rules the booking task runs on — the shire’s online booking form and the records behind it; it sets how many steps a booking takes. The **service** is the whole provision SENEIO makes over time — hearing about it, booking, the confirmation, the driver, the trip and the return — of which any screen is only one **touchpoint** (1 mark each).

- (b) *Any three, each with its interest:* the **shire** (the client — wants the service used and the volunteer coordinator’s time freed); **passengers over 70** (the users — want a lift they can arrange without help); **carers booking for a parent or partner** (users acting for someone else — want to arrange and confirm a trip that is not their own); **volunteer drivers** (the operators — want a correct pickup address and time); the **booking coordinator** (an operator — wants fewer phone bookings to transcribe) (1 mark each: stakeholder + interest).
- (c) The drivers **operate** the service, so they absorb the failures the interface causes and are the only stakeholders who see them all. Passengers rarely report a problem they have already worked around — someone who could not use the form simply phones instead, and never mentions the form again. The drivers, by contrast, could quantify the consequence: about three wrong pickup points every week, which points directly at how the form asks for an address. ∴ researching the operators surfaces evidence of interface failure that users do not report (2 marks: operators absorb the failure + the specific evidence they hold).

Q4. (a) *Any two, correctly classified, for example:* a **task-based usability test** of the existing online form with six residents — **primary**; the service’s **own booking records** for the past year — **secondary**. (Also accept: interviews with passengers and carers (primary); observation at the coordinator’s desk (primary); an access review of the form (primary); shire population data (secondary).)

- (b) The **usability test** reveals *where in the task* people fail and *why* — that four of six never found the booking page, and what they tried instead. No record could show that. The **booking records** reveal *scale and trend* — that online bookings fell from 40 to 22 a month (–45%) while phone bookings rose from 62 to 91 — which tells the team how many people the problem affects and that demand for the service itself has not fallen. Six people can never establish that (2 marks: a distinct contribution for each).
- (c) Every method is partial. A test with six people shows a mechanism but not its scale; records show scale but never a reason; interviews capture what people **say**, which is not always what they **do**. A designer who used only one would build a brief on either an anecdote or a number with no explanation. Designers therefore **triangulate** — at least one method that hears users, one that watches them, and records or secondary data for context — and treat a finding as sound when more than one method points to it (2 marks: each method is partial + triangulation named and explained).

Q5. (a) The team recruits **six residents** chosen to span the users named in the research — a carer who books for a parent, a resident with low vision, a resident with arthritis, a first-time user. Each participant is asked to attempt **one real task on the existing form**, worded as a goal rather than as instructions: “book a lift to a Thursday appointment at the medical centre.” They use their **own device** where possible, in a realistic setting, and are asked to **think aloud** as they work. The observer does not help, prompt or explain; they watch, listen and note where the task breaks down, and only debrief once the attempt is over (3 marks: a real task on the existing interface + representative participants + observed without help, thinking aloud).

- (b) *Any two of:* the step at which the participant hesitated, guessed or stopped; what they tapped or looked for that was not there; the words they used for things (which are rarely the words on the screen); the number of attempts and errors; time taken; whether the task was completed at all; direct quotes.
- (c) **Test the design, not the person.** The designer must say so before starting and record results that way: when a participant cannot finish, the finding is that *the interface failed*, not that the participant did. This matters because a participant who feels examined stops volunteering what confuses them — which destroys the only thing the method exists to produce — and because it is unfair to a volunteer to write them up as a failure. (Also accept: informed voluntary consent, the right to stop at any time; recording the screen rather than the participant’s face; de-identification.) (2 marks: the practice + why it matters.)

Q6. (a) *Any four of:* the client; the opportunity or problem identified by the research; the communication need; the purpose; the context of use; the audience or users; the design criteria; the constraints.

- (b) A criterion exists to be **applied and then checked**. A testable criterion — one with a number, a count or an observable behaviour — can guide ideation (it rules concepts in and out), can be named in an annotation as

the reason for a decision, and can be **failed**, which is what lets the finished solution be evaluated by somebody other than the designer. A criterion that cannot be failed, such as “make it modern”, exerts no pressure on any decision, so the designer ends up judging their own taste (2 marks: *guides decisions + can be checked/failed by someone else*).

- (c) Any two testable rewrites, for example: “A first-time user can complete a booking in four steps or fewer, with no help.” · “All body text holds a contrast ratio of at least 4.5:1 against its background, and every control is at least 9 mm square.” (1 mark each: *numeric or observable, and checkable by a third party.*)

Q7. Any three needs, from three different categories, each with its effect. For example:

1. **Low vision (sensory).** Body text on the screen measures **2.0:1** against its background, against the 4.5:1 minimum, and no text is larger than 3 mm. The effect is that the instructions and the field labels are unreadable for a user with low vision — and difficult for anyone in the full afternoon sun this screen stands in — so the user cannot tell what is being asked of them and either guesses or leaves.
2. **Reduced dexterity and reach (physical).** The number keys are **6 mm square and 1 mm apart**, and the top control sits **1430 mm above the ground**. The effect is that a user with a tremor or arthritis mis-taps repeatedly, and a user seated in a wheelchair, or a child, cannot reach the top control at all — so the task is not merely slow but impossible.
3. **First-time use and literacy, including English as an additional language (cognitive).** The instruction is a four-line block of dense capitals in low-contrast grey, and the three controls at the top right carry icons with no words. The effect is that a visitor — and the context tells us many are from outside the district — cannot work out the order of operations or what the controls do, so they abandon the transaction.

(Also accept: *colour-only bay status; the 20-second time-out; the required reserve member number, which excludes every visitor who is not a member; buttons that give a price but never state how long the permit lasts.*) (2 marks each: *the need named and located in the evidence + its effect on the user. Deduct where three needs come from the same category.*)

Q8. The indicator carries its meaning by **colour alone**: three squares — green, amber and red — with no word, no shape difference and no legend, the current state marked only by a thin outline. A user with a red–green colour vision deficiency (about one man in twelve) cannot reliably tell the green square from the red one, so cannot tell whether the bay is free, restricted or occupied; in full sun the saturated colours flatten for everybody. The state is therefore not simply harder to read — it is absent.

To redesign it, keep the colour but stop it doing the work alone: give each state a **word** (“AVAILABLE”, “TIME LIMITED”, “OCCUPIED”), a **distinct shape** (for example a tick, a clock and a cross), and show only the **current** state in a single large chip in high-contrast type rather than three squares the user must decode. Colour then confirms a message that is already legible without it (3 marks: *colour-only fault identified + the consequence for a specific user group + a redesign that adds a word and a shape*).

Q9. The **context of use** is an open-air foreshore car park: a fixed screen with no shelter, in full afternoon sun, used on foot beside a parked car by around 40 000 summer visitors, many from outside the district, with the nearest staffed office 6 km away. That context creates **situational needs** that would not exist for the same task on a phone at home. Sunlight and reflection reduce the effective contrast of whatever is displayed, so every user temporarily has the needs of a user with low vision. Users are standing, often holding beach gear or a child, with a queue behind them, so every user temporarily has the needs of a user with reduced dexterity and divided attention. And because no staff are within 6 km, there is nobody to ask, so the screen must be entirely self-explaining.

Two design consequences follow. First, **contrast and type size must be set for the worst light, not the studio** — high tonal contrast, large type, no fine grey text — because the situational need is present for everyone here, not for a minority. Second, **nothing may depend on speed or on outside help**: the 20-second time-out must go or be extendable, the instruction must be short enough to read while standing, and the screen must explain itself, including to a visitor with no member number (4 marks: *context stated + situational needs identified as affecting all users + two consequences tied to the context*).

Q10. Method 1 — contextual observation of the car park at busy times. The team spends several afternoons watching what people actually do: how many approach the screen, how many turn away, at which step they stop, whether they ask a stranger for help, and whether they park anyway. This is justified because the committee’s belief is

about **motive** (“people are not paying”) while the evidence for it is only an outcome (unpaid bays). Observation is the only method that can distinguish users who **will not** pay from users who **cannot** finish paying — and the access review already suggests the second is likely.

Method 2 — the service’s own records: transaction logs, abandoned-transaction counts and infringement notices, read together. This is **secondary** research, already collected. It is justified because it supplies the **scale and pattern** observation cannot: how many transactions are begun and abandoned versus never begun, whether failures cluster at particular hours (which would implicate sunlight) or particular days, and whether infringements fall on visitors or on locals. Where observation gives the mechanism, the records give the size of it, and a brief needs both.

(Also accept: intercept interviews with drivers leaving the car park; an access review of the screen; interviews with the ranger who issues infringements; a usability test on the existing screen.) (2 marks per method: named and appropriate + a justification tied to testing the committee’s belief.)

Q11. Any four, for example: the **Foreshore Committee** (the client — owns the screen and the revenue); **day visitors from outside the district** (the largest user group — want to pay and get to the beach); **local permit holders** (users with a different task and a member number); the **ranger or parking officer** (an operator — issues infringements and hears every complaint); the **committee’s phone contact** (support — takes the calls when the screen defeats someone); the **foreshore maintenance staff** who service the machine.

Two that must be researched **separately** are the **day visitors** and the **local permit holders**. They must be separated because their needs are genuinely different and averaging them hides the problem: a local has a reserve member number, has used the screen before and knows what the prices mean, while a visitor has no member number, has never seen the screen and cannot complete the required field at all. Research that mixed them would report a screen that “mostly works”, because the experienced group would carry the average. *(Also defensible: the visitors and the ranger, because one group experiences the failure and the other only sees its consequence.) (4 marks: four stakeholders + a reason for separating two that turns on their different needs.)*

Q12. Model communication need: a driver standing at the screen for the first time, in full sun and in a hurry, needs to be shown — on the screen itself and without asking anyone — what a permit costs, how long it lasts, and the steps to buy one without being a member.

(Accept any need grounded in the evidence that names what must be communicated, to whom and where, and that does not name an artefact.)

A communication need is **not** a design solution because it states the *problem to be communicated* rather than the thing that will do the communicating. “Install a new touchscreen with bigger buttons” names an artefact and closes off every other possibility; the need above could be met by a redesigned screen, by a printed sign beside it, by signage at the car-park entrance, by a change to the order of the steps, or by removing the member-number requirement altogether. Keeping the need free of any artefact is what allows the Develop stage to think divergently, and it is what lets the finished solution be judged against the users’ problem rather than against the designer’s first idea *(4 marks: a defensible need with what/whom/where + the distinction explained + why it matters for Develop).*

Q13. Any four criteria, each numeric or observable and each tied to a need. For example:

1. **All body text holds a contrast ratio of at least 4.5:1 against its background, and no text is smaller than 5 mm.** — answers **low vision**, and the **situational** loss of contrast in full sun (currently 2.0:1 and 3 mm).
2. **Every control is at least 9 mm square with at least 3 mm between controls, and every control sits between 800 mm and 1100 mm above the ground.** — answers **reduced dexterity and tremor**, and **reach** for a seated user or a child (currently 6 mm, 1 mm apart, top control at 1430 mm).
3. **No state is shown by colour alone: every state carries a word and a distinct shape as well.** — answers **colour vision deficiency**, and glare for all users.
4. **A first-time visitor with no member number can buy a permit in four steps or fewer, with each step naming its price and its duration, and nothing times out in under 90 seconds.** — answers **first-time use**, **English as an additional language and time pressure**, and removes the barrier for visitors who are not members.

(1 mark each: the criterion must be checkable by a third party and matched to a need actually evidenced on this screen. A criterion such as “make it clearer” earns nothing.)

Q14. The current screen does **not** support a positive or inclusive interactive experience, though it is not without merit.

Its few strengths are real. The screen has a clear **hierarchy** at the top: a dark title bar identifies the reserve and the task, so a user knows what the machine is for. The three price buttons are the largest, highest-contrast and most saturated elements on the screen, so the one moment of genuine **contrast** falls on the action the committee wants; and the layout follows a conventional top-to-bottom order — identify, enter details, choose, pay.

Its limitations are severe and they compound. **Accessibility fails at the floor.** Body text measures 2.0:1 against its background where 4.5:1 is the minimum, and nothing is larger than 3 mm, so the instructions are effectively unavailable to a user with low vision and hard for anyone in the sunlight the screen stands in. The number keys are 6 mm square and 1 mm apart, which cannot be operated reliably with a tremor, with cold hands or in a hurry, and the top control at 1430 mm is out of reach for a seated user or a child. Bay status is carried by **colour alone**, so it conveys nothing to a user with a red–green deficiency. **Usability fails as well.** The instruction is a four-line block of dense capitals — the least legible setting available — the three controls carry icons with no words, the price buttons state a cost but never the duration they buy, and the session times out after 20 seconds, which punishes precisely the users who need longest. **Inclusion fails by design:** the required reserve member number cannot be supplied by a day visitor, and the context tells us many of the 40 000 summer visitors come from outside the district, so the screen structurally excludes a large share of its own users, with the nearest staff 6 km away.

The compounding matters. Each fault alone would slow a user down; together they mean a first-time visitor in sunlight is asked, in unreadable type, for a number they do not have, using keys they cannot hit, within 20 seconds, with nobody to ask. It is also worth noting that the committee’s framing — “people are not paying” — is not supported by this evidence: the screen gives ample reason to believe people cannot finish paying, which is a different problem with a different solution.

Overall, the screen fails to support a positive and inclusive interactive experience to a very large extent. Its one strength — the prominence of the price buttons — serves the client’s goal, while almost every other decision obstructs the user’s. ∴ the interaction design problem here is the interface, not the honesty of the visitors (*6 marks: at least two strengths and several limitations, each tied to evidence in the stimulus, accessibility and usability treated distinctly, and an overall judgement*).

Q15. Both are primary, first-hand methods used in Discover to identify what is wrong with an existing interface, and both examine the **interface** rather than asking users’ opinions of it — so both produce evidence a designer can act on immediately, and both belong in the same research plan.

They differ in **what they measure and what they can find**. An **access review** measures the interface against published guidelines: it puts numbers on contrast, text size, target size, reach and colour-only cues, and it needs no participants, so it is quick, repeatable and produces criteria you can write straight into a brief. What it cannot find is anything about the *task*: it would not have discovered that the SENEIO form cannot represent a carer booking for her mother, because no guideline covers that. A **task-based usability test** puts a real user in front of a real task and watches: it finds where the task breaks down, what the user expected instead, and which words they used — the carer’s problem, and the fact that four of six participants never found the booking page. What it cannot do is quantify a barrier or prove the absence of one, because six participants are too few, and its findings depend on who was recruited.

∴ the two are complementary rather than alternatives: the review sets the floor the interface must clear, and the test finds the task failures no standard describes (*4 marks: a congruent two-sided treatment — at least one genuine similarity, then matched differences with a limitation on each side*).

Q16. A **user journey map** sets out the steps a user actually takes through the *current* service, records how each step goes, and attaches the research evidence to the step it came from. The SENEIO map does three things at once. It **locates** the failure: step 1, hearing that the service exists, goes comparatively well, while step 2, finding the booking page, dips and step 3, the form itself, collapses — which contradicts the committee’s theory that the problem was awareness. It **attaches the evidence to the step it came from**, so every claim on it can be checked: four of six task-test participants never found the booking page (step 2), a carer’s interview explains why the form defeats her (step 3), five of fifteen residents have no email although confirmation is sent by email only (step 4), and the drivers report about three wrong pickup points a week (step 5). And it **separates the service from the screen**, showing that the trip itself is fine — people are not abandoning the service, they are abandoning the interface, which the records confirm, online bookings having fallen from 40 to 22 a month (–45%) while phone bookings rose. ∴ the map converted five

separate sources into one located, evidenced interaction design problem (3 marks: *what a journey map is + it locates the problem against the client's framing + evidence attached to the step*).

Q17. Personas condense a body of research into a small set of representative users, each written with a goal, a context of use and the needs the research actually found, so that the users stay present in the room while decisions are being made. For SENECIO the set would be drawn from the fifteen interviews and the task test: a passenger in her eighties with arthritis, booking on a tablet at her kitchen table; a daughter booking for her mother from a phone outside the surgery; a first-time user with no email address.

They guide the design in two connected ways. First, they make the research **usable during ideation**: a sketch can be walked through as a particular persona — can the passenger with arthritis, one finger at a time, get from the home page to a confirmed booking? — which converts an abstract requirement into a test the designer can run on their own wireframe before anyone else sees it. Second, they **give the brief's criteria somebody to answer to**, so each requirement is traceable to a person rather than to a guideline: the 9 mm target answers the passenger with arthritis, showing both names on the booking answers the daughter, and confirming by text as well as email answers the user without an email address.

They must differ in **access needs**, not only in age and postcode, because demography does not change an interface — capability, language, confidence and situation do. Two personas aged 74 and 38 who both read comfortably, tap accurately and own a current phone make identical demands of a screen, so a set built that way is satisfied by the design the team would have drawn anyway. A set in which one persona has low vision, one is booking one-handed in the sun for somebody else and one cannot receive an emailed confirmation makes competing demands the design is forced to resolve. ∴ personas guide development only to the extent that they carry the diversity the research uncovered (4 marks: *what a persona is and how it is used in development + why variation in access needs is what makes the set work*).

