

OER 4.4

How can climate/environmental issues be included in education?



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Welcome to this comprehensive educational resource that explores how to effectively include climate and environmental issues in education.

As global challenges like climate change and environmental degradation continue to impact our world, it is essential to equip students with the knowledge, skills, and values needed to become responsible stewards of the environment. This standalone Open Educational Resource will provide practical strategies and real-life examples to demonstrate how educators can integrate climate and environmental issues across various educational contexts, fostering environmental awareness and inspiring positive action among students.

As educators, you play a pivotal role in nurturing environmentally conscious citizens and fostering positive change for a sustainable future. By applying the strategies and examples shared in this module, you can inspire your students to become agents of change, making a real difference in addressing global environmental challenges. Remember, by nurturing a generation of environmentally aware and empowered individuals, you contribute to building a healthier and more sustainable world for generations to come.

OER content:

- Topic 1 - Understanding the Relevance of Climate and Environmental Issues
- Topic 2 - Strategies for Integrating Climate and Environmental Issues in Education
- Topic 3 - Inspiring Environmental Consciousness through Classroom Practices
- Topic 4 - Assessing the Environmental Progress

Some practical examples on how to effectively include climate and environmental issues in education:

Annex 1 – Example of an assessment tool for assessing the environmental progress.



Topic 1 - Understanding the Relevance of Climate and Environmental Issues

- Climate and Environmental Challenges

Define climate and environmental issues and analyse their significance in shaping the planet's ecological health and human well-being. Let students share their views and demonstrate their knowledge.

Example of an activity:

Explore and discuss how nature is affected: Look for local/national example at how climate change and environmental problems impact nature, like animals, plants, and the places they live. Ask them to define the challenges.

- Climate Change: Causes and Impacts

Discuss the root causes of climate change, exploring the consequences on weather patterns, ecosystems, and communities.

Example of an activity: Read or watch the story about a place where climate change happened and see how people dealt with it. You can replace the suggested case study with a local one if available. Encourage students to suggest preventative actions and solutions.

Case Study:

Shishmaref, Alaska - Battling Coastal Erosion

Shishmaref is a small Inupiaq community located on Sarichef Island, off the coast of Alaska, USA. For generations, the community has thrived by relying on the Arctic's rich natural resources. However, in recent decades, Shishmaref has faced a formidable challenge due to climate change-induced coastal erosion. (<https://www.outsideonline.com/gallery/meet-one-villages-grappling-climate-change/>)



Source: <https://www.outsideonline.com/gallery/meet-one-villages-grappling-climate-change/>

- Environmental Degradation: Threats to Biodiversity

Investigate various forms of environmental degradation, such as habitat destruction, pollution, and deforestation¹, and their effects on biodiversity and ecosystems.

Activity:

- *Discuss why forests are essential and what happens when they are cut down too much.*
- *Research about places where animals and plants lost their homes because of cutting trees or building on their land.*

Topic 2 - Strategies for Integrating Climate and Environmental Issues in Education

- Curriculum Integration: Making Connections Across Subjects Discover how to integrate climate and environmental concepts into different subjects, such as science, social studies, and geography, to promote interdisciplinary learning. Use examples/activities from Topic 1 and have a look in section Practical examples at the end of this module.

- Project-Based Learning for Real-World Impact

Encourage students to engage students in project-based learning initiatives that address local environmental challenges, fostering critical thinking and problem-solving skills. Make research what is available in local environment.

- Nature-Based Education: Outdoor Learning and Exploration Embrace nature-based education by conducting outdoor classes and field trips, fostering a deeper connection to nature and ecological understanding. Use planned trips to implement this idea.

Topic 3 - Inspiring Environmental Consciousness through Classroom Practices

- Green Campus Initiatives: Leading by Example

Implement eco-friendly practices within the educational institution, such as waste reduction, energy conservation, and water management, setting a positive example for students. Promote projects that include such activities. You can use ECOLitAct as example.

- Environmental Literacy and Climate Literacy Programs

Establish specialized programs focused on building students' environmental and climate literacy, encouraging them to become informed advocates for sustainability.

- Community Partnerships for Environmental Action

Create partnerships with local environmental organizations, providing students with opportunities to participate in community-based environmental projects and conservation efforts.

Topic 4 - Assessing the Environmental Progress

Create assessment tools to measure students' understanding of climate and environmental issues, celebrating their contributions to environmental conservation. There is an example of such assessment tool in Annex 1.

