AI-GREENER
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[LESSON PLAN]

[AI AND ENVIRONMENT]

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Disclamer

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1. TITLE

The students understand the connections between artificial intelligence and environmental aspects. They reflect on the opportunities and risks of AI in the context of ecological sustainability and develop their own ideas for the responsible use of technologies.

2. GRADE LEVEL

- [ ] ISCED Level 2 – Lower Secondary Education (ages 12–15)
- [x] ISCED Level 3 – Upper Secondary Education (ages 15–18)

3. SUBJECT AREA

- [ ] Sciences
- [x] Environmental Studies
- [ ] Geography
- [x] Economics
- [x] Computer Science
- [ ] Mathematics
- [ ] Technology and Design
- [ ] Arts and Music
- [ ] Social Studies
- [ ] History
- [ ] Languages

4. TYPE

- [x] Lesson Plan
- [ ] Project

5. DURATION

Select the one format that fits the lesson/Project:

- [ ] 1 x 40-50minute class

- [ ] 1 x 60-minute class
- [x] 1 x 80-100-minute block
- [ ] 2 x 45-minute classes
- [ ] 2 x 60-minute classes
- [ ] Double session (2 × 60 minutes) optional project-based homework.

6. LEARNING OBJECTIVES

By the end of the unit, students will:

Understand how artificial intelligence (AI) impacts the environment both positively and negatively.

Critically evaluate the ecological footprint of AI technologies.

Explore how AI can be used to support environmental sustainability.

Develop creative ideas for using AI to solve environmental challenges

7. Key Competences Developed

- [ ] Literacy
- [ ] Multilingual competence
- [ ] Mathematical competence and competence in STEM
- [x] Digital competence
- [x] Personal, social and learning to learn competence
- [x] Citizenship competence
- [x] Entrepreneurship competence
- [ ] Cultural awareness and expression competence

8. Prior Knowledge / Prerequisites

Basic understanding of computer science

9. Lesson/Project Outline

Phase 1 – Introduction (Engage & Contextualize)

Goal: Arouse interest and activate previous knowledge

Activities: 15 minutes

Warm-up question: 'What do you think AI has to do with climate change or environmental protection?'

Listen to a podcast: https://www.tagesschau.de/wirtschaft/digitales/ki-klimabilanz-100.html

Discussion about first impressions

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

Phase 2 – Exploration (Investigate & Compare)

Goal: Build knowledge and explore perspectives

Two groups are investigating: 30 minutes

1. Environmental impact of AI (energy consumption, hardware production)

2. Sustainable AI projects (smart grids, waste separation)

Result: Poster or digital presentation

Sources:
https://www.greenpeace.de/ueber-uns/loesungen-finden/kuenstliche-intelligenz-energieverbrauch-und-umweltauswirkungen

https://www.spektrum.de/news/kuenstliche-intelligenz-verbraucht-fuer-den-lernprozess-viel-energie/1660246

https://www.onlinesicherheit.gv.at/Services/News/K%C3%BCnstliche-Intelligenz-Projekte-Nachhaltigkeit.html

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

Phase 3 – Application (Hands-On Practice)

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

Goal: Critical examination and opinion-forming

Activities: 25 minutes

Presentation of the group work

Discussion:

How can we use AI in a meaningful way for the environment?
Should AI be regulated?
What responsibility do developers have?

Phase 4 – Reflection & Consolidation (Present & Connect)

Goal: Application of what has been learned and creative idea development

Activities: 20 minutes

Essay: How can AI help save our environment – and what are the limits?

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

10. Assessment Criteria

Portfolio: the portfolio documents their work, learning progress, and reflections throughout the entire unit. It shows how they applied content from all phases and what insights they gained.

The portfolio should include the following elements:

1. Poster or digital presentation by phase 2
2. Essay by Phase 4
3. Notes or additional materials created during the unit

Structure:

Cover page with name, class, date
Table of contents
Chronological collection of materials from Phase 1 to Phase 4

Assessment:

Completeness of all materials from the four phases
Structure and clarity
Creativity and initiative

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

11. Teaching Materials

Name	Type (Developed/Existing)	Link	Role in the lesson

12. External Resources and References

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