

Lesson Plan for ROBOSTEM: Planting Trees - Pollution of the Soil: Causes and Effects

Engage your students in a dynamic lesson that explores the importance of planting trees and the consequences of soil pollution. This comprehensive 5E model lesson plan covers a range of topics, from the benefits and challenges of tree planting to hands-on activities and assessment strategies. Prepare your students to become environmental advocates and equip them with the knowledge and skills needed to make a positive impact on our planet.

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Tree Planting: Benefits and Challenges

The Benefits

- Ecosystem restoration and conservation
- Improved air quality through carbon dioxide absorption
- Prevention of soil erosion

The Challenges

- Choosing the right tree species for the environment
- Providing proper care and maintenance
- Managing potential conflicts with existing infrastructure

Active Learning Activities: Hands-on Experience with Planting Trees

1 Digging Day

Students roll up their sleeves and engage in the physical act of digging holes, planting saplings, and backfilling the soil. This hands-on experience allows them to appreciate the effort required for successful tree planting.

2 Nursery Visit

Students visit a local nursery to learn about tree propagation techniques and the importance of selecting healthy seedlings. They gain insights into the lifecycle of trees and witness the nurturing process before transplantation.

Materials Needed

Shovels and Spades

To ensure proper tree planting, students will require various sizes of shovels and spades to dig holes of different depths and widths.

Compost and Fertilizer

Provide nutrient-rich compost and suitable fertilizers to enhance the growth and vitality of the planted trees.

Watering Cans or Hoses

Students will need watering cans or hoses to provide sufficient moisture to the newly planted trees, promoting root development and survival.

Protective Gear

To ensure safety during the planting process, students should have accessories such as gloves, goggles, and knee pads to protect themselves.

Competences, Skills, and Learning Outcomes for Students

Competences	Skills	Learning Outcomes
Environmental Awareness	Identification of tree species	Understanding the importance of trees in ecosystem balance
Teamwork and Collaboration	Effective communication while planting trees in groups	Ability to work together towards a common goal
Critical Thinking	Problem-solving skills to overcome challenges in tree planting	Analyzing the causes and effects of soil pollution

Assessment Plan: Rubrics and Evaluation Metrics

Reflection Journal

Students maintain a journal documenting their understanding of soil pollution causes and effects, tree planting experiences, and personal reflections.

1

Performance Rubric

Evaluate students' tree planting techniques, including proper hole preparation, seedling handling, and post-planting care.

2

3

Group Presentation

Assign student groups to prepare to share their tree planting journey and discuss the benefits and challenges they encountered.

Implementation of the Lesson Plan in the Class using 5E model of learning

The lesson plan follows the 5E model, consisting of engagement, exploration, explanation, elaboration, and evaluation stages. By incorporating hands-on activities, discussions, and assessments, students actively participate in the learning process, fostering a deeper understanding and appreciation for environmental issues.

More Activities for Students

Nature Trail Exploration

Take students on a nature trail to observe the diverse ecosystem and discuss the role of trees in maintaining ecological balance.

Poster Making Competition

Organize a poster-making competition where students illustrate the benefits of trees and the consequences of soil pollution, promoting creativity and visual representation skills.

Assessment

1 Written Test

Conduct a written test to assess students' knowledge of tree planting, soil pollution, and related concepts.

2 Tree Growth Monitoring

Assign students the responsibility of monitoring the growth of the planted trees and documenting their observations over a specified period.

Outcomes

1 Environmental Stewardship

Students develop a sense of responsibility towards the environment and become active advocates for sustainable practices.

2 Knowledge and Skills

Through the lesson plan, students gain knowledge about the benefits of tree planting and the causes and effects of soil pollution. They also acquire practical skills in planting and caring for trees.

Conclusion and Future Actions

Conclude the lesson plan by summarizing the key points covered and highlighting the importance of continued efforts in tree planting and soil pollution prevention. Encourage students to apply their newfound knowledge in their daily lives and explore further initiatives to protect the environment.