Practical examples on how to effectively include climate and environmental issues in education:

- In the science class, students can conduct experiments to understand the greenhouse effect and its role in climate change, promoting climate literacy.
- Geography lessons can include case studies on the impact of deforestation on local ecosystems, fostering environmental awareness.
- Organize a school-wide eco-initiative to reduce single-use plastic consumption, encouraging students to take part in environmental action. Plan a field trip to a nearby national park, where students can observe and appreciate the diverse flora and fauna, emphasizing the value of biodiversity.
- Engage in a community clean-up drive, instilling a sense of responsibility for environmental stewardship among students.
- Organize a debate on sustainable development, encouraging critical thinking and discussion about balancing human needs with environmental conservation.
- Encourage students to create awareness campaigns using digital media, advocating for climate action and environmental protection.

Annex 1 – Example of an assessment tool for assessing the environmental progress

This assessment aims to evaluate students' comprehension of climate and environmental issues and their engagement in environmental conservation activities.

The assessment tool not only evaluates students' knowledge of climate and environmental issues but also celebrates their active involvement in environmental conservation. By acknowledging their contributions, students are motivated to continue their efforts as environmental stewards, making a positive impact on the planet and inspiring others to act.

➤ Knowledge Assessment

Multiple-Choice Questions:

- a) What is the primary cause of climate change?
 - i) Deforestation
 - ii) Greenhouse gas emissions
 - iii) Ocean currents
 - iv) Volcanic eruptions

- b) Which of the following is a consequence of environmental degradation?
 - i) Increased biodiversity
 - ii) Clean air and water
 - iii) Habitat destruction
 - iv) Enhanced ecosystem resilience

- c) Why is it important to reduce our carbon footprint?
 - i) To increase energy consumption
 - ii) To decrease greenhouse gas emissions
 - iii) To promote deforestation
 - iv) To encourage excessive waste generation

➤ Reflection and Portfolio Submission:

Ask students to create an environmental conservation portfolio showcasing their individual or group efforts in addressing climate and environmental issues. The portfolio should include the following elements:

- Documentation of eco-friendly practices adopted in daily life.
- Photos, videos, or written accounts of participation in environmental initiatives or conservation projects.
- Personal reflections on the impact of their contributions and the importance of environmental stewardship.

➤ **Environmental Project Presentation**

Group Presentation: Divide students into groups and ask them to prepare a presentation on an environmental conservation project they have undertaken. Each group should:

- Explain the purpose and goals of their project.
- Share the methods used to address a specific environmental challenge.
- Present outcomes and lessons learned from the project.
- Highlight the positive impact on the environment and the local community.

➤ **Scoring:**

Knowledge Assessment (Part 1): Each correct answer receives 1 point.

- a) What is the primary cause of climate change?
Correct Answer: ii) Greenhouse gas emissions
- b) Which of the following is a consequence of environmental degradation?
Correct Answer: iii) Habitat destruction
- c) Why is it important to reduce our carbon footprint?
Correct Answer: ii) To decrease greenhouse gas emissions.

Portfolio evaluation based on effort, creativity, and the scope of activities.
Assign points accordingly.

Evaluation based on content, organization, and effective communication.
Assign points accordingly.

NOTE! Recognize and celebrate students' efforts and achievements in environmental conservation through an awards ceremony, eco-fair, or public exhibition. Showcase their portfolios and project presentations to the school community and local stakeholders. Acknowledge outstanding contributions with certificates or eco-friendly prizes.

Reference:

- The European Environment Agency: <https://www.eea.europa.eu/en>
- National Geographic (www.nationalgeographic.com/environment)
- United Nations Environment Programme (UNEP) (www.unep.org)
- Intergovernmental Panel on Climate Change (IPCC) reports (www.ipcc.ch)
- World Wildlife Fund (WWF) (www.worldwildlife.org)
- The Nature Conservancy (www.nature.org)
- The Guardian - Environment section (www.theguardian.com/environment)

List of Terms

Deforestation is the process through which humans purposely clear an area full of trees, cutting them off. Deforestation can have terrible consequences such as loss of biodiversity due to loss of habitat areas for different species, damage of the soil, desertification or increase of GHG emissions (trees tend to absorb CO₂, so when we cut them off, they can't perform this action anymore).