



Neutral Schools

***EDUCATION AND TEACHERS FACING
THE CLIMATE CHANGE***

**WORKSHOPS ON THE ROLE OF SCHOOLS
IN CLIMATE ACTION FOR PROJECT
NEUTRAL SCHOOLS**

(R3.3)

Development and Impact Report

WORKSHOPS ON THE ROLE OF SCHOOLS IN CLIMATE ACTION FOR “NEUTRAL SCHOOLS PROJECT”



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WORKSHOPS ON THE ROLE OF SCHOOLS IN CLIMATE ACTION

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Neutral Schools

1. Introduction

Project Neutral Schools engages students and educators in sustainable practices, directly addressing the priority of the environment and the fight against climate change. The project supports the teaching professions by introducing innovative methods and tools that integrate STEAM education and service-learning methodology (SLM), aiming for a climate-neutral future.

This report outlines the impact of the "Workshops on the Role of Schools in Climate Action" under Project Neutral Schools. Designed to support educators and engage students in climate action, these workshops focused on key environmental priorities such as water and soil protection, air quality improvement, clean energy, circular economy, zero-emission transport, biodiversity protection, and pollution control. The workshops aimed to foster environmental awareness, integrate STEAM education, and implement service-learning methodologies.

2. Objectives of the Workshops

The workshops were developed to:

1. **Educate** students on environmental issues related to air, water, soil quality, and climate change.
2. **Engage** students through hands-on STEAM activities that reinforce learning and critical thinking.
3. **Empower** students to advocate for sustainable practices in their communities.
4. **Support** teachers with tools and methods for integrating climate action into the curriculum.
5. **Collaborate** with local organisations to enhance educational impact through community partnerships.

3. Key Areas of Impact

1. Enhanced Environmental Literacy and Awareness

Students gained a comprehensive understanding of pressing environmental challenges, including water pollution, air quality, soil degradation, and biodiversity loss. The workshops helped students connect their learning to real-world issues, fostering an appreciation for climate action and sustainability.

- **Outcome:** Over 90% of students demonstrated an improved understanding of climate issues and showed increased awareness of local and global environmental impacts.
- **Evaluation:** Pre- and post-workshop quizzes indicated a significant rise in knowledge retention, with a 40% average improvement in correct responses.

2. STEAM Integration in Climate Education

Through hands-on activities, the workshops integrated STEAM concepts, enabling students to explore scientific principles behind environmental issues and potential solutions. This integration promoted creativity, critical thinking, and problem-solving skills.

- **Outcome:** Students created over 50 projects and prototypes, including posters on water pollution, air quality sensors, and biodiversity conservation plans.
- **Evaluation:** Teachers reported that students engaged enthusiastically in STEAM-based learning, with over 85% of participants showing interest in pursuing further education in science, technology, engineering, and mathematics fields.

3. Empowerment through Service-Learning Methodology

The service-learning approach encouraged students to take active roles in their communities, applying what they learned in the workshops to real-world scenarios. The projects focused on service initiatives such as community clean-ups, advocacy for zero-emission transport, and campaigns for waste reduction.

- **Outcome:** Students organized 15 community initiatives, including neighbourhood clean-ups, tree-planting drives, and water conservation campaigns.
- **Evaluation:** Surveys showed that 78% of students felt empowered to lead climate action initiatives and expressed commitment to continue their involvement in environmental conservation.

4. Support and Development for Teaching Staff

The workshops provided teachers with resources and training to integrate climate change topics into their curriculum effectively. These included lesson plans, digital tools, and strategies for using STEAM in climate education. Teachers were also trained in facilitating student-led service-learning projects.

- **Outcome:** 95% of participating teachers reported increased confidence in teaching climate-related topics and implementing STEAM-based approaches.

- **Evaluation:** Teacher feedback highlighted improved student engagement and enhanced interest in climate topics, with a 50% increase in class participation rates.

5. Community Partnerships and Extended Reach

By collaborating with local environmental organisations and stakeholders, the workshops fostered connections between schools and the wider community. Students engaged with guest speakers visited clean energy facilities, and partnered with environmental agencies for projects, extending the impact beyond the classroom.