Q18. The constraint means the designer delivers **static visual representations of the interface and its intended interactions**, not something a user can operate. In practice that changes what is produced: wireframes showing the layout and the relationships between components; a set of **sequenced screens** covering each state of the task — empty, filled, confirmed, error — because a state that cannot be clicked to must be *drawn*; annotations and simple flow arrows that explain what a tap would do; and resolved mock-ups showing the final visual language. The designer must therefore make the transitions explicit on paper rather than leaving them to be discovered by use.

It also changes **how the solution is tested**. It cannot be tested by handing someone a working machine, so testing is done by **walking a participant through the printed or on-screen sequence** — asking where they would tap next for a given task, and observing whether they choose the intended element — and by **checking the drawn screens against the brief's criteria**: measuring contrast, target sizes and reach heights on the mock-ups, and counting the steps in the sequence. Both are genuine tests of the *visual interface*, which is what this outcome assesses; what cannot be tested is the underlying functionality, which is outside the designer's scope in any case (3 marks: *static sequenced screens/wireframes/annotations produced + testing by walk-through and by measurement against criteria*).

Q19. 1. Work with participants, not on them — co-design. A designer researching access needs should invite users with those needs into the design as participants who review and shape concepts, rather than treating them as subjects to be measured, and should pay or properly acknowledge their time. This matters because the people who meet a barrier every day know which fixes actually work and which merely look inclusive; excluding them from the design while using their difficulties as data is both poorer research and a form of the exclusion the project is supposed to remove.

2. Consent that is informed, voluntary and specific — and no disclosure that has not been offered. Before anything is recorded the designer explains who they are, what the project is for, how the material will be used and stored, and that the person may decline or stop at any moment; a separate permission is sought for any recording, and the screen is recorded rather than the participant's face. Crucially, the designer must not require a participant to disclose or explain a disability they have not volunteered — the research needs to know that a target was missed, not a diagnosis. This matters because information about disability is sensitive personal information under the *Privacy Act 1988* (Cth), because a participant asked to justify their body is unlikely to keep helping, and because the design finding does not depend on it.

(Also accept: de-identification in the folio; secure storage and deletion; testing the design not the person; accessible research materials — plain-language information, large print, a venue a wheelchair user can reach.) (2 marks per practice: the practice described + a reason specific to participants with access needs.)

Q20. An “average user” does not exist. Every user is unusual in some respect, and averaging a population erases exactly the variation the design has to accommodate — the extremes of vision, dexterity, reach, literacy, language, confidence and situation are precisely where interfaces fail. Designing for the middle therefore produces an interface that works for the imagined typical person and fails for large numbers of real ones, and because the failures are at the edges they are invisible in any average measure of “satisfaction”.

The PYCNOSORUS screen shows the mechanism. It appears to have been designed for an average user who is a local member, standing indoors at a comfortable height, with good near vision, steady hands and plenty of time. Every requirement that user meets easily — a member number, 6 mm keys 1 mm apart, a top control at 1430 mm, 2.0:1 text, a 20-second timer — becomes a barrier for someone who is not that person: the day visitor without a number, the seated user, the user with low vision, the user with a tremor. ∴ designing for the average produced a screen that excludes a large share of its own users, whereas designing for the edges would have produced one that serves the middle as well *(3 marks: the average erases the variation that matters + failures occur at the edges + a specific worked example).*

Q21. *(Model response, using PYCNOSORUS. Accept an equivalent response built on SENECIO or CRASPEDIA.)*

Identifying the problem. I would treat the committee’s statement — “people are not paying” — as an assumption to be tested rather than the problem, because it names a motive while the only evidence for it is an outcome. My Discover work would ask a different question: *can* a first-time visitor complete a payment on this screen, in this place?

Method 1 — intercept interviews with drivers as they leave the car park, on several busy afternoons, asking each what they did about parking, whether they bought a permit, and what stopped them if they did not. It is chosen because it reaches the people no transaction log records — the driver who began at the screen and walked away, and the driver who never approached it — and because a user’s own account of the attempt, given minutes after it, is the quickest way to hear whether the committee is describing unwillingness or defeat. **Method 2 — an access review of the installed screen**, measuring contrast, text size, key size and spacing, control height and any state carried by colour alone. It is chosen because it converts the barriers into numbers immediately, needs no participants, and yields criteria I can write straight into the brief. Between them one method hears users and the other measures the interface, so the findings triangulate; I would add the committee’s own transaction and infringement records as secondary research for scale. Throughout, I would seek consent before each interview, explain what the research is for and that the driver may decline, and keep responses de-identified — recording what happened at the screen, not who the person was.

Two diverse user needs I would expect to find. First, a **situational sensory need**: in full afternoon sun with no shelter, every user temporarily has the needs of a user with low vision, so the screen’s 2.0:1 text and 3 mm type are unreadable for everybody, not only for the users with permanent low vision. Second, a **first-time-use and language need**: the context says many of the 40 000 summer visitors come from outside the district, so most users are strangers to the screen and some are reading English as an additional language — yet the instruction is a dense block of low-contrast capitals, the controls are icons without words, and a member number is required that a visitor cannot have.

Two testable criteria for the brief. (1) “All body text holds a contrast ratio of at least 4.5:1 against its background, and no text is smaller than 5 mm.” (2) “A first-time visitor who is not a member can buy a permit in four steps or fewer, each step stating both the price and the duration, with no step timing out in under 90 seconds.” Both can be checked on the finished mock-ups by somebody other than me, and each is traceable to a need the research found.

(6 marks: the client’s framing tested rather than accepted; two appropriate, justified methods of different kinds; two genuinely different diverse needs, evidenced; two testable criteria traceable to those needs. Deduct where a “criterion” cannot be failed, or where the needs come from a generic list rather than the project.)

Chapter 9 Designing interactive experiences — 9C Visualising, testing & presenting interactions

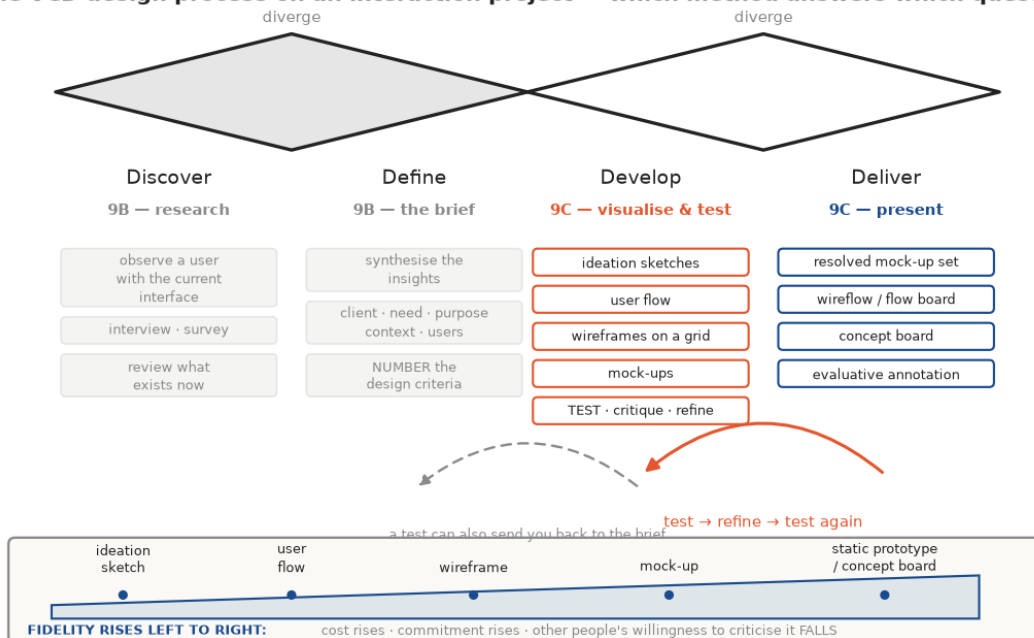
Theory

Unit 2 Outcome 3 asks you to apply the VCD design process to **design an interface for a digital product, environment or service**. Chapter 9A set out how user-experience (UX) and interaction designers work and what good design means on a screen; 9B set out the diverse needs of users and the human-centred research that turns those needs into a brief. This subtopic is the making half: the **methods, media and materials** you use to **visualise** an interface, to **test** it, and to **present** the resolved solution.

Two boundaries come straight from the study design and shape everything below.

- You design the **visual interface**, not the underlying functionality. Your job is the display, layout and relationship of icons, symbols, images and type — not the code behind them.
- You present **static visual representations** of content and intended interactions. **You are not required to produce a functioning prototype**. That is not a softer version of the task. It moves the work to where visual communication actually happens, and it means the quality of your *drawings* is the whole assessment.

The VCD design process on an interaction project — which method answers which question



The VCD design process on an interaction project. The process is the same Discover → Define → Develop → Deliver cycle used everywhere else in this course; what changes is which method you reach for at each stage.

Stage	The question it answers	The methods that answer it	What comes out
Discover	Who uses this, and what goes wrong for them?	Observing a user with the existing interface, interviews, surveys, reviewing what exists now (9B)	Research findings
Define	What exactly must this interface do, and for whom?	Synthesising insights; writing the brief — client, communication need, purpose, context, users, constraints	A brief with numbered design criteria
Develop	What is on the screens, in what order, arranged how?	Ideation sketching, user flows, wireframes on a	Annotated design concepts

Stage	The question it answers	The methods that answer it	What comes out
		grid, icon studies, mock-ups, testing , critique, refinement	
Deliver	Which concept, refined how, and presented how?	Resolving the chosen concept; the mock-up set, the flow shown statically, evaluative annotation against the criteria	The resolved design solution

The loop matters as much as the stages. A usability test does not merely confirm a concept — it sends you back into Develop with something specific to change, and occasionally back to Define, because a test can reveal that the brief asked for the wrong thing.

Everything in this subtopic is worked against one original project, **LEPTORHYNCHOS**.

Entry	What the brief says
Client	LEPTORHYNCHOS Community Seed Library, a volunteer-run seed library inside a suburban community garden.
Communication need	Interactive experiences — a phone interface that lets a member browse seed varieties, reserve packets and choose a pick-up window.
Purpose	To let a member reserve seed without phoning the shed, and to hold members to the three-packet fair-share limit without a volunteer having to police it.
Context	Used on a member's own phone, often standing in a garden bed in bright sunlight, often one-handed while holding a trowel or a child.
Users	Members aged 12–85; a large group over 70; several with low vision; several who describe themselves as not confident with apps.
Design criteria	1. a member can reserve one packet in no more than four taps from opening the app; 2. all body text at least 16 dp and at a contrast ratio of at least 4.5:1 against its background; 3. every interactive control at least 48 × 48 dp, with at least 8 dp between adjacent controls; 4. the three-packet limit visible on every screen of the reservation flow; 5. presented as static screens with the intended interaction shown.

A note on dp. A **dp** (density-independent pixel) is a unit of screen length: 1 dp is defined as one pixel on a screen of 160 pixels per inch, so 160 dp is about 25 mm on any device. Designing in dp means a control stays the same physical size on a cheap phone and an expensive one. Where a criterion has to be checkable, state it in dp — “make the button big enough” cannot be marked, and “48 × 48 dp” can.

Fidelity — the idea that organises every method

Fidelity is how closely a drawing resembles the finished thing. The study design defines the two ends of the range:

- **Low-fidelity prototyping** uses inexpensive, readily available materials and efficient methods to construct and test design ideas.
- **High-fidelity prototyping** uses materials and techniques that emulate the look and feel of a finished product. High-fidelity prototypes may or may not include functioning components.

The working rule is: **raise fidelity only when the question you are asking needs the extra detail**. As fidelity rises, three things rise with it — the time a drawing costs, your commitment to it, and how finished it looks to other people. That third one is the trap. A polished screen invites comments about the colour; a rough one invites comments about whether the arrangement makes sense, which is the question you actually need answered while there is still time to change it.

The ladder runs: **ideation sketch** → **user flow** → **wireframe** → **mock-up** → **static prototype or concept board**. Each rung answers a different question, and skipping a rung means answering its question by accident.

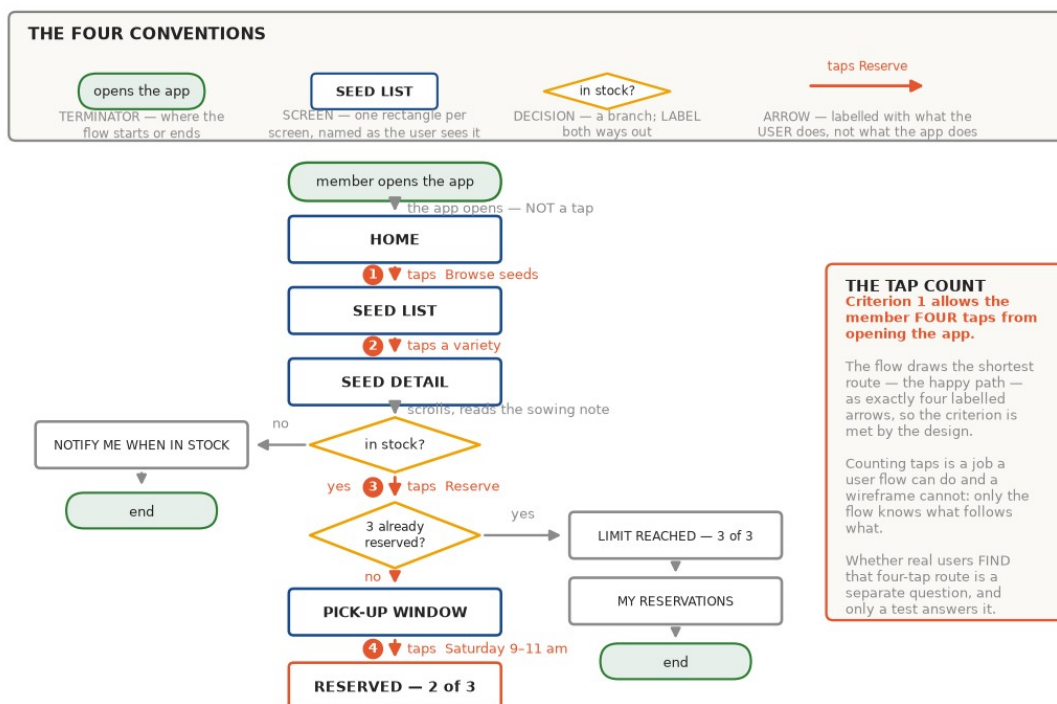
Visualising, method by method

Ideation sketches. Rapid thumbnails, many to a page, minutes each — the divergent front of Develop. Draw the whole screen as a handful of boxes and try six arrangements of the same content rather than one arrangement six times. Judge nothing yet. A page of ten thumbnails is worth more than one careful drawing, because the ten are what you choose *between*.

User flows. A **user flow** is a diagram of the route a user takes through the interface to complete **one objective**. It is the drawing that tells you how many screens there are and what has to be on each — which is why it comes before any wireframe. Four conventions do all the work:

Symbol	What it stands for	The rule
Rounded terminator	Where the flow starts or ends	Name the trigger (“member opens the app”), not the screen
Rectangle	One screen or state	Name it as the user would see it, in capitals
Diamond	A decision or branch	Label both ways out — an unlabelled branch decides nothing
Arrow	The action that moves the user on	Label it with what the user does (“taps Reserve”), not what the app does

LEPTORHYNCHOS Seed Library — user flow for the objective "reserve one packet of seed"



one flow = one user objective · the numbered arrows are the taps · grey branches are the routes that do NOT reach the goal

The LEPTORHYNCHOS flow above is drawn for one objective — *reserve one packet of seed*. Read the happy path down the centre: the member opens the app, taps **Browse seeds**, taps a variety, taps **Reserve**, taps a pick-up window,

and lands on the confirmation. Four labelled arrows, so **criterion 1 is met by the design**. The grey branches are the routes that do not reach the goal — the packet is out of stock, or three packets are already reserved — and drawing them is what stops those states being discovered late, as blank screens nobody designed.

Three related drawings are often confused with a user flow, and the distinction is examinable:

- a **site map** shows the *hierarchy* of every screen in the product — what sits under what — not the route through them;
- a **storyboard** shows the *user in context*, panel by panel, and is the right drawing when where and how someone uses the interface is part of the problem (in bright sun, one-handed, in a queue);
- a **wireflow** is a user flow with the actual wireframes dropped into it in place of the named rectangles — the most useful single static format, because it shows the screens **and** the intended interaction at once.

Wireframes. A **wireframe** is a greyscale structural drawing of **one screen**. It answers four questions and no others: *what content is on this screen, where does each piece sit, how big is it, and what can be tapped?*

What a wireframe deliberately **withholds** is as important as what it shows. No brand colour, no final typeface, no photographs — an image is drawn as a box with a diagonal cross through it, because choosing the photograph is a mock-up decision. Grey bars stand in for lines of body text. Use **real labels** on controls rather than dummy text, though: “Reserve one packet” reveals whether the button is wide enough, and “lorem ipsum” reveals nothing.

