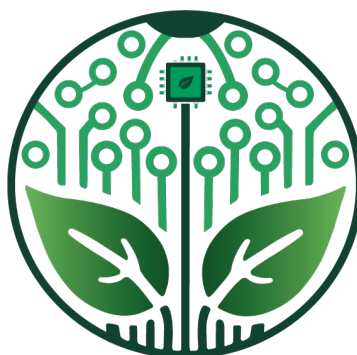




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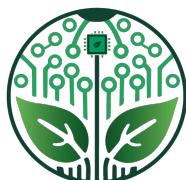
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LESSON PLAN

AI and the geography of sustainability

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Disclaimer



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1. TITLE

AI and the geography of sustainability

2. GRADE LEVEL

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

3. SUBJECT AREA

- Environmental Studies
- Geography

4. TYPE

- Lesson Plan

5. DURATION

- 2 x 40-minute classes

6. LEARNING OBJECTIVES

- O1- Identify how AI is used in monitoring and managing environmental and geographic issues.
- O2- Analyze maps and satellite data enhanced by AI for sustainable decision-making.
- O3- Propose solutions to environmental challenges in a specific territory using AI.
- O4- Reflect on the ethical and ecological implications of using AI in geography.

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 geography concepts – maps, regions. Basic digital skills.

9. Lesson/Project Outline

Phase 1 – Introduction (Engage & Contextualize)

Students are introduced to AI applications in geography – satellite monitoring, flood predictions, smart cities etc.
Short video on how GeoAI works.

Activity – Individual answers to questions
Can you list places where AI could be used to monitor or manage the environment?
How can AI help cities, forests, agriculture?
Why might AI be important in understanding geographic phenomena?

Outputs: Students write their answers on a shared board.

Resource (name)	Link (to the folder on Teams)
How GeoAI Works: The Future of Smart Mapping Explained	
https://www.youtube.com/watch?v=uUqYGP0UYTI	

Phase 2 – Exploration (Investigate & Compare)

Students explore real data using online platform: Global Forest Watch Interactive Map. The site uses satellite images and AI based analysis that monitor forest change worldwide. The teacher guides students step-by-step to see patterns, compare different regions and interpret the impact on environment.

Activities:

1) Students open the map and explore it. They answer questions:
What do the colors on the map could mean?
How is this type of map useful?



2) Activating the tree cover loss layer and observing the map.
Which regions show the highest forest loss?
Name 3 countries with significant forest loss.

3) Analyzing different regions
How does forest loss differ between regions?
What geographic or human factor might have caused these differences?

4) Class discussion
How can AI help detect forest changes from satellite images?
How can these tools support sustainable environmental decisions?

Outputs: Identification of regions with high and low deforestation.

Resource (name)	Link (to the folder on Teams)
Global Forest Watch https://www.globalforestwatch.org	

Phase 3 – Application (Hands-On Practice)

Students work in groups to select a geographic problem. Using knowledge from previous phase, they tinker to propose an AI based solution for the problem.

Activities:

Describe the environmental or geographic problem your group chose.
What kind of data an AI system need to use to help solve your problem?
How would your solution improve sustainability?
Are there any negative impact on the environment for your solution?
Prepare a map, diagram or other visual material that shows your solution.

Outputs: Group presentations, written explanations.

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

Phase 4 – Reflection & Consolidation (Present & Connect)



Groups present their solutions to the class. Teacher facilitates discussion on key concepts.

Reflection questions:

What surprised you about the impact of AI in geography?

Can AI support the EU Green Deal or global sustainability goals?

How would you use AI if you were a city planner or a policymaker?

Outputs: verbal reflections, understanding of benefits of AI in geography.

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

10. Assessment Criteria

Participation in group discussion and activities.
Contribution to group proposal and presentation.
Verbal reflection at the end of the lesson.

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)
How GeoAI Works: The Future of Smart Mapping Explained	
https://www.youtube.com/watch?v=uUqYGP0UYTI	
Global Forest Watch	
https://www.globalforestwatch.org	