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| ACTIVITY PLAN | | | | |
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| **Theme** | **Subtopic** | **Activity Title** |
| Environmental Awareness and Conservation | Climate Change and Renewable Energy | Solar Power Plant for My Family |

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| Introduction part (or activity overview) |
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| **Introduction part (or activity overview)** | This activity is designed to engineer a solar energy system tailored specifically to the energy needs of the students' families. By examining the structure of solar power plants, installation steps, and financial expenses, they will gain valuable knowledge about renewable energy and contribute to a more sustainable future for their households. |
| **SETTING** | Classroom |

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| MEDŽIAGOS Materials Needed |
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| **Materials Needed** | Digital devices (tablets/laptops)  Projector/interactive whiteboard |

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| **Learning Outcomes** | * Increase understanding of solar energy and its application in residential environments. * Acquire practical skills in designing a solar power plant. * Analyze energy consumption patterns, assess property suitability, and make informed decisions about system design, budgeting, and component selection, thereby strengthening their critical thinking and decision-making skills. |  |
| **Activity Contents** | **Activity** **1: Solar Power Plant for My Family**  **Theoretical Part** (Duration: Approx 25 minutes). This activity will start with an interesting and detailed examination of how solar cells work, the principles they are based on, and their advantages and disadvantages. It's important to consider what factors can influence the efficiency of solar energy.  **Videos:** How do solar panels work? <https://www.youtube.com/watch?v=xKxrkht7CpY>  Overview: This video simply explains the operation of a solar cell, the advantages, and disadvantages of solar energy.  Duration: 5 minutes  How do solar panels work for your home? <https://www.youtube.com/watch?v=ZzCjZb8mFwM>  Overview: This video explains how to install a solar power system at home.  Duration: 1.18 minutes    **Task (Duration: 180 minutes):** Students, working individually, design a solar power plant for their family.  **Step 1.** Using the information found at these links, they fill out an information collection sheet (see attachment). (Duration: Approx 45 minutes)  <https://energijaman.lt/naujienos/saules-elektrines-irengimas/>  <https://energijaman.lt/naujienos/parama-saules-elektrinems-lietuvoje/>  <https://energijaman.lt/naujienos/saules-moduliai/>  <https://www.elektrum.lt/lt/namams/naujienos/naujienos/saules-elektrines-atsiperkamumas-ka-butina-apie-tai-zinoti>  https://energijaman.lt/naujienos/saules-elektrine-koki-gaminancio-vartotojo-atsiskaitymo-buda-pasirinkti/  **Step 2**. Using the information collection sheet, they prepare a presentation (slides) (Duration: Approx 45 minutes)  **Step 3.** They present their project to the class. (Duration: Approx 90 minutes) |  |
| **Assessments** | Presentation Evaluation Table (see appendix) |  |
| **Key Competences** | * Cognitive competence * Creativity competence * Communication competence * Digital competence * Cultural competence |  |
| **Connections with Eco STEAM** | Eco - solar energy as a sustainable alternative to traditional energy sources  Science – physics, geography.  Technology - Conversion of solar rays into electrical energy  Engineering – to create and install a solar energy system  Art – solar power plant design and creative project presentation  Math - calculate energy needs, installation costs, and assess the economic efficiency and return of the project. |  |
| **References** | <https://www.youtube.com/watch?v=L_q6LRgKpTw> How do Solar cells work? |  |
| **Notes** | * The links provided in the task may not meet the requirements of another country for building a solar power plant. * If there is a lack of time, it is possible to skip the presentations and only evaluate the information collection sheet. |  |
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| Appendix |
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# INFORMATION COLLECTION SHEET

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| Task | Answer |
| Find out how much electricity the family uses per year and calculate how much it costs. |  |
| Calculate the required power of the power plant. |  |
| Determine where your family can build a solar power plant. |  |
| Find out what kind of support can be obtained from the state for building a solar power plant. |  |
| Identify the main components needed for the solar power plant. |  |
| Calculate the installation cost of the Solar Power Plant. |  |
| Learn how to connect the solar power plant to the electricity grid, or whether to use a battery. |  |
| Calculate how long it will take for the Solar Power Plant to pay for itself. |  |

# PRESENTATION EVALUATION TABLE

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| Evaluation criteria | Points | Comments |
| Completeness of information | \_\_/4 |  |
| Correctness of information | \_\_/2 |  |
| Quality of Presentation | \_\_/2 |  |
| Slide quality | \_\_/2 |  |