The grid. The study design asks for **visual grids**, and a grid is what stops a wireframe being a guess. State four things and every screen in the set will agree with every other:

- the **artboard size**, with the device it stands for — LEPTORHYNCHOS is drawn at **360 × 780 dp**;
- the **margins** — 16 dp, so nothing runs to the edge of the screen;
- the **columns and gutters** — 4 columns with 16 dp gutters;
- a **base unit** for vertical spacing — 8 dp, so every gap is a multiple of one number.

The column width follows by arithmetic, not by eye. Take the two margins and the three gutters off the artboard width, then divide what is left by the number of columns:

$$\text{column width} = (360 - 32 - 48) \div 4 = 280 \div 4 = 70 \text{ dp}$$

A block one column wide is 70 dp; two columns plus the gutter between them come to 156 dp; the full content width is $360 - 32 = 328 \text{ dp}$. Every block on the screen is now a whole number of columns, which is what makes a layout look deliberate rather than nudged into place.

Touch targets. A finger is not a cursor. Platform guidance sets a minimum interactive target of **48 × 48 dp** (Material Design) or **44 × 44 pt** (Apple’s Human Interface Guidelines) — in each case a square close to the contact patch of an adult fingertip — with a gap of at least 8 dp between adjacent targets so a near miss does not trigger the wrong control. A control smaller than this is not a style choice; it is a control that some of your users cannot operate.

Type on screen. Set a short **type scale** and stick to it — LEPTORHYNCHOS uses 28 / 20 / 16 / 14 dp — with **16 dp as the floor for body text on a phone**. Three or four sizes make a hierarchy; nine sizes make a mess.

Icons and symbols. The icon skills built in 8C carry straight into an interface. On screen, one rule dominates: **an icon is not a label**. Unless a symbol is genuinely universal, pair it with a word. An unlabelled icon asks every user to guess, and the users who guess wrong are the ones the brief usually cares about most.

Gestalt principles on a screen. Gestalt principles describe how the mind organises what it sees, and an interface is where they earn their keep: **proximity** groups a label with the control it belongs to; **similarity** makes every tappable card look alike, so users learn one rule instead of ten; **figure–ground** lifts a message off the screen behind it; **closure** lets whitespace imply a card without a box being drawn; **common fate** ties together items that move as a set. Keep the vocabulary straight — proximity is a **Gestalt principle**, hierarchy is a **design principle**, and type is a **design element**.

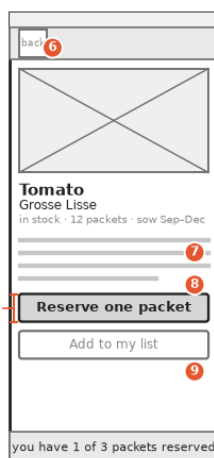
LEPTORHYNCHOS Seed Library — wireframe set

360 x 780 dp phone artboard · 16 dp margins · 4 columns · 16 dp gutters · 70 dp columns · 8 dp base unit · greyscale only



A — SEED LIST

the grid is shown on this screen only



B — SEED DETAIL

every control measured against 48 dp



C — PICK-UP WINDOW

tap 4 of 4 — criterion 1 is met

WHAT EACH DECISION ON THESE WIREFRAMES IS DOING

- 1 **70 dp columns**
(360 – 32 – 48) ÷ 4 = 70 — every block is a whole number of columns
- 2 **16 dp margin**
nothing runs to the edge of the screen, on any screen
- 3 **an image is a box and a cross**
choosing the photograph is a MOCK-UP decision
- 4 **proximity (Gestalt)**
name, rule and stock note sit close, so they read as ONE card
- 5 **criterion 4, on every screen**
the 3-packet limit follows the user through the flow
- 6 **48 dp icon control**
an icon-only control still needs a full 48 x 48 dp target
- 7 **grey bars stand in for type**
the typeface is a mock-up decision, not a wireframe one
- 8 **48 dp primary control**
at 328 x 48 dp it spans all four columns — criterion 3
- 9 **hierarchy**
the primary action is filled; the secondary action is outlined
- 10 **real labels, not dummy text**
a real label shows whether the control is wide enough
- 11 **similarity (Gestalt)**
both windows are drawn identically, so both read as choosable

a wireframe answers: what is on this screen, where does it sit, how big is it, and what can be tapped — nothing else is decided yet

Mock-ups. A **mock-up** is the screen at its final visual appearance: the real colour palette, the real typeface, the real icons and imagery, the spacing resolved. It is still static. Mock-ups are what you take to a test and a critique, because by then the interface looks enough like the real thing that a user will behave as they would with the real thing.

Static prototypes. In this outcome a **prototype** is static. A low-fidelity one is a set of printed screens a tester can point at while you swap the sheets by hand; a higher-fidelity one is the resolved mock-up set laid out on a board with the flow drawn between the screens. Both are real prototypes in the study design's sense — inexpensive materials and efficient methods, used to construct and test an idea — and both will teach you more in twenty minutes with a stranger than a week of tidying will.

Methods, media and materials for an interface

The study design's three terms mean three different things, and interfaces are where students most often collapse them into one.

	What it means	On an interaction project
Methods	The manual or digital processes used to evolve ideas, concepts and solutions	Ideation sketching, drawing user flows, wireframing, constructing a grid, icon drawing, mock-up making, paper prototyping, usability testing
Media	The manual and digital applications used to make the marks	Manual: pencil, fineliner, grey markers. Digital: vector interface software, raster paint software
Materials	The surfaces or substrates on or from which designs are made	Manual: layout paper, printed screen templates, card, sticky notes, whiteboard. Digital: the touchscreen or digital interface itself

Two consequences follow. First, **naming a piece of software does not answer a question about methods** — the software is a medium; wireframing is the method. Second, whether a piece of work is manual or digital is settled by the medium you actually used: a stylus sketch made on a tablet is a **digital** method even though it looks hand-drawn, and a screen template printed out and drawn on with a fineliner is a **manual** method even though a printer was involved.

Both routes are legitimate, and most designers use both:

	Manual	Digital
Ideation & flows	Marker on layout paper; sticky notes moved around a wall so the flow can be re-ordered in seconds	Stylus sketching on a tablet, one idea per layer
Wireframes	Printed 360 × 780 dp templates with the grid pre-ruled; grey markers for the three tones	Vector artboards at true dp size, with the grid as a guide layer
Mock-ups & prototypes	Screens printed, cut out and swapped by hand during a test	Repeated components edited once and updated everywhere; screens laid out on one board
What each is good for	Fast, cheap, and obviously unfinished — which is exactly what invites honest criticism	Accurate, editable and measurable; sizes and contrast can be checked directly

Testing

Testing is the key skill most often skipped, and the one that separates a folio that *asserts* a design works from one that *shows* it. Two things are being tested:

- **usability** — can a user actually do the thing, in the time and taps the design assumed?
- **suitability** — is this solution the right response to *this* brief, for *these* users, in *this* context?

A task-based usability test. Write three to five tasks as **user objectives**, never as instructions (“Reserve one packet of tomato seed for Saturday”, not “Tap the green button”). Recruit about five participants who resemble the real users — for LEPTORHYNCHOS, people who garden, including someone over 70 and someone who says they are not confident with apps. Hand over the static prototype and the task, then **say nothing**. Record, for each task: whether it was completed, completed with difficulty, or not completed; the taps taken against the taps designed; where the participant hesitated; what they said as they worked (**think-aloud**); and what they tapped that was not tappable.

Measured checks. Some criteria need no participants at all, only a ruler and a contrast checker. The contrast figures used throughout this subtopic come from the international **Web Content Accessibility Guidelines**, which set **4.5:1** for body text and **3:1** for large text and for the visual boundaries of controls. Measure every text-and-background pair against 4.5:1; measure every control against 48 × 48 dp; measure the gap between adjacent controls against 8 dp; measure the body type against the 16 dp floor; and confirm that no information anywhere is carried by colour alone. Run these **before** you spend a participant’s time — it is a poor use of a volunteer to discover something a ruler would have told you.

Critique. Present the concepts to peers with a stated question (“does the reservation limit read clearly on every screen?”), record the feedback as it is given, separate a **preference** (“I’d make it blue”) from a **problem** (“I couldn’t find how to cancel”), and write a response to each: change it, do not change it, or test it again — each with a reason.

Testing the LEPTORHYNCHOS static prototype — the record, the findings and the refinement

USABILITY TEST RECORD 5 participants who garden, tested one at a time			
	T1 — reserve a packet designed: 4 taps	T2 — count reserved designed: 1 tap	T3 — cancel one designed: 3 taps
P1	✓ 4 taps	✓ 1 tap	✗ — hunted, then gave up
P2	✓ 4 taps	✓* 3 taps looked in the app bar	✗ — gave up
P3	✓* 6 taps tapped the image	✓ 1 tap	✓* 5 taps hunted for Cancel
P4	✓ 4 taps	✓ 1 tap	✗ — gave up
P5	✓* 6 taps tapped the image	✓* 3 taps looked in the app bar	✓* 6 taps hunted for Cancel
	✓ completed	✓* completed with difficulty	✗ not completed

FINDINGS, RANKED BY HOW MANY PARTICIPANTS MET THEM	
3 of 5	could not cancel a reservation at all; the other two took 5-6 taps against the 3 designed — Cancel sits two levels down
2 of 5	tapped the seed IMAGE expecting it to open the variety; only the name was a control
2 of 5	looked for the "1 of 3 reserved" count in the app bar, not in the bottom bar
a finding is what the participants DID — not what they said they liked	

A TEST NEEDS THREE THINGS	
1	A TASK, written as a user objective "Reserve one packet of tomato seed for Saturday" — never "what do you think?"
2	A MEASURE, fixed before you start completed / with difficulty / not completed, taps taken against taps designed
3	A RECORD, written as it happens what they did, where they hesitated, what they said, what they tapped in error the designer says NOTHING during the task — explain it and you are testing your explanation

THE REFINEMENT — one change at a time	
before	after
FIX NOW — put Cancel on the reservation card (finding 1), the finding that stopped the most participants HOLD — the whole card as one 48 dp target (finding 2) and the counter in the app bar (finding 3): ONE change per round, or you will not know which fix worked THEN — re-test the same three tasks with five new people	

Turning results into refinements. A finding is what participants **did**, ranked by how many of them did it. Fix the finding that stopped the most people first. Then change **one thing at a time** and re-test: if you change five things at once and the next round goes better, you have learned that something helped, which is very close to learning nothing.

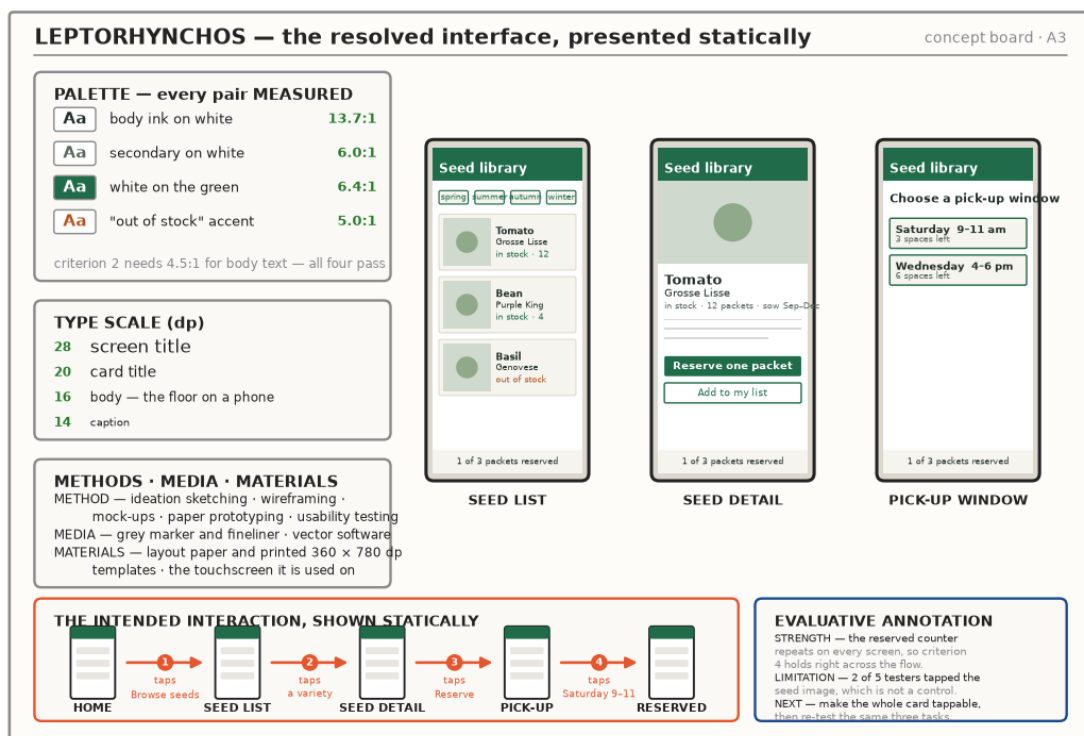
Presenting

The final key skill is to **select suitable static formats for the presentation of a digital interface solution**. The formats available to you are:

Static format	What it communicates
Wireflow / flow board	The screens and the intended interaction between them, in order
Mock-up set in device frames	The resolved screens at their true size, in something recognisable as a phone
Concept board	The screens plus the palette, type scale, icon set and a short rationale
Style tile / component sheet	Each reusable component — button, card, field — drawn once, so the system is visible
Storyboard	The user in the real context: outdoors, one-handed, interrupted
Annotated screens	The design decisions themselves, evaluated against the numbered criteria

Whatever you choose, the presentation must state the **device and screen size** it is drawn for, the **grid**, and the **methods, media and materials** used — without those, nothing on the sheet can be checked by anyone else.

Evaluative annotation. An annotation that evaluates carries three things: a **strength**, a **limitation** and a **next action**, each written in design terminology and each pointed at a **numbered** design criterion. "I like the green" is a preference. "The reserved counter repeats on every screen, so criterion 4 holds right across the flow" is an evaluation, because it names a feature, states an effect and identifies the criterion it satisfies.



Watch-out — a wireframe is not a mock-up. The moment you add brand colour and a real typeface you have made a mock-up, and everyone who looks at it will discuss the colour instead of the structure. Keep wireframes greyscale, and keep images as a box and a cross.

Watch-out — draw the flow before the screens. Wireframing screen 1 before you have a user flow means you cannot know what screen 2 is, how many screens there are, or how many taps the task costs. Only a flow can count taps.

Watch-out — state the device and the artboard size. A screen drawn at no stated size cannot be checked against a touch-target or type-size criterion, because the same drawing “passes” at whatever size suits the argument. Write “360 × 780 dp” on the sheet.

Watch-out — “prototype” here means static. You are not required to produce a functioning prototype. A printed, low-fidelity prototype tested with five real people is worth far more in this outcome than a half-working animation nobody has used.

Watch-out — a test needs a task, a measure and a record. “I showed my friend and she liked it” is none of the three. It has no user objective, nothing that can be counted, and nothing written down — so it cannot produce a refinement.

Watch-out — never explain the interface during a test. The moment you say “you have to tap the card, not the picture”, you have stopped testing the interface and started testing your explanation, which will not be there when the app ships.

Watch-out — keep method, media and materials distinct. Naming an app names a **medium**. Wireframing is the **method**. The touchscreen (or the layout paper) is the **material**.

Watch-out — colour alone is not information, and an icon alone is not a label. A user with a colour vision deficiency, or one reading in bright sun, gets nothing from a red dot; pair every status with a word, and every icon with a label unless it is genuinely universal.

Units 3 & 4 preview — beyond the Units 1&2 study design. Three things done with interfaces in Units 3 and 4 are outside this subtopic and are not assessed in the questions below. First, interactive experiences become one of the four **fields of design practice** you may be asked to **analyse** in a written examination: given a supplied interface as a design example, you name the aesthetic it creates and explain how the designer’s element, principle and Gestalt choices build it — an analysis task, where Units 1 and 2 ask you to **produce**. Second, a Units 3 and 4 brief defines **two distinct communication needs**, each developed as its own design process, and the written examination asks you to **draw a sized screen by hand under exam conditions** and to take one idea into **two annotated concepts** — methods not required here, where you

address one communication need and may work digitally throughout. Third, Unit 4 requires a resolved solution to be evaluated against the brief using a **named convergent strategy**, with the **methods, media and materials of the final solution** stated and justified. Do not use the analysis of a supplied interface, the hand-drawn two-concept requirement, or the named convergent strategy in the questions below.

