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| ACTIVITY PLAN | | | | |
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| **Theme** | **Subtopic** | **Activity Title** |
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| Environmental Awareness and Conservation | Biological Studies and Environmental Impact | Investigating Local Biodiversity |

| Introduction part (or activity overview) |
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| **Introduction part (or activity overview)** | This activity aims to engage students in exploring and understanding local biodiversity. Through fieldwork, students will document various species, analyze the ecosystem's health, and present their findings creatively |
| **SETTING** | Location: Local park or natural area for fieldwork, classroom for analysis and presentation.  Educational Context: Collaborative group work (4-5 students per group). |

| Materials Needed |
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| **Materials Needed** | Field notebooks and pens  Cameras or smartphones for taking pictures  Identification guides or apps for local flora and fauna  GPS devices or mapping apps  Computers with internet access for research  Presentation software (e.g., PowerPoint) |

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| **Learning Outcomes** | * Develop skills in fieldwork and species identification. * Understand the importance of biodiversity and ecosystem health. * Enhance abilities in data collection, analysis, and presentation. |  |
| **Activity Contents** | **Theoretical Part (Duration: 60 minutes)**: Begin with an introduction to the importance of biodiversity and the role of ecosystems.   * **Introduction to Biodiversity**:   + Explain what biodiversity is and why it is crucial for ecosystem health and stability. Discuss the different levels of biodiversity: genetic, species, and ecosystem diversity.   + Highlight the major threats to biodiversity, including habitat loss, pollution, climate change, and invasive species. * **Methods for Investigating Biodiversity**:   + Teach students various techniques for conducting fieldwork, such as transects, quadrats, and direct observation.   + Provide an overview of using identification guides and apps to recognize local flora and fauna.   + Discuss methods for recording data accurately in field notebooks and using digital tools. * **Case Studies**:   + **Case Study 1: Urban Biodiversity**: Present a case study on biodiversity research conducted in an urban park. Discuss the findings and their implications for urban planning and conservation.   + **Case Study 2: Forest Ecosystems**: Share a case study on biodiversity in a forest ecosystem. Highlight the importance of different species and their interactions.   **Discussion Prompts**:   * Why is biodiversity important for ecosystem health? * What are the key challenges in studying local biodiversity? * How can individuals contribute to biodiversity conservation?   **Activity 1**  **Task 1: Fieldwork and Data Collection (Duration: 90 minutes)** **Objective**: To conduct fieldwork and collect data on local biodiversity.   * **Step 1**: Form groups and assign each group a specific area within the local park or natural area to study. * **Step 2**: Use field notebooks, cameras, and identification guides to document the species found in the assigned area. Record observations about the ecosystem's health, such as the presence of pollutants or signs of habitat destruction. * **Step 3**: Collect data on species diversity, abundance, and any notable interactions between species.   **Task 2: Data Analysis and Interpretation (Duration: 60 minutes)** **Objective**: To analyze the collected data and interpret the findings.   * **Step 1**: Compile the data collected during fieldwork and use spreadsheets or data analysis software to organize and analyze it. * **Step 2**: Interpret the data to draw conclusions about the health of the local ecosystem and the diversity of species present. Consider factors such as species richness, evenness, and any observed threats to biodiversity. * **Step 3**: Develop recommendations for improving or conserving the local biodiversity based on the analysis.   **Task 3: Presentation and Feedback (Duration: 45 minutes)** **Objective**: To present the findings and recommendations to the class and receive feedback.   * **Step 1**: Each group creates a presentation summarizing their fieldwork, data analysis, and recommendations. Use digital tools to create engaging and informative presentations. * **Step 2**: Present the findings to the class and conduct a Q&A session where other students and the instructor can provide feedback and ask questions. * **Step 3**: Reflect on the feedback received and discuss potential improvements. |  |
| **Assessments** | Accuracy and thoroughness in data collection and fieldwork.  Depth of analysis and interpretation of biodiversity data.  Quality and feasibility of recommendations based on the analysis.  Clarity and creativity of the presentation.  Team collaboration and dynamics. |  |
| **Key Competences** | Research and fieldwork skills  Data collection and analysis  Critical thinking and problem-solving  Effective communication and presentation skills  Teamwork and collaboration |  |
| **Connections with Eco STEAM** | Eco: Understanding and addressing local biodiversity and ecosystem health.  Science: Applying scientific methods for fieldwork and species identification.  Technology: Utilizing digital tools for data collection and analysis.  Engineering: Developing recommendations based on the analysis of ecosystem health.  Arts: Creating engaging presentations and visual representations of data.  Math: Using statistical methods and data analysis to support research findings. |  |
| **References** | - |  |
| **Notes** | This activity can be extended into a longer-term project, where students continuously monitor local biodiversity and engage in conservation efforts. |  |

**Evaluation Criteria Table for Investigating Local Biodiversity Activity**

| **Evaluation Criteria** | **Points Available** | **Comments** |
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| **1. Accuracy and Thoroughness in Data Collection and Fieldwork** | 20 | Assess the precision and comprehensiveness of the data collected during fieldwork. |
| **2. Depth of Analysis and Interpretation of Biodiversity Data** | 20 | Evaluate the depth and rigor of the analysis and interpretation of biodiversity data. |
| **3. Quality and Feasibility of Recommendations** | 20 | Rate the reliability and practicality of the recommendations based on the analysis. |
| **4. Clarity and Creativity of the Presentation** | 20 | Rate the clarity, creativity, and professionalism of the presentation. |
| **5. Team Collaboration and Dynamics** | 20 | Assess the level of teamwork, including communication, cooperation, and mutual support among team members. |

**Total Points:** 100