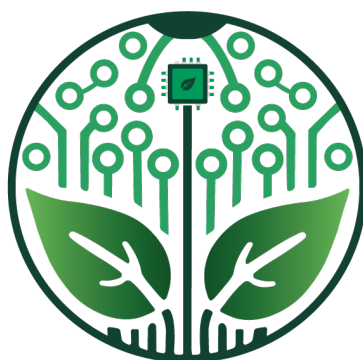




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[LESSON PLAN]

[AI and Sustainability: Balancing Innovation and Environmental Impact]

 <p>QUADRAT Bundeshandelsakademie Wolfsberg Austria</p>	 <p>Darica İktisadi ve Sosyal Bilimler Fakültesi Mühürüğü Turkey</p>	 <p>CAMPUS 02 Fachhochschule der Wirtschaft GmbH Austria</p>	 <p>ΔΙΕΥΚΥΚΤΩΣΗ Directorate of Secondary Education of Kefallinia Greece</p>	 <p>Jaunpiebalgas vidusskola Latvia</p>	 <p>sucessos criativos Sucessos Criativos, Lda Portugal</p>	 <p>Средно обществено-образователно училище Любен Каравелов Bulgaria</p>
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Authors

Lyuben Karavelov Secondary school



Disclaimer



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1. TITLE

AI and Sustainability: Balancing Innovation and Environmental Impact

2. GRADE LEVEL

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

3. SUBJECT AREA

- ☐ Environmental Studies
- ☐ Computer Science
- ☐ Social Studies

4. TYPE

- ☐ Lesson Plan

5. DURATION

- ☐ 1 x 40 minute class

6. LEARNING OBJECTIVES

O1- Define the relationship between Artificial Intelligence and Environmental Sustainability.

O2- Identify at least three ways AI contributes to "Green" initiatives (e.g., energy optimization).

O3- Critically analyze the carbon footprint of training large AI models.



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04 – Collaborate on a mini-project to propose a sustainable AI solution for the school environment.

7. Key Competences Developed

- Mathematical competence and competence in STEM
- Digital competence
- Personal, social and learning to learn competence
- Citizenship competence

8. Prior Knowledge / Prerequisites

Basic understanding of climate change and resource scarcity.
Familiarity with everyday AI tools (Chatbots, recommendation engines).

9. Lesson/Project Outline

Phase 1 – Introduction: Engage & Contextualize

- Goal: To spark curiosity about the "invisible" impact of technology.
- Activities:
 - The Hook: Ask students: "Does a Google search or a prompt to ChatGPT have a physical weight?"
 - Context: Briefly introduce the AI-GREENER project and its mission to bridge the gap between digital transformation and sustainability.
 - Visual: Show a short infographic comparing the energy used by an AI model vs. a common household appliance.

Resource (name)	Link (to the folder on Teams)

Phase 2 – Exploration: Investigate & Compare



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- Goal: To understand the dual nature of AI (The "Green" Helper vs. The "Energy" Consumer).
- Activities:
 - The Pros: Discussion on AI in precision agriculture and smart grids.
 - The Cons: Facts about data centers, water usage for cooling, and e-waste.
 - Resource: Use the video "AI and Sustainability" (link provided in teaching materials).

Resource (name)	Link (to the folder on Teams)
Video "AI and Sustainability"	https://www.youtube.com/watch?v=C9nuTfm18KY

Phase 3 – Application: Hands-On Practice

- Goal: Creative problem-solving within the local school context.
- Activities (Group Work):
 - Students divide into small groups to brainstorm the "Karavelov AI-Green Idea".
 - Task: Design a concept for an AI tool that makes SU "L. Karavelov" more sustainable (e.g., AI for managing school recycling bins, an AI sensor for classroom lighting, or an app to reduce paper use).
 - Output: A 1-minute "Elevator Pitch" for their idea.

Resource (name)	Link (to the folder on Teams)

Phase 4 – Reflection & Consolidation (Present & Connect)

- Goal: Summarizing learning and looking forward to the 2026 HUB.
- Activities:
 - Presentation: Groups share their ideas.
 - Closing: Explain how these ideas contribute to the project's final goal: the AI-GREENER HUB and the final event at the University of Graz (2026).
 - Final Reflection: One word to describe the future of "Green AI".

Resource (name)	Link (to the folder on Teams)
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AI Greener - worksheet

10. Assessment Criteria

- Level of engagement in the group brainstorming session.
- Ability to articulate one positive and one negative environmental impact of AI.
- Feasibility and creativity of the proposed "School AI Solution".

Resource (name)	Link (to the folder on Teams)

11. Teaching Materials

This section lists the materials used during the lesson. These include documents, tools, worksheets, videos, templates, and other instructional elements. Each item should include a file name and a short description of its role in the lesson. All resources must be accessible to all partners and suitable for cross-national use in the context of the project.

Name	Type (Developed/Existing)	Link	Role in the lesson
Video	Existing	https://www.youtube.com/watch?v=C9nuTfm18KY	Phase 2
Template	Existing - AI – Greener Idea Worksheet		Phase 3
Digital tool	Existing - Mentimeter	https://www.mentimeter.com/	Phase 4



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12. External Resources and References

Resource (name)	Link (external or to the folder on Teams)
Erasmus+ Program Guidelines on Sustainability. AI-GREENER Project Documentation (WP3 - HUB Development).	