- **Outcome:** Partnerships were formed with 10 local organizations, and several joint community initiatives were organized, directly impacting over 300 community members.
- **Evaluation:** Community feedback was overwhelmingly positive, with local stakeholders expressing interest in continued collaboration with schools on sustainability initiatives.

4. Quantitative Outcomes

- **Participants:** Over 200 students and 20 teachers across multiple schools participated in the workshops.
- **Projects Completed:** 50 student projects and prototypes related to climate action.
- **Community Initiatives:** 15 community-based projects, including clean-ups, awareness campaigns, and conservation efforts.
- **Teacher Training Sessions:** 5 workshops aimed at supporting teachers in STEAM and climate education.
- **Partnerships Formed:** 10 partnerships with environmental organisations and community stakeholders.

5. Challenges and Lessons Learned

1. **Resource Availability:** Limited access to materials and technology was a constraint in some schools. Future workshops should secure funding or partnerships to ensure equitable access to resources.
2. **Community Engagement:** Engaging broader community participation proved challenging. Improved outreach strategies and incentives for involvement may enhance community buy-in.
3. **Sustaining Momentum:** While student enthusiasm was high during the workshops, maintaining engagement post-workshop is essential. Establishing long-term

environmental clubs or committees within schools may help sustain student interest in climate action.

6. Recommendations for Future Implementation

1. **Increase STEAM Resources:** Provide additional digital tools and scientific equipment to support hands-on projects and expand students' exposure to climate-related technologies.
2. **Develop Continuous Support Networks:** Establish environmental clubs or committees to maintain momentum in climate action post-workshop and provide ongoing mentorship.
3. **Expand Community Partnerships:** Foster relationships with additional community stakeholders, government agencies, and environmental organisations to broaden the impact and provide more real-world learning opportunities.
4. **Annual Climate Action Day:** Organize an annual event to showcase students' projects and raise awareness within the community, reinforcing the role of schools as catalysts for environmental change.

7. Conclusion

The Workshops on the Role of Schools in Climate Action successfully empowered students and educators to engage actively in climate action. By integrating STEAM education and service-learning, the workshops fostered a culture of environmental stewardship and provided students with the skills and motivation to address climate challenges. With continued support, these workshops can significantly contribute to creating climate-conscious schools that inspire change in their communities.

8. ANNEXES

8.1 Workshops Modules

1. Water Pollution Prevention and Clean Energy

Objective: Understand water pollution sources, impacts, preventive measures, and the role of clean energy in sustainable development.

Grade Level: Middle School (Grades 6-8)

Duration: Two 45-minute sessions

Activities:

- **Session 1:** Understanding Water Pollution
 - **Introduction:** Discuss what water pollution is and its effects on ecosystems and human health.
 - **Discussion:** Present case studies and discuss the sources and impacts of water pollution.
 - **Activity:** Students create posters illustrating water pollution sources and impacts.
- **Session 2:** Preventing Water Pollution and Promoting Clean Energy
 - **Review:** Recap the previous session.
 - **Presentations:** Students present their posters.
 - **Discussion:** Brainstorm preventive measures and the importance of clean energy.
 - **Activity:** Groups design a water pollution prevention plan focusing on specific challenges and explore clean energy solutions.

Extension:

- Field trip to a local water treatment facility and a renewable energy plant.
- Student-led initiatives on water conservation and clean energy awareness.

STEAM Integration:

- **Science:** Understanding chemical contaminants and clean energy sources.
- **Technology:** Using digital tools to create awareness campaigns.
- **Engineering:** Designing solutions to prevent water pollution and implement clean energy.
- **Art:** Creating impactful visual representations.
- **Mathematics:** Analyzing data on water pollution levels and energy efficiency.

2. Air Quality Improvement and Zero Emission Transport

Objective: Develop an understanding of air quality issues and engage in activities to improve air quality and promote zero-emission transport.