Worked examples

Example 1 — scaffolded

Using the *LEPTORHYNCHOS* brief, produce a **user flow** for the objective “reserve one packet of seed”, and use it to test design criterion 1. (6 marks)

Working	Comment
Step 1: name the objective and the entry point. The objective is <i>reserve one packet of seed</i> . The flow opens with a rounded terminator reading “member opens the app”.	One flow = one user objective. A flow that tries to show everything the app can do is a site map, and it will not answer a tap-count question. Name the trigger, not the first screen.
Step 2: list the screens the objective needs , in the order the member meets them: HOME, SEED LIST, SEED DETAIL, PICK-UP WINDOW, RESERVED. Draw each as a rectangle, named as the member would see it.	The screens come out of the brief’s communication need — browse, reserve, choose a pick-up window — not out of imagination. Naming them now is what makes the wireframe stage possible.
Step 3: label every arrow with what the USER does — “taps Browse seeds”, “taps a variety”, “taps Reserve”, “taps Saturday 9–11 am”.	This is where marks are won and lost. “Goes to seed list” describes the app’s behaviour; “taps Browse seeds” describes the user’s action, and only the user’s actions can be counted as taps.
Step 4: add the decisions, and label both exits. After SEED DETAIL, a diamond asks <i>in stock?</i> — no goes to NOTIFY ME WHEN IN STOCK and ends; yes continues. After the member taps Reserve, a second diamond asks <i>3 already reserved?</i> — yes goes to LIMIT REACHED — 3 of 3 and on to MY RESERVATIONS; no continues to PICK-UP WINDOW.	Decisions are where the fair-share limit in the brief becomes a design problem rather than a rule in someone’s head. An unlabelled diamond decides nothing; both exits must be named, and both must end somewhere.
Step 5: count the taps on the happy path. Browse seeds (1) → a variety (2) → Reserve (3) → Saturday 9–11 am (4) = 4 taps . Criterion 1 allows four. ∴ the design meets criterion 1 .	The count is the answer, and the arrows are the evidence for it. Note the limit of the claim: the flow proves a four-tap route <i>exists</i> , not that a member will find it — that is what the test in Example 4 is for.
Step 6: state what the flow settles. There are five screens, not one; the out-of-stock and limit-reached states must be designed rather than discovered; and the three-packet count has to be available at four different points, which is what criterion 4 will turn into a persistent bar.	Every visualising method should end with a decision. A flow that settles nothing has not earned its place in the folio. The model drawing is the LEPTORHYNCHOS user flow figure above.

Example 2 — scaffolded

Set out the *LEPTORHYNCHOS SEED DETAIL* screen as a wireframe. State the artboard and grid you would use, justify them by calculation, and explain what you would deliberately leave out. (6 marks)

Working	Comment
State the artboard and grid, and calculate the column. Artboard 360×780 dp; margins 16 dp; 4 columns; 16 dp gutters. Column width = $(360 - 32 - 48) \div 4 = 280 \div 4 = 70$ dp. Content width = $360 - 32 = 328$ dp. Base unit 8 dp.	A grid stated without arithmetic is a decoration. Showing the division is what proves the columns will actually fit, and it is what lets a second screen agree with this one.
Place the content in hierarchy order , working down:	Wireframing is placement, not decoration. Working top-

Working	Comment
app bar with a back control; the seed image; the variety name; the stock and sowing line; the body text; the primary action; the secondary action; the persistent reserved counter.	down in hierarchy order forces you to decide what the screen is <i>for</i> — here, reserving this variety — before you decide what it looks like.
Size the controls against criterion 3. The primary control “Reserve one packet” is drawn 328×48 dp — the full content width, four columns wide, at the 48 dp minimum. The secondary control “Add to my list” is the same size, set 16 dp below it — two base units, and twice the 8 dp minimum gap criterion 3 asks for. The back control is a full 48×48 dp square, not just the size of its arrow.	Draw the target, not the ink. Students routinely draw a 20 dp arrow and call it a control; the <i>target</i> is what the finger has to hit, and criterion 3 is measured on the target.
Carry criterion 4 through. A bar across the foot of the screen reads “you have 1 of 3 packets reserved”, and the same bar appears on every screen in the flow.	The criterion says <i>every</i> screen, so it is a decision about the set, not about this screen. Wireframing the set together is how you notice that.
Say what you are leaving out, and why. No colour — the screen is greyscale. No typeface — grey bars stand in for the body copy. No photograph — the seed image is a box with a diagonal cross.	The withholding is examinable. Each of these is a mock-up decision; making them now would freeze them before the arrangement has been tested, and would draw every critique comment onto the colour.
Use real labels. “Reserve one packet” is written out in full rather than as dummy text.	A real label tests the control: at 328 dp wide the phrase fits comfortably, which “lorem ipsum” could never have told you. The model drawing is screen B of the wireframe set figure above.

Example 3 — unscaffolded

*Distinguish between a **wireframe** and a **mock-up**, and state where each is used in the VCD design process. (4 marks)*

A **wireframe** is a greyscale structural drawing of a single screen that answers four questions — what content is on the screen, where each piece sits, how big it is, and what can be tapped. It is drawn on a stated grid at a stated artboard size, and it deliberately withholds colour, typeface and imagery: an image appears as a box with a diagonal cross and body text appears as grey bars. A **mock-up** is the same screen taken to its final visual appearance — the resolved colour palette with its contrast ratios measured, the real typeface at its set sizes, the real icons and imagery, and the spacing settled. Both are static; the difference is fidelity, not medium. The wireframe belongs in the middle of **Develop**, immediately after the user flow, where arrangement decisions are still cheap to change and a rough drawing invites honest criticism of the structure. The mock-up belongs at the end of **Develop** and into **Deliver**, where it is what you take to a usability test and a critique, because it now looks enough like the real interface that a participant will behave as they would with the real one. $\therefore$ they are not two versions of the same drawing: the wireframe decides *what goes where*, and the mock-up decides *how it looks* once that is settled.

Example 4 — unscaffolded

*Describe how you would **test** the LEPTORHYNCHOS concept with users, and explain how you would turn the results into a refinement. (6 marks)*

I would run a **task-based usability test** on a low-fidelity static prototype — the five screens printed at 360×780 dp, swapped by hand as the participant taps. I would recruit **five participants** who resemble the real users: people who garden, including at least one member over 70, one who describes themselves as not confident with apps, and one who uses the phone one-handed outdoors. Each is tested alone.

I would write the tasks as **user objectives**, not instructions: **T1** “Reserve one packet of tomato seed for Saturday pick-up” (designed at 4 taps); **T2** “Find out how many packets you already have reserved” (1 tap); **T3** “Cancel one of your reservations” (3 taps). I would hand over the prototype and then **say nothing**, because the moment I explain which part is tappable I am testing my explanation rather than the interface. For each task I would record, on a prepared sheet, whether it was **completed**, **completed with difficulty** or **not completed**; the **taps taken against the taps designed**; where the participant hesitated; what they said as they worked; and anything they tapped that was not a

control. Alongside this I would run the **measured checks** that need no participants at all: every text-and-background pair against 4.5:1, every control against 48×48 dp, the gaps against 8 dp, and body type against the 16 dp floor.

Turning results into a refinement means ranking findings by **how many participants met them**, not by how strongly anyone complained. In my record, three of five could not cancel a reservation at all, and the two who did took five or six taps against the three designed, because Cancel sat two levels down; two of five tapped the seed image expecting it to open the variety, since only the name was a control; and two of five looked for the reserved counter in the app bar rather than the bottom bar. I would fix the finding that stopped the most people, and **only** that one — put Cancel on the reservation card itself — and **hold** the other two changes for later rounds, taking one per round, because changing more than one thing between tests would leave me unable to tell which fix worked. I would then **re-test the same three tasks with five new participants**. $\therefore$ a test is not a verdict on the design; it is the instrument that tells you which one thing to change next (*6 marks: participants matched to the user profile, tasks written as objectives, the designer silent, a stated measure and record, findings ranked by frequency, one change at a time, and a re-test*).

Practice questions

Scaffolded

Q1. (a) Name the four stages of the VCD design process, in order. (*1 mark*) (b) For each of **ideation sketching**, a **user flow** and a **resolved mock-up set**, state the stage it mainly belongs to. (*3 marks*) (c) Explain why a user flow is drawn before any wireframe. (*2 marks*)

Q2. Using the LEPTORHYNCHOS user flow: (a) Name the symbol used for a screen and the symbol used for a decision. (*2 marks*) (b) State what an arrow on a user flow must be labelled with. (*1 mark*) (c) Count the taps on the happy path and state whether design criterion 1 is met. (*2 marks*)

Q3. Using the LEPTORHYNCHOS wireframe set: (a) State the artboard size and the grid the screens are set out on. (*2 marks*) (b) If the same content had to be set out on a **320 dp** wide screen, keeping 16 dp margins, four columns and 16 dp gutters, calculate the new column width. (*2 marks*) (c) Explain why a wireframe is drawn in greyscale. (*2 marks*)

Q4. (a) Using the study design's terms, define **low-fidelity prototyping** and **high-fidelity prototyping**. (*2 marks*) (b) State which of the two a printed paper set of the LEPTORHYNCHOS screens is, and give a reason. (*2 marks*) (c) State what the study design requires students to **present** for an interface solution, and what they are **not** required to produce. (*2 marks*)

Q5. (a) For an interaction project, give one example each of a **method**, a **medium** and a **material**. (*3 marks*) (b) Explain why naming a piece of software does not answer a question about methods. (*2 marks*)

Q6. (a) State three things that must be recorded during a task-based usability test. (*3 marks*) (b) Explain why the designer must not explain the interface while a participant is working. (*2 marks*) (c) State one measured check you could make against the LEPTORHYNCHOS criteria without any participants at all. (*1 mark*)

ACTINOTUS Neighbourhood House — student folio page 4
as submitted

the student's heading: "my wireframe / PROTOTYPE — phone screen"

THE STUDENT'S PAGE NOTES, AS WRITTEN

"I did the wireframe on the computer so it looks professional. I chose purple because it is calming and the swirly font is friendly. The icons are a bell, a person and a swirl. I showed my friend at lunch and she said it looked really good and professional so I think it works. I like the colours. Next I will add more pages."

nothing on the page states a device size, an artboard size or a grid; no user flow, no second screen, no measurement of any control, and no annotation against any criterion

the pale grey time line is set at 11 dp and measures 1.9:1 against the white card

the "Book" control measures 96 × 20 dp and sits 4 dp from "More info"

"then it books"

(no second screen anywhere in the folio)

BRIEF EXTRACT — ACTINOTUS Neighbourhood House

NEED interactive experiences — a phone interface that lets a resident find and book a free community class

USERS residents aged 16–90, many over 70; several read the screen in bright light by the front window; many hold the phone one-handed

CONTEXT used standing in the foyer, on the tram and at home; the House has no staff on hand to explain the app

CRITERIA the solution must:

- 1 let a resident book a class in no more than FOUR taps
- 2 set body text at 16 dp or larger, at a contrast ratio of 4.5:1 or better
- 3 show whether a class is full in words as well as colour
- 4 make every control at least 48 × 48 dp, with 8 dp between controls
- 5 be presented as static screens with the intended interaction shown

Questions 7–24 refer to the ACTINOTUS Neighbourhood House student folio page shown above, unless otherwise stated.

Q7. Identify **three** faults in the student's screen and, for each, state the correction. (6 marks)

Q8. The student has labelled the drawing a "wireframe". Explain what they have actually produced, and explain **two** consequences this has for the critique that follows. (4 marks)

Q9. The folio page contains no user flow. (i) Explain what the omission costs the ACTINOTUS project. (ii) Distinguish a **user flow** from a **site map** and from a **storyboard**, and state which of the three ACTINOTUS most needs first. (5 marks)

Q10. The page states no device size and shows no grid. Explain what each omission costs the reader, then set out a grid for a **390 dp** wide phone screen using 24 dp margins, six columns and 12 dp gutters, calculating the column width. (5 marks)

Q11. The "Book" control measures 96 × 20 dp and sits 4 dp from "More info". State the convention that applies, explain why it exists, and describe the correction. (4 marks)

Q12. Whether a class is full is shown only by a coloured dot. Explain why this fails design criterion 3 and describe **two** ways to fix it. (4 marks)

Q13. Three icons appear on the screen with no labels. Discuss the risk this creates for the ACTINOTUS users, and state the convention that should have been applied. (3 marks)

Q14. The student's test was "I showed my friend at lunch and she said it looked really good". Explain why this is not a test, then describe **who** you would recruit and **where** you would run a usability test for ACTINOTUS so that the result is trustworthy, naming three things you would record. (6 marks)

Q15. Distinguish between testing the **usability** and testing the **suitability** of a design concept, giving one ACTINOTUS example of each. (4 marks)

Q16. Rewrite the student's page note as an **evaluative annotation**, referring to at least two numbered design criteria. (4 marks)

Q17. Describe **one manual** and **one digital** method the student could use to produce a wireframe set for ACTINOTUS. For each, name the media and the materials, and state one advantage. (5 marks)

- Q18.** The page is headed “PROTOTYPE” although no screen leads to another. Describe what a **low-fidelity static prototype** for ACTINOTUS would actually consist of, and explain how it would be used. (4 marks)
- Q19.** Explain how **three** Gestalt principles of visual perception could be used to organise the ACTINOTUS class list, and distinguish a Gestalt principle from a design principle. (5 marks)
- Q20.** (Using the *LEPTORHYNCHOS* material.) Explain how fidelity should rise across the Develop stage of an interaction project. Then state one cost of raising fidelity **too early** and one cost of leaving it **too low for too long**. (4 marks)
- Q21.** Name and describe **three** static formats suitable for presenting a resolved interface solution, and for each state what it communicates that the others do not. (6 marks)
- Q22.** (New scenario.) **XANTHORRHOEA BOTANIC TRAIL** is a regional botanic garden that wants a screen-based trail guide, opened by scanning a code at the gate on the visitor’s own phone. Users are families with young children, older visitors, and international visitors with limited English; the guide is used outdoors in full sun, often one-handed while carrying things, with patchy mobile signal. The design criteria are: **1.** a visitor can find the nearest toilet in no more than **three taps** from opening the guide; **2.** body text at least 16 dp at a contrast ratio of at least 4.5:1, so the screen works in bright outdoor light; **3.** no instruction may depend on colour alone or on reading English alone; **4.** primary controls placed in the lower half of the screen for one-handed reach; **5.** presented as static screens. Produce a written plan of the visualising methods you would use, naming at least **five** and, for each, its fidelity, the stage it sits in, and what it would settle. (8 marks)
- Q23.** (*XANTHORRHOEA*.) Produce a **user flow in words** for the objective “find the nearest toilet”, check design criterion 1 with a tap count, and state one criterion the flow **cannot** test together with the method that would test it. (6 marks)
- Q24.** Evaluate the ACTINOTUS folio page against what the **Develop** stage of the VCD design process requires of an interaction project. (6 marks)

Answers

Q1. (a) Discover, Define, Develop, Deliver. (b) Ideation sketching = Develop; user flow = Develop; resolved mock-up set = Deliver. (c) See solutions. **Q2.** (a) Screen = a rectangle; decision = a diamond. (b) What the **user does** (“taps Reserve”). (c) 4 taps — criterion 1 (four taps) is met. **Q3.** (a) 360×780 dp; 16 dp margins, 4 columns, 16 dp gutters, 70 dp columns, 8 dp base unit. (b) $(320 - 32 - 48) \div 4 = 240 \div 4 = 60$ dp. (c) See solutions. **Q4.** (a) Low-fi = inexpensive, readily available materials + efficient methods to construct and test ideas; high-fi = materials and techniques that emulate the look and feel of a finished product. (b) Low-fidelity. (c) Static visual representations of content and intended interactions; **not** required to produce a functioning prototype. **Q5.** (a) Method = wireframing (etc.); medium = fineliner or vector software; material = layout paper or the touchscreen. (b) Software is a medium, not a method — see solutions. **Q6.** (a) Any three of: completed / with difficulty / not completed; taps taken vs taps designed; hesitations; think-aloud comments; mis-taps. (b) See solutions. (c) Any one of: a contrast measurement, a 48×48 dp control measurement, the 8 dp gap, body type against 16 dp. **Q7.** Any three of: a colour mock-up called a wireframe; no device or artboard size and no grid; “Book” at 96×20 dp; 4 dp between controls; 11 dp pale grey type at 1.9:1; availability by colour alone; unlabelled icons; only one screen; no annotation against criteria. See solutions. **Q8.** A mock-up (a high-fidelity screen), produced before any structural decision — see solutions. **Q9.** (i) No screen count, no tap count, no branch states. (ii) Flow = the route for one objective; site map = the hierarchy of all screens; storyboard = the user in context. ACTINOTUS needs the **user flow** first. **Q10.** No size = nothing measurable; no grid = no alignment logic. $(390 - 48 - 60) \div 6 = 282 \div 6 = 47$ dp. **Q11.** Minimum 48×48 dp with at least 8 dp between controls; redraw “Book” at 48 dp high (criterion 4). See solutions. **Q12.** Colour alone excludes users with colour vision deficiency and fails in glare; add the word “FULL” and/or an icon plus a change of shape or state. See solutions. **Q13.** An icon is not a label — pair each with a word. See solutions. **Q14.** No task, no measure, no record. See solutions. **Q15.** Usability = can the user do it; suitability = is it right for this brief, these users, this context. See solutions. **Q16.** Strength + limitation + next action, in design terminology, tied to numbered criteria. See solutions. **Q17.** Manual: printed screen templates + fineliner and grey marker. Digital: vector artboards at true dp size. See solutions. **Q18.** Printed screens swapped by hand as a participant taps. See solutions. **Q19.** Any three of proximity, similarity, figure-ground, closure, common fate, continuity, focal point. Gestalt = how the mind organises what it sees; a design principle = a convention for arranging elements. **Q20.** Ideation sketch → user flow → wireframe → mock-up → static prototype. Too early = decisions freeze before testing; too low for too long = contrast and type criteria cannot be measured and test behaviour is unreliable. See solutions. **Q21.** Any three of: wireflow / flow board, mock-up set in device frames, concept board, style tile / component sheet, storyboard, annotated screens. **Q22.** See fully-worked solutions for a model plan of at least five methods, typed by fidelity and stage. **Q23.** Two taps on the model design — criterion 1 is met with a tap in hand. A flow cannot test criterion 2 (contrast and type size); a measured check does. See solutions. **Q24.** Not yet meeting the stage — one high-fidelity screen, no flow, no grid, no measurement, no test and no evaluation. See solutions.

