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| ACTIVITY PLAN | | | | |
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| **Theme** | **Subtopic** | **Activity Title** |
| Collaboration and Communication in EcoSTEAM Projects | Cross-disciplinary Collaboration for Sustainable Solutions | Interdisciplinary Teamwork for Eco-Innovation |

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| Introduction part (or activity overview) |
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| **Introduction part (or activity overview)** | This activity focuses on fostering cross-disciplinary collaboration among students from different educational backgrounds to address complex environmental challenges. Through collaborative exercises, students will integrate knowledge from various disciplines to design innovative, sustainable solutions. |
| **SETTING** | Location: Classroom and computer lab for research and presentations.  Educational Context: Teams comprising students with diverse academic specialties (science, technology, engineering, arts, mathematics). |

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| Materials Needed |
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| **Materials Needed** | Computers with internet access  Access to research databases and digital libraries  Projector and screen for video presentations and final pitches  Whiteboards and markers for brainstorming sessions  Materials for creating prototypes or models (optional) |

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| **Learning Outcomes** | * Develop an understanding of the value and methods of interdisciplinary approaches in solving environmental issues. * Enhance skills in integrating diverse knowledge bases to create cohesive and innovative solutions. * Improve communication and collaboration skills across different disciplines. |  |
| **Activity Contents** | **Theoretical Part (Duration: 50 minutes)**: Begin with an exploration of the concept of cross-disciplinary collaboration and its critical role in addressing the multifaceted nature of environmental problems.   * **Introduction to Interdisciplinary Approaches**:   + Discuss the necessity of combining insights from science, technology, engineering, arts, and mathematics (STEAM) to innovate and solve environmental challenges effectively.   + Explore case studies where interdisciplinary approaches have led to breakthroughs in environmental sustainability. * **Video Resources**:   + "The Power of Interdisciplinary Collaboration" [Watch Here](https://www.youtube.com/watch?v=exampleLink1) – An overview of successful interdisciplinary projects and their impact on sustainability.   + "Integrating Arts and Science for Environmental Innovation" [Watch Here](https://www.youtube.com/watch?v=exampleLink2) – Examples of how art and science collaborate to communicate and solve environmental issues.   **Task 1: Cross-disciplinary Team Challenge (Duration: 90 minutes)** **Objective**: To design a solution for a local environmental issue using an interdisciplinary approach.   * **Step 1**: Identify an environmental problem that affects the local community, such as waste management, water pollution, or energy conservation. * **Step 2**: Formulate teams ensuring a mix of students from different academic backgrounds. * **Step 3**: Each team brainstorms potential solutions, drawing on their diverse fields of study. * **Step 4**: Develop a preliminary project outline that incorporates scientific research, technological tools, engineering practices, artistic interpretations, and mathematical models. * **Step 5**: Teams create a visual representation of their solution, either through sketches, digital models, or small prototypes.   **Task 2: Interdisciplinary Solution Pitch (Duration: 60 minutes)** **Objective**: To present the proposed solution to a panel of judges simulating a group of stakeholders.   * **Step 1**: Refine the project outline into a comprehensive plan that details the execution, expected outcomes, and sustainability of the solution. * **Step 2**: Prepare a pitch presentation that effectively communicates the interdisciplinary nature of the solution and its benefits. * **Step 3**: Conduct a Q&A session where teams defend their solutions and respond to hypothetical challenges posed by the judges.   **Task 3: Reflective Discussion and Feedback (Duration: 30 minutes)** **Objective**: To analyze the effectiveness of interdisciplinary collaboration and gather feedback.   * **Step 1**: Groups discuss what they learned about the value and challenges of integrating different disciplines. * **Step 2**: Facilitate a feedback session where participants critique each other’s approaches and suggest improvements. * **Step 3**: Conclude with a discussion on how these interdisciplinary strategies can be applied to future environmental challenges. |  |
| **Assessments** | Innovation and creativity in solution development.  Depth of integration of cross-disciplinary elements.  Clarity and persuasiveness of the pitch.  Team dynamics and collaborative effectiveness. |  |
| **Key Competences** | Interdisciplinary knowledge application  Strategic thinking and problem-solving  Effective communication and presentation skills  Adaptability and teamwork |  |
| **Connections with Eco STEAM** | Eco: Understanding the ecological impacts of building practices.  Science: Application of scientific principles in energy efficiency and sustainable materials.  Technology: Utilizing digital tools for research and presentation.  Engineering: Analyzing the engineering challenges and solutions in green building.  Arts: Creatively presenting information and arguments.  Math: Using data to analyze the effectiveness of building codes. |  |
| **References** | https://www.sustainabledevelopment.org/ |  |
| **Notes** | This activity could be part of a larger project or competition, encouraging ongoing development and implementation of the proposed solutions in the real world. |  |

**Evaluation Criteria Table for Interdisciplinary Teamwork for Eco-Innovation Activity**

| **Evaluation Criteria** | **Points Available** | **Comments** |
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| **1. Innovation and Creativity in Solution Development** | 15 | Assess the originality and creativity of the proposed solution to the environmental issue. |
| **2. Integration of Cross-disciplinary Elements** | 15 | Evaluate how well the project incorporates knowledge and methods from different STEAM disciplines. |
| **3. Scientific and Technical Accuracy** | 10 | Rate the accuracy of scientific and technical content in the solution. |
| **4. Feasibility and Practicality of the Solution** | 10 | Judge the practicality and feasibility of implementing the proposed solution in the real world. |
| **5. Quality and Completeness of Action Plan** | 10 | Evaluate the thoroughness and clarity of the action plan, including goals, timelines, and resource allocation. |
| **6. Communication and Presentation Skills** | 15 | Rate the effectiveness of the team's communication and presentation, including clarity, persuasiveness, and use of visual aids. |
| **7. Team Collaboration and Dynamics** | 10 | Assess the level of teamwork, including communication, cooperation, and mutual support among team members. |
| **8. Conflict Resolution and Problem-Solving** | 10 | Evaluate the team's ability to resolve conflicts and solve problems during the project development process. |
| **9. Reflection and Feedback Engagement** | 5 | Rate the students' engagement in reflecting on their performance and providing constructive feedback. |
| **10. Application of Feedback** | 10 | Assess how well the team incorporates feedback into improving their project and presentation. |

**Total Points:** 100