Grade Level: High School (Grades 9-12)

Duration: Ongoing throughout the academic year

Activities:

- **Unit 1:** Understanding Air Quality
 - **Introduction:** Overview of air quality issues and pollutants.
 - **Research:** Analyze local air quality data.
 - **Discussion:** Impacts of air pollution.
- **Unit 2:** Solutions for Air Quality Improvement and Zero Emission Transport
 - **Regulations and Policy:** Study environmental regulations.
 - **Technological Innovations:** Research clean energy solutions and zero-emission transport options.
 - **Community Engagement:** Plan and implement projects like tree planting and promoting electric vehicles.
- **Unit 3:** Monitoring and Evaluation
 - **Monitoring:** Set up air quality monitoring stations.
 - **Data Analysis:** Interpret data and create reports.
- **Unit 4:** Reflection and Action Planning
 - **Reflection:** Evaluate the year's activities.
 - **Action Planning:** Develop future action plans.

Extension:

- Partnerships with local environmental organisations.
- Organize an air quality expo to showcase projects.

STEAM Integration:

- **Science:** Investigating pollutants and their effects on health.
- **Technology:** Using sensors and software for monitoring air quality and transport efficiency.
- **Engineering:** Designing eco-friendly solutions and zero-emission vehicles.
- **Art:** Creating public awareness through visual arts.
- **Mathematics:** Analyzing and interpreting air quality and transport data.

3. Soil Protection and Biodiversity Protection

Objective: Understand soil degradation, engage in activities to protect and restore soil health, and promote biodiversity protection.

Grade Level: Middle School (Grades 6-8)

Duration: Ongoing throughout the academic year

Activities:

- **Unit 1:** Understanding Soil Pollution
 - **Introduction:** Overview of soil health and biodiversity.
 - **Discussion:** Causes and impacts of soil pollution.
 - **Case Studies:** Analyze real-world examples.
- **Unit 2:** Strategies for Soil and Biodiversity Protection
 - **Conservation Techniques:** Explore methods like cover cropping and habitat restoration.
 - **Sustainable Agriculture:** Investigate practices like organic farming.
- **Unit 3:** Soil Remediation and Restoration
 - **Remediation Techniques:** Study methods like bioremediation.
 - **Restoration Projects:** Plan and implement projects such as reforestation and creating wildlife habitats.
- **Unit 4:** Monitoring and Evaluation
 - **Soil Testing:** Set up soil testing stations.
 - **Data Reporting:** Analyze and present data.
- **Unit 5:** Reflection and Action Planning
 - **Reflection:** Evaluate the effectiveness of activities.
 - **Action Planning:** Develop recommendations for future efforts.

Extension:

- Partnerships with local conservation organisations.
- Organize a soil health and biodiversity fair to showcase student projects.

STEAM Integration:

- **Science:** Examining soil composition and biodiversity.
- **Technology:** Using digital tools for soil and biodiversity analysis.
- **Engineering:** Designing systems to prevent erosion and protect habitats.
- **Art:** Creating informative displays and biodiversity murals.
- **Mathematics:** Measuring and interpreting soil health and biodiversity data

