



AI-GREENER

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LESSON PLAN

Designing sustainable solutions with AI



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1. TITLE

AI for green entrepreneurship: Designing sustainable solutions with AI

2. GRADE LEVEL

- ☐ ISCED Level 3 – Upper Secondary Education (ages 15–18)

3. SUBJECT AREA

- ☐ Environmental Studies
- ☐ Economics
- ☐ Computer Science
- ☐ Technology and Design
- ☐ Social Studies

4. TYPE

- ☐ Project

5. DURATION

- ☐ Double session (2 × 60 minutes) optional project-based homework.

6. LEARNING OBJECTIVES

O1 – Explain how AI can contribute to environmental sustainability and support the achievement of sustainable development goals.

O2 - Analyze real-world examples of AI applications that reduce environmental impact in sectors such as energy, transportation, agriculture, and waste management.

O3 - Design a green business idea that incorporates AI to address an environmental challenge.



O4 - Present and justify a sustainable entrepreneurship proposal using environmental, social, and economic arguments.

7. Key Competences Developed

- ☐ Literacy
- ☐ Mathematical competence and competence in STEM
- ☐ Digital competence
- ☐ Personal, social and learning to learn competence
- ☐ Citizenship competence
- ☐ Entrepreneurship competence
- ☐ Cultural awareness and expression competence

8. Prior Knowledge / Prerequisites

-) Basic understanding of environmental sustainability and climate changes.
-) Basic digital literacy and internet research skills.
-) Basic knowledge of entrepreneurship concepts (problem, solution, customer, value proposition).

9. Lesson/Project Outline

Phase 1 – Introduction (Engage & Contextualize)

Teacher presents the question: Can AI help save the planet?

Students participate in a short brainstorming activity identifying environmental challenges such as: climate change, energy waste, food waste, pollution, deforestation.

Teacher introduces students on topics:

What is AI?

How AI is already used in sustainability initiatives?

Examples of AI – powered environmental solutions.

Expected outputs: Class discussion notes, list of environmental challenges suitable for AI solutions.



Phase 2 – Exploration (Investigate & Compare)

Students split into small teams to analyze specific global case studies where machine learning algorithms mitigate resource depletion (e.g., smart precision farming or AI-driven grid balancing).

Teams map out the exact inputs, computational logic, and ecological advantages realized by their assigned case study.

Expected Outputs: A structured Matrix analysis comparing conventional ecological strategies versus enhanced AI-driven methodologies.

Phase 3 – Application (Hands-On Practice)

Students adopt the role of sustainable tech entrepreneurs to conceptualize a novel AI venture addressing one of the core challenges highlighted in Phase 1.

Teams complete a specialized "Green AI Business Model Canvas" emphasizing carbon footprint reduction, technical feasibility, and customer monetization pathways.

Expected Outputs: A drafted Green AI Ideation Canvas and an accompanying 3-minute pitch outline.

Phase 4 – Reflection & Consolidation (Present & Connect)

Teams pitch their completed Green AI venture to the class in a structured "Eco-Shark Tank" format.

Peers critique proposals from a sustainability and viability perspective, followed by a general reflection on the ethical implications of run-time data centers vs. environmental offsets.

Expected Outputs: Pitch presentations, peer review evaluation records, and individual self-reflection logs.



10. Assessment Criteria

Evaluations are continuously measured against learning objectives to verify theoretical execution and interactive design proficiency.

11. Teaching Materials

Peer review feedback sheet.

Self-assessment sheet

12. External Resources and References

Resource (name)	Link (external or to the folder on Teams)
Climate Change AI Research & Community Hub	https://www.climatechange.ai/
UN Sustainable Development Goals Knowledge Platform	https://sdgs.un.org/goals