

Design thinking

This activity introduces students to design thinking through an entrepreneurship-focused, real-world sustainability challenge. Working in fast-paced teams, students use human-centred methods to understand stakeholder needs, ideate potential solutions, and rapidly prototype an environmentally-oriented entrepreneurial concept. The activity builds creative confidence, problem-framing ability, and early-stage venture thinking within a one-hour session.

Description	Task: <i>Design a low-cost, high-impact entrepreneurial solution that reduces single-use waste in a local industry</i> <i>(Examples: hospitality, retail, events, construction, cafés around campus, and laboratories.)</i> Students complete an accelerated design-thinking cycle to develop a lightweight entrepreneurial concept aimed at addressing a sustainability problem within a specific industry. They explore user needs, generate ideas, and create a simple prototype that demonstrates how their venture might reduce waste, cut resource use, or support circular-economy principles.
Learning outcomes	By the end of the activity, students will be able to: 1. Identify user and industry pain points related to environmental impact. 2. Frame an actionable entrepreneurship-oriented problem statement. 3. Generate creative, feasible venture concepts using rapid ideation techniques. 4. Prototype a simple representation of an environmentally focused entrepreneurial idea. 5. Integrate feedback to refine their concept.
How it works	1. Empathise (8 minutes) Provide three mini-personas from a specific industry. For example, in hospitality: • Café manager: "Margins are low; sustainable packaging is too expensive." • Customer: "I want eco-friendly options but convenience matters." • Supplier: "We can offer compostable products, but minimum orders are high." Teams answer:

	• What does this stakeholder need? • What barriers prevent environmentally friendly behaviour? • Where might entrepreneurial opportunities emerge? 2. Define the Problem (5 minutes) Teams craft a focused “How might we...?” statement: • How might we help small cafés reduce single-use coffee cup waste affordably? • How might we support event organisers in eliminating disposable serveware? • How might we incentivise retail staff and customers to adopt reusable packaging? 3. Ideate (10 minutes) Teams complete a 10-minute “Rapid Six” (six ideas in six minutes per person): Examples of potential solution spaces: • A venture offering shared reusable cup/plate systems • A delivery model that eliminates packaging • A micro-service that leases reusables to cafés • A reward or deposit-return scheme • A digital app that gamifies reduction of single-use items Teams choose their strongest idea based on desirability, feasibility, and environmental impact. 4. Prototype (12 minutes) Teams create a quick, low-fidelity representation of the idea: • Sketch of a service model • Simple storyboard of the customer journey • Mock-up of a physical product or refill station • One-page venture canvas 5. Test & Feedback (10 minutes) Teams pair with another group and provide structured feedback: • <i>What works?</i> • <i>What assumptions need testing?</i> • <i>Where is the environmental impact strongest?</i> Teams make one small pivot or improvement.
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	6. Reflect (5 minutes) Students individually reflect on: • One key insight about stakeholder needs • One assumption they would test in the “real world” • How design thinking supports early-stage venture development
Resources required	• Three short industry personas • Design-thinking handouts (problem statement, ideation sheet) • Paper, sticky notes, markers • Optional: digital tools for sketching or journey mapping
AI considerations	Students may use AI to: • explore industry-specific waste data • generate additional persona details • sketch alternative product ideas or workflows Instructor should emphasise: • AI is a <i>supplement</i>, not a substitute for judgement • Students must critique AI outputs for environmental accuracy, feasibility, inclusivity, and unintended consequences For summative use: require AI-use disclosure and justification.
Assessment	Formative • Present prototype + 60-second venture pitch • Submit a problem statement + prototype photo • Peer feedback rubric Summative • 1–2-page concept summary with: ◦ problem statement ◦ prototype ◦ environmental impact rationale ◦ key assumptions and next steps • Video pitch of the environmental venture • Design thinking portfolio documenting each stage.