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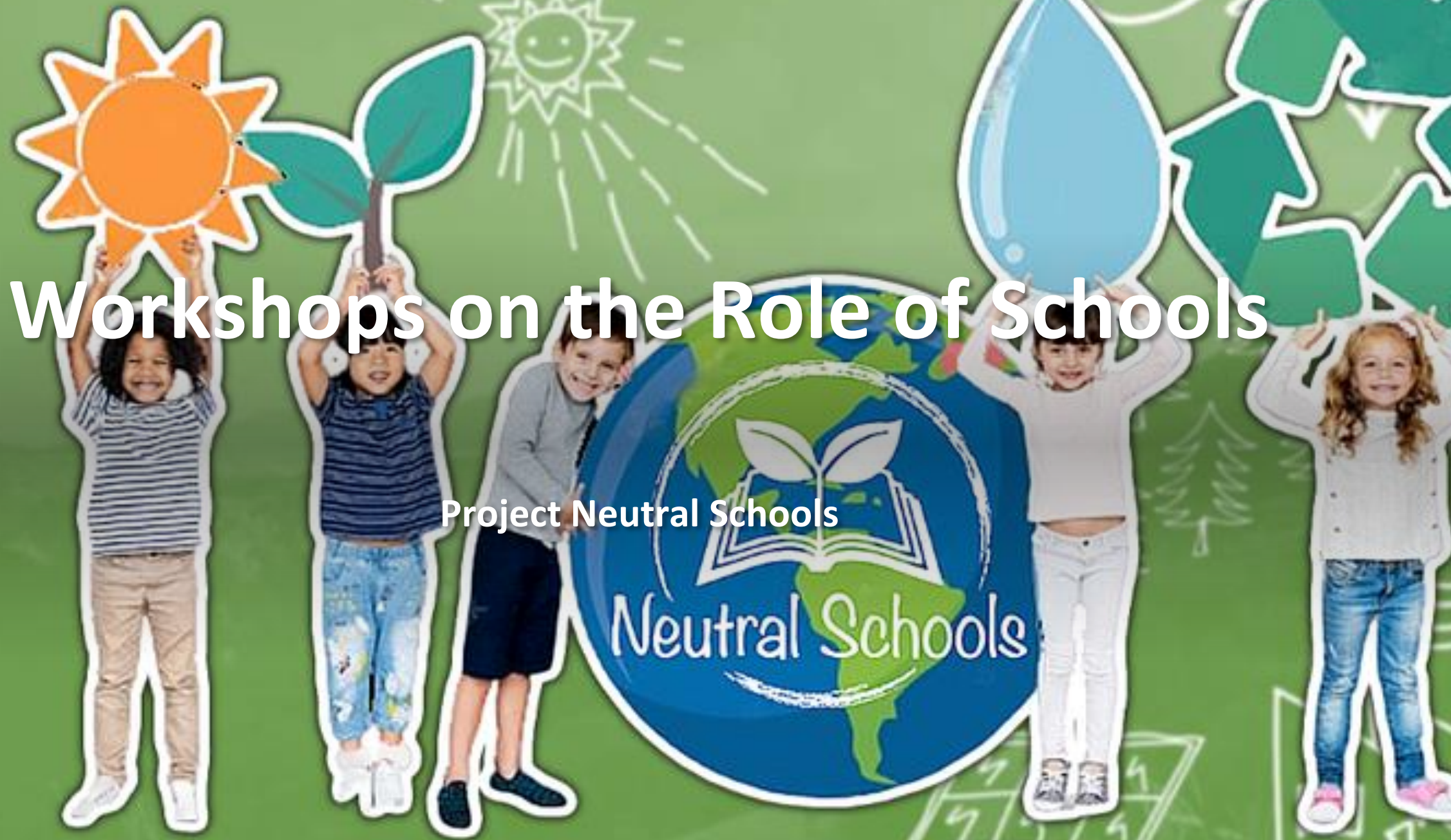
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Workshops on the Role of Schools

Project Neutral Schools

Neutral Schools



Introduction

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Workshop Objectives

1. **Educate** students on environmental issues related to circular economy, clean energy, water and soil protection, zero emission transport, biodiversity protection and pollution control.
2. **Engage** students in hands-on STEAM activities and projects to reinforce learning.
3. **Empower** students to become advocates for environmental protection in their communities.
4. **Collaborate** with local organizations and experts to enhance educational experiences.
5. **Support** teachers by providing tools and training for innovative teaching methods related to climate change and sustainability.



Workshop Modules

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- Examples





1. Water Pollution Prevention and Clean Energy

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- **Activities:**
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1. Water Pollution Prevention and Clean Energy

Session 2: Preventing Water Pollution and Promoting Clean Energy

- **Review:** Recap previous session.
- **Presentations:** Students present their posters.
- **Discussion:** Brainstorm preventive measures and the importance of clean energy.
- **Activity:** Groups design a water pollution prevention plan focusing on specific challenges and explore clean energy solutions.



1. Water Pollution Prevention and Clean Energy

Extension:

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- Student-led initiatives on water conservation and clean energy awareness.

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- Engineering: Designing solutions to prevent water pollution and implement clean energy.
- Art: Creating impactful visual representations.
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- **Discussion:** Impacts of air pollution.