Fully-worked solutions

Q1. (a) **Discover, Define, Develop, Deliver** (1 mark for all four in order). (b) Ideation sketching — **Develop**; the user flow — **Develop**; the resolved mock-up set — **Deliver** (1 mark each; accept the mock-up set as late Develop into Deliver). (c) A user flow is the only drawing that establishes **how many screens there are and what order they come in**. Until that is settled, a wireframe of screen 1 is being drawn without knowing what screen 2 must contain, so content that belongs on a later screen gets piled onto the first one and states such as “out of stock” or “limit reached” are never designed at all. The flow is also the only drawing that can **count taps**, so a tap-count criterion cannot be checked without it (2 marks: the flow determines the screen set and order + it is what makes the tap count checkable).

Q2. (a) A screen is drawn as a **rectangle**, named as the user would see it; a decision or branch is drawn as a **diamond** (1 mark each). (b) With **what the user does** — “taps Reserve”, “taps a variety” — not with what the app does (1 mark). (c) Taps Browse seeds (1) → taps a variety (2) → taps Reserve (3) → taps Saturday 9–11 am (4) = **4 taps**. Criterion 1 allows four taps, so **∴ the criterion is met** (1 mark for the count, 1 mark for the judgement).

Q3. (a) The artboard is **360×780 dp**, standing for a phone; the grid is **16 dp margins, four columns, 16 dp gutters, 70 dp columns**, with an **8 dp base unit** for vertical spacing (1 mark for the artboard, 1 mark for the grid). (b) Content width = $320 - (2 \times 16) = 288$ dp. Take away the three gutters: $288 - 48 = 240$ dp. Divide by four columns: $240 \div 4 = 60$ dp per column (1 mark for the working, 1 mark for the answer). (c) Greyscale keeps the wireframe answering the question it exists to answer: what is on the screen, where it sits, how big it is and what is tappable. Colour is a **mock-up** decision, and adding it early does two kinds of damage — it commits the palette before the arrangement has been

tested, and it redirects every critique comment onto the colour, so nobody tells you the arrangement is wrong while it is still cheap to change (2 marks: what the wireframe is for + the effect of adding colour early on both commitment and critique).

Q4. (a) Low-fidelity prototyping uses inexpensive and readily available materials, together with efficient methods, to construct and test design ideas. **High-fidelity prototyping** uses materials and techniques that emulate the look and feel of a finished product, and may or may not include functioning components (1 mark each). (b) **Low-fidelity.** Printed paper screens are inexpensive, readily available and quick to make; they are made to be marked up, cut up and thrown away after the test, which is exactly the trade low-fidelity prototyping makes — it buys feedback early at the cost of realism (1 mark for the classification, 1 mark for a reason tied to materials or method). (c) Students present **static visual representations of the content and the intended interactions or experiences** — the resolved screens, with the flow between them shown. They are **not required to produce a functioning prototype** (1 mark each).

Q5. (a) A method is a process: wireframing (accept ideation sketching, drawing a user flow, mock-up making, paper prototyping, usability testing). A **medium** is what the marks are made with: a fineliner or grey marker, or vector interface software. A **material** is the surface: layout paper, a printed screen template, or the **touchscreen or digital interface** itself (1 mark each). (b) Software is a **medium** — one of the digital applications used to communicate ideas — whereas a method is the **process** being carried out with it. Naming the program says nothing about whether the student wireframed, sketched, built a flow or made a mock-up, and those are entirely different pieces of work that answer entirely different questions. The same program could have produced any of them, or none of them (2 marks: the correct classification + why naming it leaves the question unanswered).

Q6. (a) Any three of: whether each task was **completed, completed with difficulty or not completed**; the **number of taps taken against the number designed**; where the participant **hesitated**; what they **said** as they worked (think-aloud); and anything they **tapped that was not a control** (1 mark each). (b) Because the explanation will not be there when the interface is used. The instant the designer says “you have to tap the card, not the picture”, the participant is succeeding with the designer’s help rather than with the design, and the test has silently changed from a test of the interface to a test of the designer’s ability to explain it. Any finding after that point is worthless, and the fault that was about to be discovered has been hidden (2 marks: what the test becomes + the finding that is lost). (c) Any one of: measure the contrast ratio of each text-and-background pair against 4.5:1; measure every control against 48 × 48 dp; measure the gap between adjacent controls against 8 dp; check body type against the 16 dp floor; check that nothing is carried by colour alone (1 mark).

Q7. (Any three; 1 mark for the fault, 1 mark for the correction.)

1. **A full-colour, photographic, display-typeface screen is labelled a “wireframe”.** *Correction:* produce a greyscale wireframe first — grey bars for type, a box with a diagonal cross for the image, no brand colour — and keep the colour version as a separate **mock-up** made later.
2. **No device or artboard size and no grid are stated anywhere.** *Correction:* state the artboard (“390 × 780 dp phone”), rule a grid with margins, columns and gutters, and set every block to a whole number of columns.
3. **The “Book” control measures 96 × 20 dp.** *Correction:* redraw it at least 48 dp high — the minimum touch target — which criterion 4 requires.
4. **“Book” sits 4 dp from “More info”.** *Correction:* open the gap to at least 8 dp so a near miss does not fire the wrong control.
5. **The class time line is 11 dp pale grey at a contrast ratio of about 1.9:1.** *Correction:* set body text at 16 dp or larger in a tone measuring at least 4.5:1 against the card (criterion 2).
6. **Whether a class is full is carried by a coloured dot alone.** *Correction:* add the word “FULL” (and a shape or icon change), so the status survives colour vision deficiency and glare (criterion 3).
7. **Three icons appear with no labels.** *Correction:* pair each icon with a word.
8. **Only one screen exists, with an arrow off the page labelled “then it books”.** *Correction:* draw the user flow and wireframe every screen the flow names, including the confirmation.
9. **The page carries no annotation against any criterion.** *Correction:* annotate each decision with a strength, a limitation and a next action, each tied to a numbered criterion.

Q8. What the student has produced is a **mock-up** — a high-fidelity screen at final visual appearance, with a chosen brand colour, a display typeface, photographic imagery and finished icons. It is not a wireframe, because a wireframe

is greyscale and structural: it would show the class list as grey bars and boxes so that arrangement, grouping and control size could be judged on their own. Two consequences follow for the critique.

First, the critique will be about the wrong thing. A finished-looking screen invites comments on the purple, the typeface and the photograph, so the student will collect opinions about taste and none about whether a resident can find a class — and the page notes show exactly this, since the only feedback recorded is that it “looked really good and professional”.

Second, the structural decisions are now expensive to change. Because time has been spent on colour and type, the student is committed to the arrangement underneath and will defend it rather than test it; the note “next I will add more pages” shows the layout has already been treated as settled. Skipping the wireframe means the arrangement was never a decision at all — it was a by-product of decorating (*4 marks: correctly named as a mock-up with evidence + two distinct consequences for the critique*).

Q9. (i) What the omission costs. Without a user flow the project has no idea **how many screens it needs**, so it has exactly one, and the booking objective in the communication need is unfinished — the arrow labelled “then it books” points off the page to a screen nobody has designed. It also has no way of checking **criterion 1**, because a tap count can only be taken from a flow; and it has no **branch states**, so what a resident sees when a class is full, or when booking fails, has never been designed. The single screen also cannot show what happens after “Book”, which is the part of the task the House has no staff to explain.

(ii) The three drawings. A **user flow** shows the *route* a user takes through the interface to complete **one objective**, drawn with terminators, screen rectangles, decision diamonds and labelled arrows. A **site map** shows the *hierarchy* of every screen in the product — what sits beneath what — and answers “what is in this app”, not “how do I get through it”. A **storyboard** shows the *user in context*, panel by panel: the resident on the tram, or standing at the bright front window, holding the phone one-handed. ACTINOTUS most needs the **user flow** first, because the immediate failure is that the booking task has no route and no tap count; the storyboard would be valuable second, since the brief makes context (bright light, one-handed, no staff on hand) part of the problem (*5 marks: 2 for the cost of the omission tied to the brief, 3 for a congruent three-way distinction with a justified choice*).

Q10. No stated device or artboard size. Nothing on the page can be measured. Criterion 2 requires body text of at least 16 dp and criterion 4 requires controls of at least 48×48 dp — but “16 dp” only means something once the drawing declares the canvas it is drawn on. Without it, the same drawing “passes” at whatever size suits the argument, and neither a teacher, a critique partner nor the House can check a single measurement.

No grid. Nothing on the page has an alignment logic. Block widths and insets have been set by eye, so no element on the screen has a stated relationship to any other, and a second screen drawn later would have nothing to agree with — the set will never look like one product. A grid also does practical work: it is what tells the designer whether a control can be full-width, half-width or a third, without guessing.

A grid for a 390 dp screen. Margins 24 dp each side and 12 dp gutters on a six-column grid. Take off the two margins ($2 \times 24 = 48$ dp) and the five gutters ($5 \times 12 = 60$ dp), then divide by six:

$$\text{column width} = (390 - 48 - 60) \div 6 = 282 \div 6 = 47 \text{ dp}$$

So the content width is $390 - 48 = 342$ dp; a full-width control spans all six columns at 342 dp; a half-width control spans three columns and two gutters, $3 \times 47 + 2 \times 12 = 165$ dp. Vertical spacing on an 8 dp base unit (*5 marks: 2 for the two omissions explained as losses to the reader, 1 for the working, 1 for 47 dp, 1 for applying it to a stated content or control width*).

Q11. The convention. An interactive control must be at least 48×48 dp — the figure set by Material Design, with Apple’s Human Interface Guidelines setting the equivalent 44×44 pt — with at least **8 dp** between adjacent controls. Criterion 4 states both.

Why it exists. A finger is not a cursor. The contact patch of an adult fingertip is roughly 8–10 mm across, and the user cannot see the point of contact because their own finger covers it, so the target must be larger than the ink inside it — and 48 dp is the floor, not the goal. The ACTINOTUS brief makes this sharper than usual: many users are over 70, several hold the phone one-handed on a moving tram, and both reduce the precision available. A 20 dp control is not a

small control; it is a control that a proportion of the intended users cannot reliably operate, and the 4 dp gap means that when they miss they will fire “More info” instead of “Book”.

The correction. Redraw “Book” as a control at least 48 dp high — on a six-column grid the natural choice is a full-width primary control at 342×48 dp — with “More info” as a secondary control the same height, set at least 8 dp below it rather than beside it. Both then sit in the lower half of the screen, where a one-handed thumb reaches (*4 marks: the numeric convention stated, the reason given in terms of the hand and these users, and a correction that names a size*).

Q12. Why it fails criterion 3. Criterion 3 requires that a class shows as full **in words as well as colour**, and the screen carries only a red or green dot. Colour alone excludes anyone with a colour vision deficiency — red–green being much the commonest form, and precisely the pair chosen here — and it collapses in the conditions the brief names, since a resident reading in bright light by the front window loses saturation to glare. There is also nothing to learn from: the dot never explains what it means, and with no staff on hand nobody is there to tell them.

Two fixes. (i) **Add the word.** Put “FULL” or “3 places left” on each class row, so the status is carried by text; the colour then becomes a fast second cue rather than the only one. (ii) **Change something other than hue.** Give a full class a visibly different state — an outlined rather than filled row, a strike-through on the time, or a small labelled icon — so the difference survives being seen in greyscale. (*Also accept: greying out and disabling the Book control for a full class, with the reason written beside it.*) The test for any fix is simple: print the screen in black and white and see whether a stranger can still tell which class is full (*4 marks: the failure explained against the criterion and against these users’ conditions + two genuinely non-colour fixes*).

Q13. An icon is not a label. The three marks on the ACTINOTUS screen — read by the student as a bell, a person and a swirl — are not universally understood symbols, so each asks the user to guess. For these users the risk is concentrated: the residents run from 16 to 90 and many are over 70, so a symbol that reads instantly to one generation of phone users may say nothing at all to another; the House has **no staff on hand** to explain the app, so a wrong guess cannot be repaired by asking; and an unlabelled outline icon gives up even less of itself in the conditions the brief names — read in bright light by the front window, or thumbed one-handed on the tram. A user who guesses wrong does not merely misunderstand a picture — they take a wrong turn in a task, and the commonest response is to stop using the interface altogether.

The convention is to **pair every icon with a text label** unless the symbol is genuinely universal, and to keep the pair inside a single 48 dp target so proximity groups them as one control (*3 marks: the convention stated, the risk tied to the named ACTINOTUS users and context, and the correction*).

Q14. Why it is not a test. A test needs three things and this has none of them. There is no **task** — the friend was shown the screen, not asked to achieve a user objective, so nothing was attempted and nothing could fail. There is no **measure** — “looked really good” cannot be counted, compared or repeated. And there is no **record** — nothing was written down as it happened, so nothing survives to be turned into a refinement. On top of that, the participant is a friend at lunch, who has every social reason to be encouraging and none of the characteristics of the intended user.

Who I would recruit. Five participants drawn from the ACTINOTUS user profile rather than from the student’s friends: residents spread across the 16–90 range the brief names, including at least two over 70, at least one who normally holds the phone one-handed, and at least one of the residents who reads the screen in bright light by the front window. None should have been shown the screen beforehand, because a resident meeting the app in the House will have no staff on hand to explain it. Five is enough, because findings repeat quickly and the aim is to find faults, not to prove a statistic.

Where I would run it. In the conditions the brief names, not at a desk: standing in the Neighbourhood House foyer and by the bright front window, with the participant holding their own phone one-handed. Context is part of this brief — a contrast failure that is invisible indoors is obvious in glare, and a control the thumb cannot reach is only discovered when the phone is held the way it is really held.

Three things I would record. (i) Whether each task was completed, completed with difficulty or not completed. (ii) The taps taken against the taps the design intended — the direct check on criterion 1. (iii) Every point at which the participant hesitated or tapped something that was not a control, written down as it happened. (*Also accept: think-aloud comments; the time taken.*) (*6 marks: the three missing ingredients named, participants matched to the user profile, testing in the brief’s context, and three recordable observations.*)

Q15. Usability asks whether a user can actually operate the interface: can they complete the task, in the taps and time the design assumed, without help? It is tested by watching people do tasks and by measuring the interface against usability requirements. For ACTINOTUS, a usability test would set the task “book yourself into a free class this week” and count how many of five participants complete it, in how many taps against the four criterion 1 allows — with the 20 dp Book control and the 4 dp gap the likely point of failure.

Suitability asks a different question: is this the right solution for *this* brief, *these* users and *this* context? A design can be perfectly usable and still unsuitable. For ACTINOTUS, the suitability question is whether a purple, display-typeface, image-led interface is the right response to a brief whose users are residents aged 16–90, many of them over 70, several of whom read the screen in bright light by the front window — and whether a phone-only booking route is the right response at all for a Neighbourhood House with no staff on hand, where a resident who cannot make the app work has nobody to ask.

∴ usability is judged against the task, and suitability against the brief; a folio needs both, because passing one says nothing about the other (4 marks: a congruent two-sided distinction + one specific ACTINOTUS example of each).

Q16. Model rewrite: “Strength — the three classes are set as separate cards with the name, day and time grouped inside each one, so **proximity** makes each class read as a single unit and a resident can scan the week in one pass. **Limitations** — two criteria are not met. The time line is set at 11 dp in a pale grey measuring about 1.9:1 against the white card, well under the 16 dp and 4.5:1 that **criterion 2** requires, so the users the brief describes as reading in bright light by the front window will not be able to read the one piece of information they came for. The ‘Book’ control is 96 × 20 dp and sits 4 dp from ‘More info’, against the 48 × 48 dp and 8 dp minimums in **criterion 4**, so a one-handed user on a tram is likely to fire the wrong control. **Next actions** — reset the time line at 16 dp in the body ink and re-measure the pair; redraw ‘Book’ as a full-width 48 dp primary control with ‘More info’ 8 dp below it; then run the three booking tasks with five residents in the foyer and re-measure.” (4 marks: a strength named in design terminology, at least two limitations each tied to a numbered criterion with evidence, and specific next actions; the original note’s faults — an unsupported preference and a friend’s approval — replaced by measurement.)

