AI-GREENER
2024-1-AT01-KA220-SCH-000248327

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LESSON PLAN

AI and sustainability

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Disclamer

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

1. TITLE

AI and sustainability

2. GRADE LEVEL

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

3. SUBJECT AREA

- Sciences
- Environmental Studies
- Geography

4. TYPE

- Lesson Plan

5. DURATION

- 2 x 40-minute classes

6. LEARNING OBJECTIVES

O1- Explain what AI is and describe real-life examples on how AI is used regarding ecology and sustainability.

O2- Analyze the positive and negative environmental impacts of AI.

O3- Propose alternatives to an existing AI application to make it more sustainable.

O4- Collaborate in teams and reflect on responsible use of AI.

7. Key Competences Developed

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

8. Prior Knowledge / Prerequisites

Basic knowledge on the use of AI

9. Lesson/Project Outline

Phase 1 – Introduction (Engage & Contextualize)

Students are informed about the lesson objectives and the connection between digital technologies and environmental responsibility.
Activities:
Brainstorming on topic “Where do we use AI in our daily lives?”
Video presenting the connection between using AI and sustainability.
Class discussion on questions related to the video, for example:
What are the examples of interaction with AI that contributes to the resource consumption?
What kind of resources does AI require?
How does Singapore approach the development of sustainable AI?

Resource (name)	Link (to the folder on Teams)
AI and Sustainability **https://www.youtube.com/watch?v=C9nuTfm18KY&t=55s**	

Phase 2 – Exploration (Investigate & Compare)

Students explore in depth the connection between AI, resource consumption and sustainability, using guided questions and collaboration.
Activities:

Students collaborate in groups to analyze questions based on the video content in depth.
The question could be:
Which examples of the use of AI contributes the most to resource consumption?
For what purpose does AI need resources such as electricity, water, etc.?
Are the any countries beside Singapore which address sustainable AI? Give examples.
Groups summarize their findings and share them with their peers.

Outputs: answering the guiding questions, improved understanding of the environmental benefits and limitations of AI technologies.

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

Phase 3 – Application (Hands-On Practice)

Students apply their knowledge by evaluating critically utilization of AI and proposing more sustainable alternatives.
Activities:
Each group selects one AI application previously discussed (streaming platforms, transports, etc.).
Students identify the impact on environment and suggest possible alternatives or changes to the technology so it would reduce resource consumption.
Groups create a presentation (canva, poster etc.) explaining their sustainable AI proposal.

Outputs: group proposals, presentations, and visual materials.

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

Phase 4 – Reflection & Consolidation (Present & Connect)

Students reflect on what they have learned and understand the basics of responsible AI use.
Activities:
Students answer questions individually and discuss them in groups on key questions such as:
What was the most surprising thing you learned about the impact of AI on environment?
How can users, developers and governments contribute to make AI more sustainable?
Why is environmental responsibility important in digital innovation?

Outputs: Written student reflections in online platforms such as Mentimeter.
Understanding of responsible and sustainable use of technology.

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

10. Assessment Criteria

Participation in class discussions and brainstorming.
Contribution to group analysis and sustainable AI proposals.
Reflections shared at the end of the lesson.
Completed group presentation.

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

11. Teaching Materials

Name	Type (Developed/Existing)	Link	Role in the lesson
AI and Sustainability	Existing video	https://www.youtube.com/watch?v=C9nuTfm18KY&t=55s	Phase 1

12. External Resources and References

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