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WRITTEN LESSON PLAN

DESIGNING SUSTAINABLE SOLUTIONS WITH AI

Module: Solutions and Sustainability
Target group: Ages 12–15
Duration: 45 minutes

Learning objectives

- Identify a specific plastic-waste problem in school.
- Use AI brainstorming critically to select a realistic solution.
- Produce a labelled prototype sketch and justify its likely impact.

Materials and teacher preparation

- School waste examples or photos; design worksheet
- Paper, markers and optional ChatGPT or teacher-approved AI tool
- Optional Canva AI for visualisation

TEACHING PROCEDURE

Identify a school problem · 5 min

- Ask: 'Which plastic item creates avoidable waste at our school?'
- Agree on a concrete challenge rather than a broad slogan.

Generate and test ideas · 10 min

- Groups brainstorm first, then optionally ask AI for five possible solutions.
- Example prompt: 'Suggest five low-cost ways a school could reduce single-use plastic at lunch. Include limitations.'
- Reject ideas that are unrealistic, expensive or unsafe.

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Build the concept · 20 min

- Draw a prototype or campaign design with labels, materials and user instructions.
- Explain who will use it, how it reduces waste, and what it might cost or require.

Mini pitch · 8 min

- Each group presents the problem, solution and one obstacle.
- Peers provide one suggestion for improvement.

Exit reflection · 2 min

- Complete: 'AI helped us by ..., but we changed ... because ...'.

READY-TO-USE STUDENT WORKSHEET

Design brief

- Problem: _____
- Who is affected? _____
- Proposed solution: _____

Prototype checklist

- Sketch/diagram _____
- Materials _____
- How it works _____
- Possible obstacle _____

AI reflection

- One AI suggestion we rejected or improved: _____
- Why? _____

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Assessment and success criteria

- Proposal addresses a real, defined school problem
- Sketch explains how the solution works
- Student evaluates rather than copies an AI suggestion

Differentiation and practical guidance

- Teacher can provide pre-generated ideas when students lack tool access. AI output must be checked for accuracy and feasibility.

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