Q17. Manual — wireframing on printed screen templates. Method: the student prints a sheet of empty 390 × 780 dp phone outlines with the six-column grid already ruled on them, then blocks out each screen by hand — grey bars for type, a box and a cross for images, rectangles at the true 48 dp control height — laying tracing paper over a screen to test an alternative arrangement without redrawing the shell. **Media:** fineliner and two grey markers (one light, one mid) for the tonal hierarchy. **Materials:** the printed templates, layout paper and tracing paper. **Advantage:** it is immediate and costs nothing, and because it is obviously unfinished it invites honest criticism of the arrangement — which is exactly what the student did not get.

Digital — wireframing on vector artboards at true dp size. Method: the student sets up 390 × 780 dp artboards with the margins, columns and gutters as a guide layer, builds each screen from repeated components, and duplicates the artboard for the next screen so the whole set stays consistent. **Media:** vector interface software. **Materials:** the touchscreen or digital interface the solution is used on. **Advantage:** it is measurable and editable — a control can be checked against 48 × 48 dp and a colour pair against 4.5:1 directly on screen, and changing a shared component updates every screen at once.

(5 marks: two methods described as processes, media and materials correctly separated for each, and an advantage for each; no marks for naming a program alone, since a program is a medium and not a method.)

Q18. A low-fidelity static prototype for ACTINOTUS would be the whole screen set — home, class list, class detail, booking confirmation and the “class full” state — drawn or printed one screen to a sheet at the stated 390 × 780 dp, in greyscale, with the controls at their true sizes. It is low-fidelity in the study design’s sense because it uses inexpensive, readily available materials (paper) and efficient methods (printing and hand drawing) to construct and test the idea. Nothing on it works: it is static, which is all this outcome asks for.

It is used by putting it in a participant’s hands. The student sets a task — “book yourself into a free class this week” — holds the sheets, and when the participant taps a control, swaps in the sheet that would follow, saying nothing. Where the participant taps something that is not a control, or reaches a screen that does not exist, the prototype has just found a fault in the flow for the price of a photocopy. The student records completion, taps taken and hesitations, then changes one thing and runs it again (4 marks: the contents described as a static greyscale set at a stated size, its

classification justified against the low-fidelity definition, and a described use with a task, screen swapping and a record).

Q19. Proximity. Set each class's name, day and time close together with clear space between one class and the next; the mind groups items that sit close, so each class reads as one unit rather than six loose lines, and a resident can scan the week without re-reading.

Similarity. Draw every bookable class row identically — the same card, the same control in the same position — so the user learns one rule and applies it to all of them. Making one class look different is then a meaningful signal, which is why a “full” class should differ in shape or state as well as in the word used.

Figure–ground. Lift the class cards clearly off the background so the content reads as figure and the page as ground. On ACTINOTUS this currently fails: each class card is drawn in a near-white tint on a white page, so the cards barely separate from the ground they sit on; strengthening the tonal separation — a stronger card tone, or a ruled edge — puts the class list unambiguously in front.

(Also accept: closure, where consistent spacing implies a card without a box being drawn; common fate, where items that scroll together read as one list; continuity, where a left-aligned column of names leads the eye down the page.)

Gestalt versus design principle. A **Gestalt principle** describes how the mind perceives and organises visual information — proximity, similarity, figure–ground, closure, common fate, continuity, focal point. A **design principle** is a convention the designer uses to arrange the design elements — figure–ground, balance, contrast, cropping, hierarchy, scale, proportion, pattern. One describes the viewer's perception; the other describes the designer's action *(5 marks: three principles correctly named and applied to the class list + a clear distinction).*

Q20. Fidelity should rise **in step with the question being asked**, not with the time available. At the front of Develop the question is *what could this be?*, and the right drawing is a page of ideation thumbnails costing minutes each. Next the question is *what screens are there and in what order?*, answered by a user flow — still no appearance decisions at all. Then *what is on each screen, where and how big?*, answered by greyscale wireframes on a stated grid. Only once the arrangement has survived that does the question become *how should this look?*, which is the mock-up: colour measured for contrast, real type at its set sizes, real icons. Last comes the static prototype or concept board, at which point the work is fit to be tested and presented. Each rung answers its own question and hands a settled decision to the next.

Raising fidelity too early freezes decisions before they have been tested. A polished screen has already committed the palette and the typeface, so the arrangement underneath gets defended rather than examined — the designer now has time invested in it, and the structural question goes unasked while it is still cheap to answer.

Leaving fidelity too low for too long costs the opposite thing. Several criteria simply cannot be checked on a greyscale wireframe: LEPTORHYNCHOS criterion 2 is a contrast ratio, and there is nothing to measure until real tones exist. A very rough drawing also produces unreliable test behaviour, because a participant handed grey boxes is partly imagining the interface rather than reacting to it, and it gives a client nothing to approve at the end of Deliver. ∴ fidelity is a tool, not a finish: the drawing should be exactly as resolved as the question in front of it, and no more *(4 marks: the ladder described as a sequence of questions + one cost each way).*

Q21. *(Any three; 2 marks each — the format named and described, plus what it uniquely communicates.)*

A wireflow (or flow board). The wireframes or mock-up thumbnails laid out in flow order and joined by labelled, numbered arrows. It uniquely communicates the **intended interaction** — the order of screens and the action that moves the user between them — which a set of separate screens cannot show at all. It is the format that most directly answers the study design's requirement for a static representation of content **and** intended interactions.

A mock-up set in device frames. The resolved screens drawn at their true artboard size inside a phone outline. It uniquely communicates **scale and context**: how much of the screen a control actually occupies, and how the design reads as a phone rather than as a page. A flow strip shows the order but shrinks the screens; only this format shows them at size.

A concept board. The screens together with the palette (with contrast ratios), the type scale, the icon set and a short written rationale. It uniquely communicates the **system** behind the screens — the rules that would let a fourth screen be drawn consistently — rather than the screens themselves.

A storyboard. The user in context, panel by panel: at the gate, in the sun, one-handed. It uniquely communicates **where and how the interface is used**, which no screen drawing shows.

A style tile or component sheet. Each reusable component — button, card, field — drawn once in its states. It uniquely communicates **consistency and states** (default, selected, disabled), which a finished screen only shows one of.

Annotated screens. The screens carrying evaluative annotation against the numbered criteria. They uniquely communicate the **reasoning**: not what was decided but why, and how well it meets the brief.

Q22. (*Model plan — accept any set of at least five methods, correctly typed by fidelity, placed in the process, and tied to the XANTHORRHOEA criteria rather than listed generically.*)

1. Ideation sketching — lowest fidelity — early Develop, divergent. Twelve thumbnails to a page, each a whole home screen as four or five boxes: one led by a map, one by a list of numbered trail stops, one by four large picture-and-word buttons, one by a single search field. *Settles*: the range of arrangements worth considering, before any of them has cost anything. With criterion 3 in mind, every thumbnail is drawn with picture-and-word pairs rather than words alone.

2. User flow — low fidelity — Develop, before any screen is wireframed. One flow per objective, starting with *find the nearest toilet*: terminator “visitor scans the code at the gate”, screens HOME → FACILITIES → NEAREST TOILET, arrows labelled with the visitor’s taps, and a decision diamond for “signal available?” so the no-signal state is designed rather than discovered. *Settles*: how many screens exist, in what order, and the **tap count that criterion 1 is measured against**.

3. Storyboard — low fidelity — Develop, alongside the flow. Four panels: the visitor at the gate in full sun scanning the code; walking the trail one-handed holding a child’s hand; stopping to look for a toilet; reaching it. *Settles*: that the guide is used outdoors, one-handed and interrupted — which is the evidence for criteria 2 and 4, and the drawing that makes those criteria feel like requirements rather than arbitrary numbers.

4. Wireframes on a stated grid — medium fidelity — mid Develop. Every screen the flow names, greyscale, on a stated artboard (say 390 × 780 dp) with margins, columns, gutters and an 8 dp base unit. Controls drawn at their true target size and placed in the **lower half** of the screen for criterion 4; body text blocked out at 16 dp or larger; each destination shown as an icon **and** a word for criterion 3. *Settles*: what is on each screen, where it sits, how big it is and what is tappable — and whether criterion 4 can be met without pushing the content off the top.

5. Mock-ups — high fidelity — late Develop. The resolved screens with the palette chosen and **every text-and-background pair measured against 4.5:1**, the type scale set with a 16 dp floor, and the trail icons drawn as a consistent set. *Settles*: criterion 2, which cannot be checked until real tones exist; and the aesthetic that has to survive direct sunlight, which pushes toward high tonal contrast and away from pale tints.

6. Low-fidelity static prototype and a usability test — Develop into Deliver. The mock-up screens printed and swapped by hand while five participants — including a family with young children, an older visitor and someone with limited English — attempt the tasks *outside, in the garden, in full sun*. *Settles*: whether the four-tap route is actually found, whether the screens survive glare, and which single change to make next.

7. Concept board and wireflow — Deliver. The resolved screens in device frames, the flow strip with numbered taps, the palette with its measured ratios, the icon set and evaluative annotation against the five criteria. *Settles*: how the solution is presented, statically, as the study design requires.

(8 marks: at least five methods named; each correctly placed by fidelity and stage; a stated outcome for each; the set covering visualise, test and present; and the plan tied to the named XANTHORRHOEA criteria and context.)

Q23. The flow, in words. The objective is *find the nearest toilet*. The flow opens with a rounded terminator, “**visitor scans the code at the gate**”, which is not a tap — the guide simply opens. The first rectangle is the **HOME** screen. Because criterion 1 allows only three taps, I would put a “**Toilets**” shortcut among the four primary destinations in the lower half of the home screen (criterion 4), each drawn as a picture **and** a word (criterion 3). An arrow labelled “**taps Toilets**” (tap 1) leads to the **TOILETS** screen, a list of the three facilities ordered nearest first, each with a walking time. An arrow labelled “**taps the nearest**” (tap 2) leads to the **TOILET DETAIL** screen, showing the location on the trail, the walking time and whether it is step-free. A terminator ends the flow. A decision diamond after HOME

asks “**location available?**”: **no** leads to a screen listing all three toilets by trail marker instead of by distance, so the task still completes without a signal; **yes** continues down the main path.

The tap count. Toilets (1) → the nearest facility (2) = **2 taps** to reach the answer, or 2 taps to the detail screen. Criterion 1 allows three, so **∴ the criterion is met with a tap in hand** — useful slack, since the no-signal branch costs an extra step. It is worth naming the trade: the shortcut spends one of four prime home-screen positions on toilets, which is a deliberate decision made because the brief made it a numbered criterion.

What the flow cannot test. The flow cannot test **criterion 2** — 16 dp body text at a contrast ratio of at least 4.5:1 — because a flow contains no type and no tones at all; it is a diagram of routes, not of appearance. That criterion is tested by a **measured check** on the mock-ups (every text-and-background pair run through a contrast measurement and every body size checked against the 16 dp floor), confirmed by a usability test run outdoors in full sun, which is the only way to find out whether a ratio that passes indoors also works in glare. *(Also accept criterion 4, which needs a wireframe to show where on the screen a control sits.) (6 marks: a flow with a terminator, named screens, labelled user actions and a labelled decision with both exits; a correct tap count with a judgement against criterion 1; and a criterion the flow cannot test, matched to the method that can.)*

Q24. The folio page **does not yet meet what the Develop stage requires** of an interaction project, although it is not without merit. Its genuine strengths are two: the student has drawn a whole screen rather than fragments, so the content of the class list has been thought about; and the three classes are grouped as separate cards, which uses **proximity** to make each class read as one unit.

Everything else falls short, across all three of the stage’s demands.

Visualising. The stage asks for ideation, a flow and wireframes before appearance is decided. There are no ideation sketches, no user flow and no wireframe — the page opens at high fidelity with a coloured, photographic, display-typeface screen, and calls it a wireframe. Because there is no flow, there is only one screen: the booking task the communication need is *about* has no route, and the arrow labelled “then it books” points off the page to a screen nobody has designed, along with the “class full” and confirmation states. Because there is no stated device or artboard size and no grid, nothing on the page can be measured or aligned, and a second screen would have nothing to agree with.

Testing. The stage asks for concepts to be tested and evaluated. The only test is a friend at lunch — no task, no measure, no record, and a participant who resembles neither the users nor the conditions in the brief. No measured check has been run either, which is why two criteria fail visibly and unremarked: the 11 dp pale grey time line measures about **1.9:1** against the white card where **criterion 2** requires 16 dp at 4.5:1, and the “Book” control is **96 × 20 dp** sitting 4 dp from “More info” where **criterion 4** requires 48 × 48 dp with an 8 dp gap. Class availability is carried by a coloured dot alone, failing **criterion 3**, and the three icons carry no labels — all of which land hardest on the users the brief actually names.

Annotating and critique. The page notes record preferences (“I like the colours”, “it is calming”), a friend’s approval and a plan to add pages. There is no strength, no limitation, no next action and no criterion mentioned anywhere, so the page contains no reasoning that anyone else could follow or challenge.

∴ what the student holds is one decorated screen, not a developed concept. To meet the stage they would need to draw the user flow for the booking objective and count the taps against criterion 1; state an artboard and grid and re-wireframe every screen the flow names, in greyscale, with controls at 48 dp and body text at 16 dp; re-measure the palette to 4.5:1 and add the word “FULL” and icon labels; run the three booking tasks with five residents in the foyer and record the results; and annotate each decision with a strength, a limitation and a next action tied to the five numbered criteria *(6 marks: strengths and limitations, specific evidence drawn from across the page, the requirements of the Develop stage applied to visualising, testing and annotating, and an overall judgement with a stated remedy).*

Topic Test 4 — Visualising environments, cultural ownership and interactive experiences

Reading time: 5 minutes · Writing time: 45 minutes · Total 40 marks

Structure of test

Section	Number of questions	Number of questions to be answered	Number of marks
A	5	5	24
B	3	3	16
		Total	40

- Materials permitted: pens, pencils, highlighters, erasers, sharpeners, rulers, a protractor, set squares, aids for curve sketching, coloured pencils, fineliner pens (0.6 mm or less), compasses, and circle and ellipse templates.
- Materials NOT permitted: any technology, notes of any kind, blank sheets of paper and/or correction fluid/tape.
- A **Resource Sheet** is provided with this test.
- All written responses must be in English.

Instructions

- Write your responses in the spaces provided in this book.
- Drawings must be completed in the spaces provided.
- All questions must be answered.

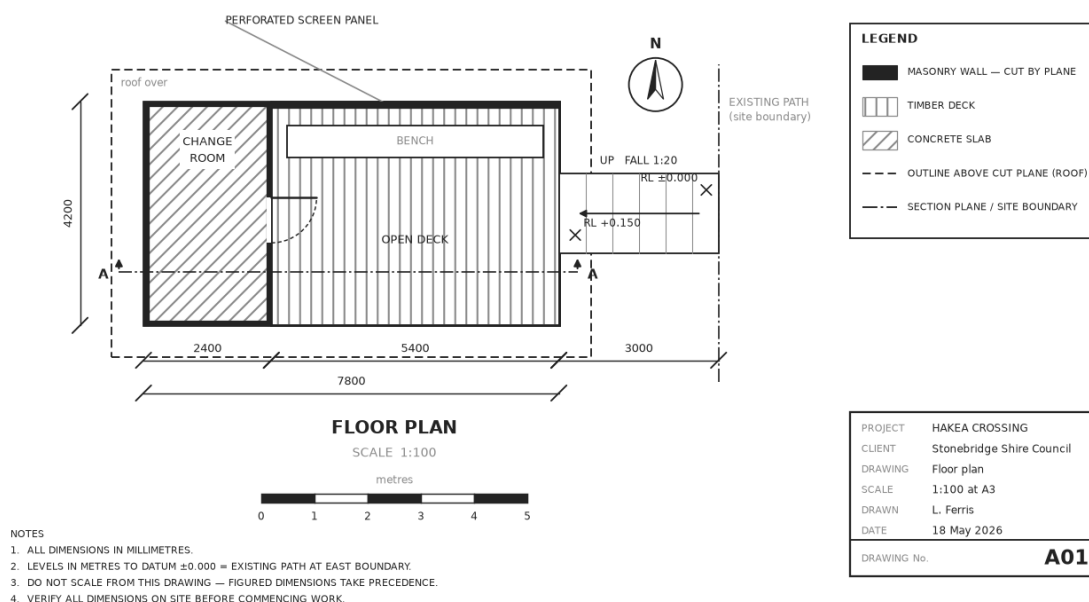
This topic test covers Chapters 7, 8 and 9. It mirrors the structure, timing and materials of the VCAA examination at reduced scale. It is an original ClassBasics paper; no VCAA question is reproduced.

