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| ACTIVITY PLAN | | | | |
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| **Theme** | **Subtopic** | **Activity Title** |
| Creative and Critical Thinking in EcoSTEAM Education | Problem-solving in Environmental Contexts | Planning an Organic Farming. |

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| Introduction part (or activity overview) |
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| **Introduction part (or activity overview)** | Students, having familiarized themselves with the benefits and principles of organic farming, will plan an organic farm for the selected agricultural sector, which could operate independently, guided by these principles. |
| **SETTING** | Classroom |

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| Materials Needed |
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| **Materials Needed** | Computers, phones, interactive whiteboard, student activity sheet, colored paper, white sheet of paper, glue, and scissors. |

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| **Learning Outcomes** | * Improve digital skills in searching for information in various sources and presenting it. * Deepen knowledge about organic farming and be able to explain it’s conserving effect on the environment with reasoned arguments. * Improve group work skills and the ability to make collective decisions. |  |
| **Activity Contents** | **Activity 1: Organic Farming**  **Theoretical part (Duration: 15 minutes):** Introductory conversation. The teacher explains the relevance of the topic, emphasizing that with increasing environmental pollution and the growing number of people's illnesses, there has been a move away from food grown with chemicals. Organic farming is spreading very rapidly in the European Union, and the popularity and demand for organic food are increasing. The discussion covers the negative impact of traditional farming on the environment, highlighting the most important principle of traditional agriculture – to increase yield per unit area. It contributes to climate change, increases soil and water pollution, negatively affects biodiversity and landscapes. An alternative – organic farming – is discussed. The advantages of organic farming are emphasized: prioritizing natural soil fertility by returning all organic waste to the soil and protecting it from erosion as much as possible; weed and pest control through mechanical means, crop rotation, and biological control measures; preservation of biological diversity and the natural landscape; production of organic food. The discussion also addresses the problems faced by owners of organic farms: higher labor and machinery costs, lower yields, high production expenses, and poorer commercial appearance of products.  **Material for Teacher**  Principles of Organic Farming:   * Minimal soil tillage (use of light machinery, infrequent use, no-till conservation agriculture). * Increasing soil fertility without using synthetic mineral fertilizers (natural mineral fertilizers, organic waste, sowing legumes, and mulching). * Reduction of soil erosion (proper plowing, avoiding leaving soil bare, planting protective strips of trees and shrubs). * Weed and pest elimination using natural organic materials and methods (soil aeration, crop rotation, use of living organisms or their extracts, activating natural enemies of pests). * Ensuring the safety of food products (chemical and biological safety). * Energy conservation (reducing energy consumption, incorporating sustainable energy sources: solar, hydro energy).   **Task (Duration: 45 minutes):** Work individually. Using digital sources, describe the principles of organic farming. Fill in the individual activity sheet (Appendix 1).  **Activity 2: Planning of an Organic Farm**  **Theoretical Part (Duration: 15 minutes):** The activity begins with an introduction to the goals of agriculture and its branches. It is concluded that agriculture is the most important sector of the economy aimed at providing food for people, feed for livestock, and raw materials for the food, textile, perfume, and pharmaceutical industries.  The teacher outlines its branches (crop farming, horticulture, gardening, forestry, grass farming, fodder production, floriculture, seed growing, flax cultivation, and viticulture).  It is emphasized that when creating an organic farm, it is important to choose a direction of specialization and plan it considering the specifics of the agricultural branch.  The structural elements of an organic farm are indicated:   * Farm buildings (for machinery, product storage, and processing) * Water bodies * Cultivated crop areas * Power plants * Composting facilities * Green spaces   **Task (Duration: 60 minutes): Choose an agricultural branch.**  Based on the knowledge acquired, create a sketch of an organic farming enterprise in the chosen branch that could survive independently, using colored paper cards, the Paint digital program, or an interactive board, and present it to the class. |  |
| **Assessments** | Points are given separately for individual activity and group work.  Individual activity is evaluated based on the comprehensiveness, reliability, and diversity of information sources (10 points).  Group work (10 points) is assessed considering:   * The choice and layout of farm objects, * The presentation of the work.   After the presentation, a reflection is conducted (Appendix 2). |  |
| **Key Competences** | * Cognitive competence * Creativity competence * Communication competence * Social, emotional and healthy living competences * Digital competence |  |
| **Connections with Eco STEAM** | Eco – ecological knowledge on ways to reduce the negative impact of agriculture on the environment.  Science - link knowledge of chemistry, physics, and biology.  Technology - use digital technologies cleverly and creatively.  Engineering - design of an ecological farm.  Art - develop skills in the art of visualization. |  |
| **References** | * <https://www.dotnuvabaltic.lt/booklets/zTjoC5wBrtKaFhEZoJVUeFL3fCUZlTGr201104_BIO_1x1_LT_Mail.pdf> * <https://www.europarl.europa.eu/news/lt/headlines/society/20180404STO00909/ekologinis-ukininkavimas-es-faktai-ir-skaiciai> |  |
| **Notes** | Based on the created layouts of ecological farms in coastal or forest areas, it is possible to construct miniature ecological farms using natural materials.  It is also possible to create layouts using a 3D printer. |  |
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| APPENDIX 1. STUDENT'S INDIVIDUAL ACTIVITY SHEET |
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| Principles of Organic Farming | Implementation Methods |
| Minimal Soil Tillage |  |
| Increasing soil fertility without using synthetic mineral fertilizers |  |
| Reducing soil erosion |  |
| Eliminating weeds and pests using natural organic materials and methods |  |
| Ensuring the safety of food products |  |
| Saving energy |  |

Information sources:

Assessment (10 points) ..................................................................................................................................................................................

Teacher’s comment.................................................................................................................................................................................

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# APPENDIX 2. SELF-ASSESSMENT

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| Self-assessment criteria | Points |
| I am skilled at using digital technologies for information search. | \_\_/5 |
| I am skilled at using digital technologies to present information. | \_\_/5 |
| I am skilled at working in a group (discussing, listening to different opinions). | \_\_/5 |
| I am skilled at generating ideas, proposing solutions. | \_\_/5 |