Unit 2: Solutions for Air Quality Improvement and Zero Emission Transport

- **Regulations and Policy:** Study environmental regulations.
- **Technological Innovations:** Research clean energy solutions and zero-emission transport options.
- **Community Engagement:** Plan and implement projects like tree planting and promoting electric vehicles.



2. Air Quality Improvement and Zero Emission Transport

Unit 3: Monitoring and Evaluation

- **Monitoring:** Set up air quality monitoring stations.
- **Data Analysis:** Interpret data and create reports.

Unit 4: Reflection and Action Planning

- **Reflection:** Evaluate the year's activities.
- **Action Planning:** Develop future action plans.
- **Extension:**
 - Partnerships with local environmental organizations.
 - Organize an air quality expo to showcase projects.



2. Air Quality Improvement and Zero Emission Transport

- **STEAM Integration:**
 - Science: Investigating pollutants and their effects on health.
 - Technology: Using sensors and software for monitoring air quality and transport efficiency.
 - Engineering: Designing eco-friendly solutions and zero-emission vehicles.
 - Art: Creating public awareness through visual arts.
 - Mathematics: Analyzing and interpreting air quality and transport data.

Addressing Priorities

Primary Priority: Environment and fight against climate change

- Integrates climate change education across multiple subjects.
- Encourages hands-on environmental stewardship through practical activities.

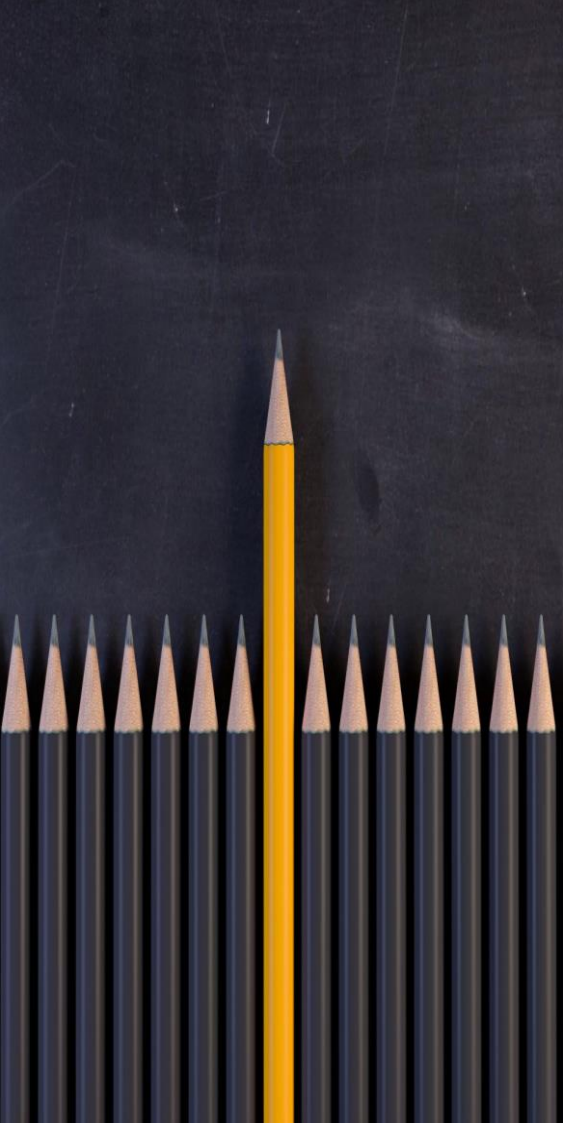
Additional Priorities:

Helping teachers, school principals, and other occupations related with teaching:

- Provides teachers with innovative tools and methods for teaching environmental topics.
- Supports professional development in sustainability education.