Topic Test 4 — Resource Sheet

Use these design examples to answer Section A. Each example is an original ClassBasics artifact created for this test.

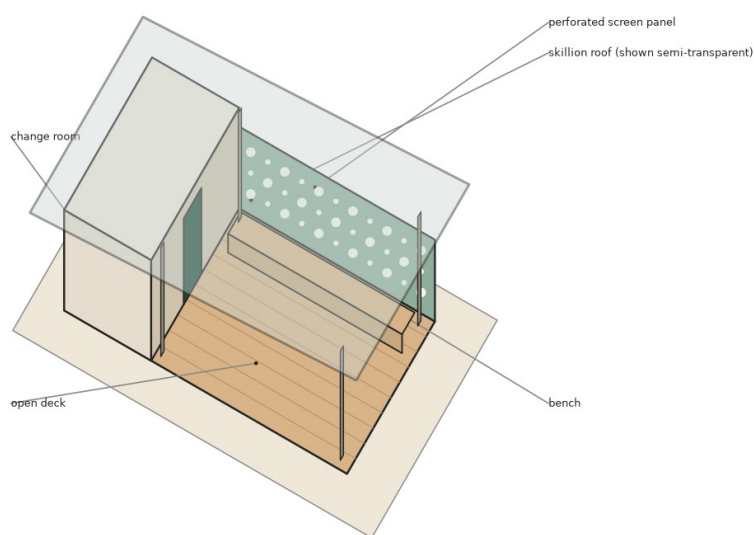
Design example 1 — Environments

HAKEA CROSSING — a change room and open shaded deck at the river swimming hole in Millrace Reserve, for Stonebridge Shire Council, 2026. Two drawings from the documentation set are shown.



HAKEA CROSSING — DRAWING A02

not to scale

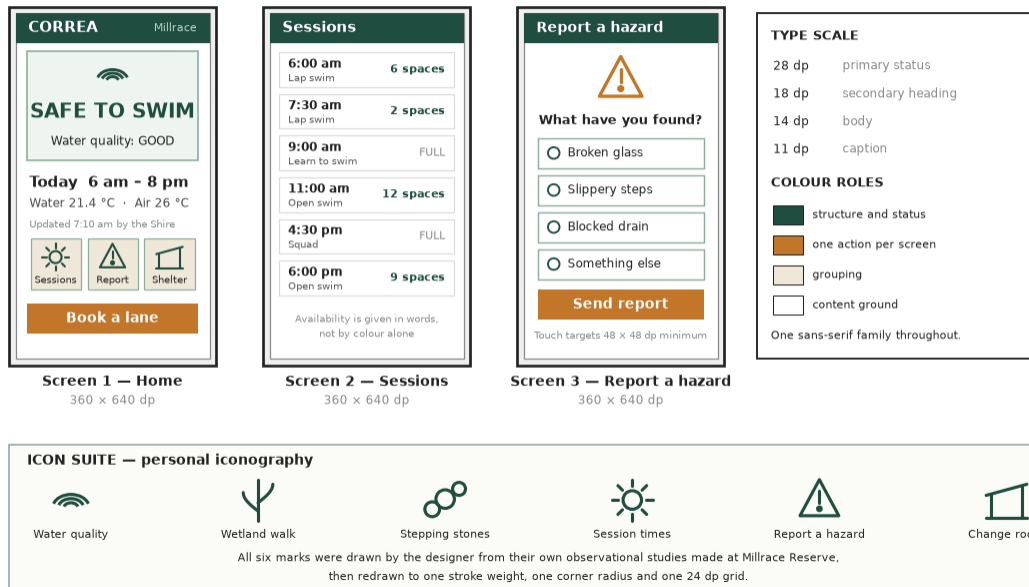


Project note supplied by the studio. The perforated screen panel along the north edge of the deck carries a repeating pattern of circles. The designer developed that pattern from photographs they took of a public artwork on the river path — a work made by a local Aboriginal artist and installed by the Shire in 2019. The designer altered the spacing and the diameters of the circles, has not contacted the artist or the Traditional Owners of the area, and has proposed the caption “*inspired by local Indigenous art*” for the interpretive sign beside the deck.

Design example 2 — Interactive experiences

CORREA — a companion app for the Millrace Reserve swimming hole, 2026. Three screens are shown at 360×640 dp, with the type scale, the colour roles and the icon suite that were handed over with them.

CORREA — river swimming companion app, 2026



Section A

Instructions for Section A: Answer all questions in the spaces provided. Where a question carries a tick line, tick the box of the ONE option you have chosen and refer to it throughout your response. Where a question names a design example, use the example named.

Question 1 (4 marks)

*This question refers to **Design example 1 — HAKEA CROSSING**.*

- Drawing A01 is a floor plan. Name the family of two-dimensional drawing methods that a floor plan belongs to. 1 mark
- Name the three-dimensional drawing method used in Drawing A02. 1 mark
- Explain one reason the designer produced Drawing A01 as well as Drawing A02. 2 marks

Question 2 (6 marks)

*This question refers to **Drawing A01 of Design example 1**.*

- Identify two technical conventions used on Drawing A01, other than the stated scale, and state what each one tells the reader. 2 marks
- The deck is dimensioned 5400 on Drawing A01. State the length of the deck in metres, and state the note on the drawing that tells you which unit 5400 is written in. 2 marks
- On Drawing A01 the roof is drawn with a dashed line. Explain what a dashed outline means on a floor plan, and why the convention matters on this drawing. 2 marks

Question 3 (4 marks)

*This question refers to the **Project note** supplied with Design example 1.*

- Identify one legal obligation and one ethical obligation the designer has in relation to the pattern on the screen panel. 2 marks
- Describe two actions the designer should have taken in the Discover phase to meet the ethical obligation you identified in part a. 2 marks

Question 4 (6 marks)

This question refers to Design example 2 — CORREA.

Tick the screen you have chosen:

☐ Screen 1 — Home ☐ Screen 2 — Sessions

- a.** Identify one design element and one design principle the designer has used to establish hierarchy on the screen you have chosen. 2 marks
- b.** Name the aesthetic of the CORREA screens, and analyse how the element and the principle you identified in part a. build that aesthetic and support the user's task on the screen you chose. 4 marks

Question 5 (4 marks)

This question refers to the icon suite shown with Design example 2 — CORREA.

- a.** Identify one feature of the icon suite that shows it is personal iconography rather than a set of stock symbols. 1 mark
- b.** Explain how developing a personal icon suite helps the designer meet their responsibility to present an original design solution, and state one culturally appropriate practice the designer must observe while generating that suite. 3 marks

Section B

Instructions for Section B: Answer all questions in the spaces provided. You may use any of the drawing methods and media permitted in this test.

The design problem

STONEBRIDGE SHIRE COUNCIL is opening a new walking track at **KUNZEA FLAT**, four kilometres upstream of Millrace Reserve. Visitors drive in, park on a gravel apron and begin walking. There is no mobile coverage, no staff on site and no lighting. Four tracks of different lengths and grades leave from the same point, and the Shire's rangers report that most complaints come from people who set out on the wrong one.

Design criteria

The design solution must:

1. let a first-time visitor start the right track without asking anyone
2. be usable by visitors aged 8 to 80, including a visitor using a wheeled walker
3. stay readable in full sun, in rain and in low light
4. use the KUNZEA FLAT identity — deep green, one ochre accent and one sans-serif family.

Communication needs — choose ONE:

☐ **Environments** — the trailhead arrival shelter and its information board

☐ **Interactive experiences** — the trailhead kiosk screens, on a solar-powered outdoor touchscreen

Tick your chosen communication need above and use it for ALL of Section B.

Question 6 (4 marks)

Discover and Define

- a.** Describe two characteristics of the users of the communication need you have chosen. 2 marks
- b.** State one constraint on this project and explain how it will affect your design decisions. Do not restate a design criterion. 2 marks

Question 7 (6 marks)

Develop

a. In the space below, draw TWO concepts that develop ONE idea for your chosen communication need. Annotate each concept with one design element and one design principle you have applied. 6 marks

Question 8 (6 marks)

Deliver

a. In the space below, draw your resolved solution using a drawing method appropriate to your chosen field: a **planometric or a two-point perspective** if you chose Environments, or a set of **sized screens** if you chose Interactive experiences. 4 marks

b. Using a PMI (plus, minus, interesting), evaluate your resolved solution against design criterion 1. 2 marks

Topic Test 4 — Answers and marking guide

Marking guide

Question	Marks	What is being assessed
1a	1	Classifies a floor plan into its two-dimensional drawing family
1b	1	Names the three-dimensional method from evidence in the drawing
1c	2	Purpose of a documentation drawing against a presentation drawing
2a	2	Two named conventions, each with what it tells the reader
2b	2	Reads a figured dimension and the standard note that gives its unit
2c	2	Meaning of the dashed outline plus why it matters here
3a	2	Legal and ethical obligations kept DISTINCT
3b	2	Two protocol actions, placed in Discover
4a	2	One design element and one design principle, correctly labelled, on the chosen screen
4b	4	Named aesthetic + cause-and-effect analysis tied to the user's task
5a	1	One feature evidencing personal iconography
5b	3	Originality argument + one culturally appropriate practice
6a	2	Two user CHARACTERISTICS (not needs, not constraints)
6b	2	A constraint that is not a restatement of a criterion, with its effect
7a	6	Two concepts from ONE idea, each annotated with an element and a principle
8a	4	A resolved drawing in a method appropriate to the chosen field
8b	2	PMI applied point by point to criterion 1
Section A 24 · Section B 16		Total 40

Section A

Question 1

a. Orthogonal drawing (also accepted: *orthographic*, or *orthogonal projection*).

(1 mark. Only the first method named is marked. In an orthogonal drawing the line of sight is at 90° to the surface being drawn, so no line converges and every length is at the stated scale. Do not accept “plan” — that is the name of

this particular view, not the family. Do not accept “schematic”: a schematic is the other two-dimensional family, and it carries no scale and no dimensions.)

b. Planometric (also accepted: *plan oblique*, or *paraline drawing* — *planometric*). (1 mark. Only the first method named is marked. Do not accept “isometric”: in an isometric BOTH receding axes sit at 30° to the horizontal, whereas in Drawing A02 they sit at 30° and 60° and the plan is drawn true shape. Do not accept “perspective”: no lines converge and there is no vanishing point.)

c. Drawing A02 shows the three-dimensional character of the space — the height of the screen panel, the way the skillion roof sits over the deck, and how the change room closes the west end — so a client who does not read plans can picture standing there. What it cannot do is carry a single scale, so no length on it can be measured and nothing can be set out from it. Drawing A01 is an orthogonal floor plan drawn to a stated scale of 1:100 with figured dimensions, levels, line types and a legend, so a builder who has never met the designer can set the structure out on site. The designer needs both because the two drawings do different jobs.

(2 marks: 1 for what A01 does that A02 cannot — scale, figured dimensions, buildability; 1 for what A02 contributes — the three-dimensional read for a non-technical reader. Accept the argument put either way round. A response that only describes the two drawings without saying why both are needed earns 1 mark.)

Question 2

a. Any TWO of the following, each with what it tells the reader (1 mark each — the convention must be NAMED and its meaning given; a bare list earns half the available credit):

- **North point** — which way the plan is oriented on the site, so the reader knows the screen panel runs along the north edge of the deck and the change room closes the west end.
- **Dimension string with figures** — the true size of each part of the structure. The chain also closes: 2400 + 5400 = 7800.
- **Solid fill (poché) on the change-room walls** — those walls are cut by the plane of the drawing.
- **Door leaf and swing arc** — where the door is, which way it opens and how much floor space the swing takes.
- **Spot levels (RL ±0.000 and RL +0.150) with the ramp grade FALL 1:20** — the heights of the path and the deck above the stated datum, and the fall between them.
- **Section marker A–A with arrows** — where the section is cut and the direction the section is viewed from.
- **Legend** — what each hatch pattern stands for, since hatches vary between offices.
- **Title block** — project, client, drawing title, scale, date, who drew it and the drawing number.
- **Standard notes** — the rules the whole sheet is read under.
- **Scale bar** — a drawn ruler that still works after the sheet is photocopied or resized.

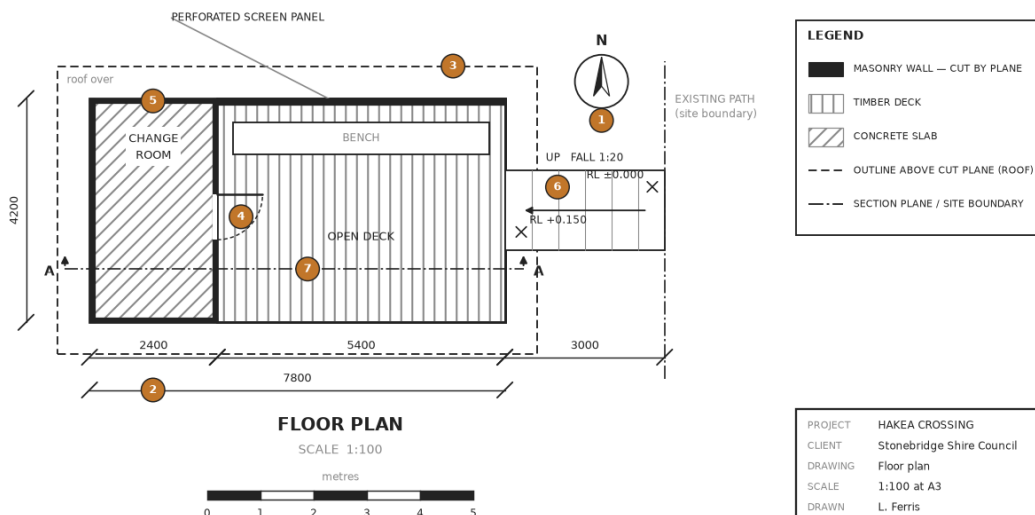
b. The deck is **5.4 metres** long. The note that gives the unit is note 1: **“ALL DIMENSIONS IN MILLIMETRES.”**

(1 mark for 5.4 m; 1 mark for naming the standard note. Accept “the standard note on the drawing stating that all dimensions are in millimetres”. Do not award the second mark for “you measure it with a ruler and the scale” — note 3 says do not scale from this drawing; where a figured dimension exists, it takes precedence.)

c. A dashed outline on a floor plan shows something that is **above the cut plane**, or otherwise hidden — it is there, but the plan does not cut through it. A floor plan is a horizontal section taken about 1400 mm above the floor; the roof sits well above that plane, so it is drawn dashed. The convention matters because the roof is the element that makes the deck usable: it extends 600 mm past the slab on every side, which the dashed rectangle records exactly. If the roof had been drawn solid, a reader would take it for a wall or a slab edge at floor level and the shape of the shaded area would be lost.

(2 marks: 1 for the meaning of the convention — above the cut plane / hidden; 1 for why it matters on this drawing, with evidence from the drawing. A response that says only “dashed means hidden” earns 1 mark.)

1 north point on every plan · 2 dimension string, and the chain closes: 2400 + 5400 = 7800 · 3 dashed outline = above the cut plane · 4 door leaf and swing arc
5 solid fill (poché) = cut by the plane · 6 ramp with UP arrow, grade and spot levels · 7 section marker A-A with direction-of-view arrows



NOTES

1. ALL DIMENSIONS IN MILLIMETRES.
2. LEVELS IN METRES TO DATUM ± 0.000 = EXISTING PATH AT EAST BOUNDARY.
3. DO NOT SCALE FROM THIS DRAWING — FIGURED DIMENSIONS TAKE PRECEDENCE.
4. VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK.

Question 3

a. Legal obligation — copyright. Copyright arose automatically in the artist's public artwork when it was made and fixed in material form, and it is owned by the artist. Reproducing or adapting a substantial part of it — which is what the pattern is — requires the copyright owner's permission, normally a written licence. Changing the spacing and the diameters does not avoid this; copyright protects the expression, and an adaptation is still a use of it.

Ethical obligation — cultural protocol / ICIP. The pattern carries Indigenous Cultural and Intellectual Property. Under the *Australian Indigenous Design Charter*, the designer must obtain the free, prior and informed consent of the relevant Traditional Owners or custodians, let them determine how their knowledge is represented, attribute the community and the artist by name, and share the benefit of the commission. This is a professional and moral standard, not legislation.

(2 marks: 1 for a correctly labelled *LEGAL* obligation, 1 for a correctly labelled *ETHICAL* obligation. The distinction is the point of the question. Do not award a mark for calling ICIP or the Charter "the law"; do not award a mark for calling copyright "an ethical issue". Accept, as alternative legal obligations, the Australian Consumer Law prohibition on misleading or deceptive conduct — the caption "inspired by local Indigenous art" invites a buyer to believe the panel is an authorised Indigenous work.)

b. Any TWO of the following, described as actions (1 mark each):

- **Identify and approach the right people first.** Find out which community holds Country at the Millrace site, and approach the Traditional Owners, custodians or knowledge holders with authority to speak for that material — not simply the Shire's arts officer.
- **Seek free, prior and informed consent in writing** for the actual use proposed — a perforated panel on a public shelter — explained plainly enough that the community can genuinely refuse.
- **Commission the artist properly.** Engage the original artist or a community-nominated artist to author the panel, with a fee, a licence and agreed credit, so the project becomes Indigenous led rather than Indigenous themed.
- **Build the time and the money into the program.** Allow extra weeks in the Discover phase and a paid line in the budget for community time, so consultation is real rather than a sign-off.
- **Agree the attribution and the notices** to be carried on the finished work — the artist's name and nation, and a traditional custodian notice.

(2 marks. The actions must sit in **Discover**, before the panel was designed: a community shown a finished concept cannot shape it and cannot realistically refuse. Do not award marks for "acknowledge the source" or "put a credit

line on it” alone — acknowledgement is not permission. Do not award marks for “change it more so it is different enough”.)

Question 4

a. Design element — type (accept colour or tone). Design principle — hierarchy (accept contrast or scale).

(2 marks: 1 for a correctly classified element, 1 for a correctly classified principle. Do not award a mark where the two are swapped, or where a Gestalt principle such as proximity or similarity is offered as a design principle — they are different vocabularies.)

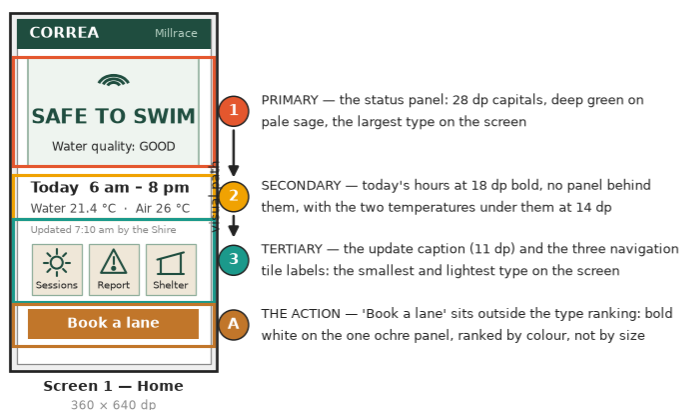
b. (Model — Screen 1, the more commonly chosen option.)

The CORREA screens have a **calm, natural** aesthetic — quiet, unhurried and clearly of the river.

The designer uses the **element of type** with the **principle of hierarchy** to rank the information in three layers. *SAFE TO SWIM* is primary: 28 dp capitals in deep green, the largest type on the screen, set in a pale sage status panel with the ripple mark above it and *Water quality: GOOD* at the 14 dp body size beneath. *Today 6 am – 8 pm* is secondary: 18 dp bold, with no panel behind it, and the water and air temperatures sit under it at 14 dp in a lighter grey. The update caption at 11 dp and the three navigation tile labels are tertiary — the smallest and lightest type on the screen. Because each layer steps down in size and weight, the eye travels straight down the screen from the status, to the hours, to what to do next, without having to search. *Book a lane* is the one deliberate exception: it is set bold in white on the single ochre panel, so the action is ranked by colour rather than by size and never competes with the status for the largest type.

This ranking is what builds the calm aesthetic as well as delivering it: only one line is set large, only one element is ochre, the type is set in one sans-serif family, and the muted greens and sand leave generous space around each layer, so the screen reads as settled rather than busy. It suits the user’s task exactly — a swimmer standing at the water’s edge in bright light wants one question answered, *can I swim today*, and the hierarchy answers it in the first glance while keeping the session times and the hazard report one step away.

CORREA Screen 1 — the element of TYPE with the principle of HIERARCHY, building a calm, natural aesthetic



Screen 2 — Sessions. An equally creditworthy answer. The same **element of type** and **principle of hierarchy** rank each row in three layers: the time (*6:00 am*) is primary, the largest type in the row and set bold at the top left; the session name (*Lap swim*) is secondary, smaller and in a lighter grey beneath it; and the availability (*6 spaces, FULL*) comes third, held out at the right-hand end of the row and ranked by weight rather than by size — deep green bold while places remain, plain grey once the session is *FULL*. Every row is set out on the same grid, so a swimmer scans the left-hand column of times first, then reads across only to the row that suits them. The restraint builds the same calm, natural aesthetic: nothing shouts, availability is carried by the word rather than by a coloured dot, and the rows are separated by a hairline border and even spacing rather than by decoration.

(4 marks: 1 for NAMING a specific aesthetic — calm, natural, quiet, restrained are all acceptable, “a nice aesthetic” is not; 1 for identifying the layers of the hierarchy with evidence from the screen the student ticked; 1 for the cause-and-effect chain showing HOW the element and the principle create that aesthetic; 1 for tying the analysis to the user’s task. A response that stops at “the type supports the aesthetic” earns no analysis marks. Accept an equally

well-evidenced answer built on colour + contrast: the single ochre action against the deep green and sand carries the same argument. Mark only the screen the student ticked; if no box is ticked, mark the screen the response describes.)

Question 5

a. Any ONE of: the six marks share a single stroke weight, one corner radius and one 24 dp grid, so they read as one authored family; the subjects are specific to this site — a river ripple, stepping stones, a wetland reed and the change-room shelter — rather than the generic symbols a stock library supplies; the caption records that they were drawn from the designer’s own observational studies made at Millrace Reserve.

(1 mark. Only the first feature given is marked.)

b. Developing a personal icon suite means every mark is generated by the designer from their own observational drawing, so the finished suite is **original work by evidence, not by assertion**. The folio can show the site studies, the range of subjects explored, the refinements and the tests, which is what proves authorship if it is ever questioned. It also removes the legal exposure that comes with downloading and adapting someone else’s mark: copyright in that mark belongs to its author, and redrawing it “enough to be different” is not a defence. And because the marks come from this site, the suite carries meaning a stock set cannot — the ripple stands for water quality at Millrace, not water in general.

The culturally appropriate practice the designer must observe is that they may **only draw on their own culture and their own experience**. Any motif, symbol or design element that belongs to another culture — in particular Aboriginal and Torres Strait Islander cultural material — cannot be taken into a personal suite without the free, prior and informed consent of the people who hold it, and the designer must not present culturally themed marks as their own iconography.

(3 marks: 1 for originality evidenced through the designer’s own process and folio; 1 for a second substantiated benefit — avoiding infringement of someone else’s copyright, or site-specific meaning that a stock symbol cannot carry; 1 for one culturally appropriate practice, correctly stated. Accept as the practice: draw only on your own culture; obtain permission before using another culture’s material; acknowledge sources of inspiration; do not use secret, sacred or restricted material.)

Section B

Section B is marked against the field the student ticked. The model responses below work the **Environments** option through in full and then show what an equally creditworthy **Interactive experiences** response looks like at the same points. Neither field is worth more marks, and a response is never penalised for the field it chose.

Question 6

a. (Environments.) Two characteristics of the users of the trailhead shelter:

- They are **first-time visitors arriving by car**, so they have no local knowledge, no map already in hand and no phone signal to look one up; everything they decide is decided in the two minutes between the car and the track head.
- They are a **wide-mixed-ability group aged 8 to 80**, including walkers using a wheeled walker or pushing a pram, so reach, eye height and step-free movement vary enormously across the same audience.

a. (Interactive experiences.) Equally creditworthy: users are standing outdoors in bright sun with a queue behind them, so they will give the screen only a few seconds; and they may be wearing gloves or have wet hands, so they cannot make small, precise taps.

(2 marks, 1 per characteristic. A characteristic describes WHO the users are and how they behave. Do not award a mark for a NEED (“they need to know which track to take”) or for a CONSTRAINT (“there is no power on site”) — the three are different things and the distinction is examinable.)

b. (Environments.) Constraint: there is no mains power at Kunzea Flat and no staff on site, and the shelter stands on an unsealed gravel apron in a bush reserve.

Effect on my decisions: because nothing can be lit and nobody is there to explain it, the board has to be legible by reflected daylight alone and has to work unattended, so I will specify a matte, non-glare laminate rather than a gloss

face, orient the board away from direct afternoon sun, and rely on tonal contrast rather than backlighting. Because the structure has to stand on gravel and be maintained by an occasional ranger visit, I will keep it to standard-length members and bolted connections on screw piers rather than anything that needs a concrete pour.

b. (Interactive experiences.) Equally creditworthy: the kiosk runs on a solar panel and a battery, so screen brightness and refresh are limited — which pushes me to a mostly light interface with dark text, few large images and a short screen timeout.

(2 marks: 1 for a genuine constraint — a limitation or an expectation the designer must work within; 1 for a specific, traceable effect on a design decision. Do not award marks where the “constraint” restates a criterion, e.g. “it must be readable in the rain”. Constraints include budget, site, climate, power, access, timeline, standards, materials, client expectations and the skills available to build it.)

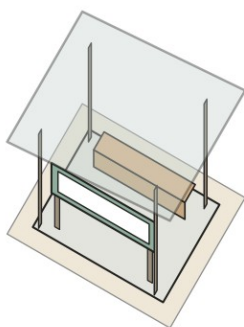
Question 7

a. A full-mark response shows **one idea** taken into **two different concepts** — not two unrelated ideas, and not the same concept drawn twice.

The model below takes one idea — *a single skillion roof over a step-free deck, with all track information carried on one face* — and resolves it two ways. Concept A keeps the information board free-standing on slim legs under an open roof; Concept B builds the board into a solid blade wall that also carries the seating. Each concept is annotated with one design element and one design principle.

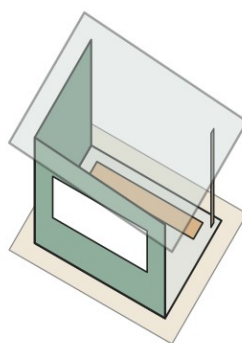
KUNZEA FLAT trailhead — ONE idea developed into TWO concepts

The idea: a single skillion roof over a step-free deck, with all track information carried on one face.



CONCEPT A — free-standing board under the roof

- **ELEMENT — LINE:** four slender posts keep the shelter visually light, so the track behind it stays visible on approach.
- **PRINCIPLE — BALANCE:** symmetrical about the centre line, which reads as calm and makes the way in obvious from the car park.
- Board set 850–1650 above the deck, readable seated or standing.



CONCEPT B — board built into a solid blade wall

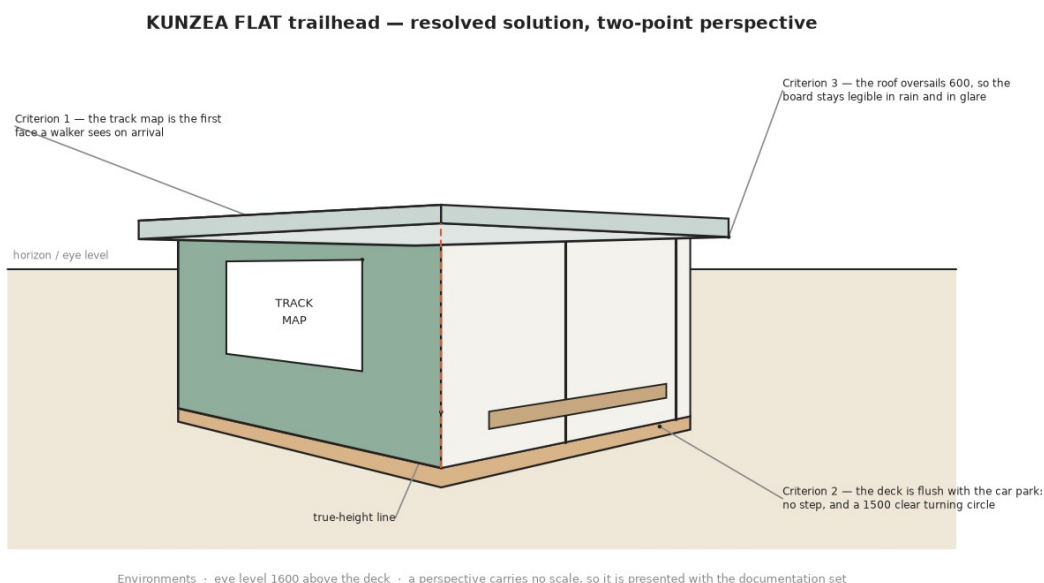
- **ELEMENT — FORM:** one solid blade wall anchors the corner and shades the board from afternoon glare.
- **PRINCIPLE — HIERARCHY:** the blade is the tallest, heaviest mass, so the eye finds the information face first.
- Seating wraps two sides, so a walker can rest and read at once.

Interactive experiences equivalent. One idea — *ask the walker a single question first, then show only the tracks that answer it* — taken into two concepts: Concept A asks “How long have you got?” and lists tracks by duration; Concept B asks “Can you manage steps?” and lists them by grade. Same idea, two genuinely different interfaces, each annotated with an element and a principle.

(6 marks: 2 for two drawn concepts that are clearly developments of ONE idea; 2 for the concepts being genuinely different from each other in their design response rather than cosmetic variants; 1 for a correctly named design element applied and annotated on each; 1 for a correctly named design principle applied and annotated on each. Annotation that only describes what is drawn — “this is the board” — earns no annotation marks; the annotation must name the element or principle and say what it does. Deduct nothing for drawing quality; this is a development stage.)

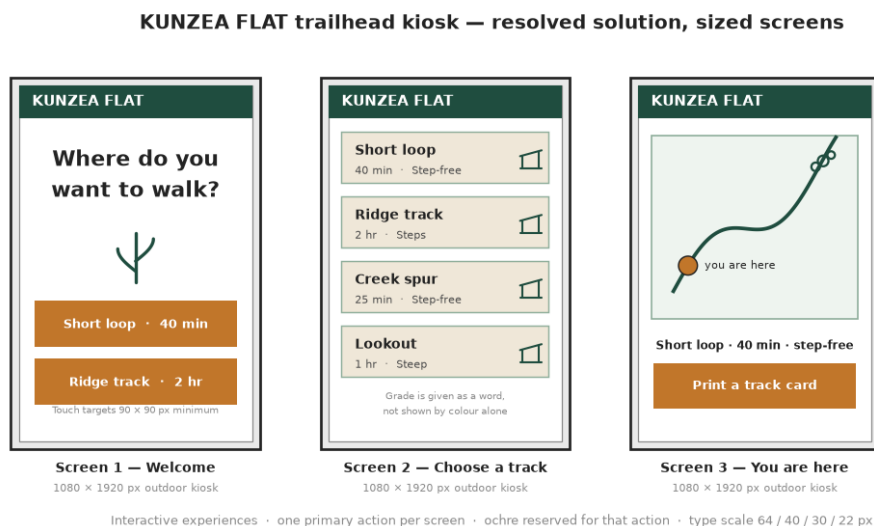
Question 8

a. (Environments.) The resolved drawing must be visibly more resolved than the concept: every decision made, drawn in a method appropriate to the field, with the design criteria answerable from what is on the page.



The model above is a **two-point perspective** taken from the arrival side, with the eye level stated at 1600 above the deck and both vanishing points on the one horizon. Vertical heights are measured only on the true-height line at the near corner. Note that a perspective carries **no scale**, so in a folio it is presented alongside the documentation drawings rather than instead of them; a **planometric** is equally acceptable here and has the advantage that the plan stays true shape.

a. (Interactive experiences.) The resolved drawing is a set of **sized screens** with the artboard size stated, a stated type scale, defined colour roles and touch targets at or above the minimum.



(4 marks: 1 for using a method appropriate to the chosen field — planometric or two-point perspective for Environments, sized screens for Interactive experiences; 1 for the method being applied correctly, including a single horizon with both vanishing points and heights measured on a true-height line, or a stated artboard size and a consistent grid; 1 for genuine resolution — dimensions, materials, levels, type sizes or touch targets settled rather than indicated; 1 for the solution visibly answering the stated criteria. A neat redrawing of the concept with nothing further decided earns at most 2.)

b. (Environments, evaluated against criterion 1 — “let a first-time visitor start the right track without asking anyone”.)

PMI	Judgement against criterion 1
Plus	The track map faces the car park and is the first thing a visitor sees on the walk in, and each of the four tracks is named, timed and graded on it, so the decision can be made before entering the shelter.
Minus	The board carries all four tracks at the same visual weight, so a visitor who does not already know how long they have must read the whole board; there is no single starting question to sort them.
Interesting	Painting each track's colour band onto the first bollard of that track would carry the board's decision out onto the ground, where the visitor actually turns — worth testing before the opening.

Overall judgement: the solution meets criterion 1 for a visitor who knows what they want, and only partly meets it for a visitor who does not. The next iteration should rank the four tracks rather than list them.

(Interactive experiences.) Equally creditworthy: *Plus* — the first screen asks one question and then shows only the matching tracks, so the visitor cannot start the wrong one; *Minus* — the choice is made at the kiosk and forgotten thirty metres along the track, where there is no reminder; *Interesting* — a printed track card would carry the decision with them.

(2 marks: 1 for a PMI with all three columns genuinely used, each tied point by point to criterion 1 rather than to the design in general; 1 for an overall judgement that states the extent to which the criterion is met and what follows from that. An evaluation that lists only strengths is incomplete and earns at most 1 mark.)