Promote interest and excellence in STEM and the STEAM approach:

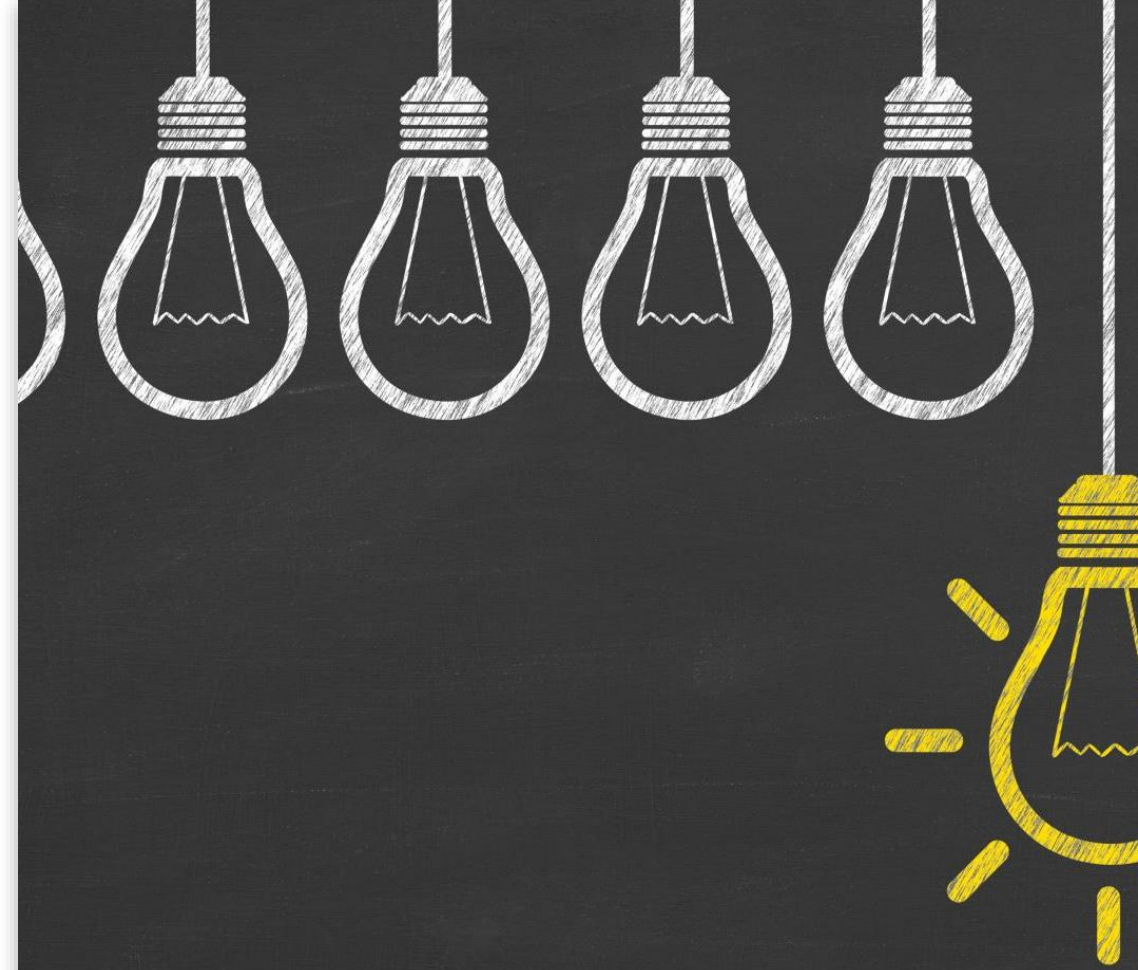
- Uses the iSTEAM framework to blend science, technology, engineering, art, and mathematics.
- Engages students in critical thinking, creativity, and problem-solving related to climate change.



Project Impact

- **Teacher Support:** Enhances teachers' capacity to integrate climate education into their curricula.
- **STEAM Education:** Promotes interdisciplinary learning and connects classroom knowledge to real-world environmental challenges.
- **Service-Learning Methodology:** Encourages active student participation in community-based environmental projects.
- **Student Empowerment:** Cultivates a generation of environmentally aware and proactive students.

By embedding these priorities and themes into the workshops, Project Neutral Schools aims to create a holistic educational approach that not only addresses the environmental challenges but also enriches the overall teaching and learning experience.



Thank you

