**Solar One Environmental Justice SYEP Curriculum**

SAMPLE Outline for DYCD PBL Application

This outline is designed to support SYEP providers using Solar One’s Project Based Learning curriculum for the virtual SYEP Summer program. These descriptions can be used for the DYCD PBL application. Please feel free to modify this to meet the needs of your organization. ***Please note: this is a SAMPLE and should be modified to meet your needs. All projects can be modified for different hourly requirements.

Please email*** ***education@solar1.org*** ***to work with our educators to set up a custom detailed schedule for the SYEP Summer Bridge Program.***

**Project Based Theme Sector:** STEAM
**Industry Purpose**: Industrial (or STEM if that is an option)

**Does this site relate to civic engagement**? YES

**Please list any community or industry partners you intend to work with:**
Solar One

**Project Description:**

During the remote Environmental Justice Summer Bridge program, youth will learn about local environmental issues and practice engineering and critical thinking skills to design solutions. The project-based curriculum includes independent projects that students complete in their own time. Many of the projects reflect real-world work in the environmental field. For example- for one project, youth assess a building for solar potential and design a mock solar system. In addition to projects, youth will have the opportunity to participate in weekly green career webinars with local professionals. The curriculum covers 6 topics- Environmental Justice, Energy Conservation, Renewable Energy, Sustainable Food & Water Systems, Climate Resiliency and Action, and Service Learning. The curriculum is designed with the intention of creating a culturally responsive program that centers Black, Indigenous, and People of Color voices in environmentalism. The program will culminate with a final service learning civic engagement project centered around showcasing youth work for the summer.

**WEEK 1
Learning Goals and Industry Context:**
The theme for Week 1 of the program is Environmental Justice. Youth will be introduced to environmental justice and complete projects that challenge them to critically think about the intersectionality between the environment and racial justice, and the Covid-19 crisis in New York City. Youth will learn about local environmental justice organizations, advocacy organizations, and careers in environmental justice.

**Plan for Implementation (Include the exact sequence of Activities):**Week 1 Theme: ENVIRONMENTAL JUSTICE. Day One: During day one, facilitators will work with youth to set expectations for the program, participate in icebreakers, and provide an introduction to technology for the program and the outline for the program. For their first project, you will explore an I Introduction to Environmental Justice through Alliance for Climate Education videos and complete Q&A Responses. Day Two: Youth will participate in a group discussion about the environmental justice videos. There will be a follow up discussion and project on environmental movements in history. Day Three: Youth will explore environmental impacts, environmental inequality, and local organizations working on environmental justice and advocacy in New York City. Youth will learn about types of nonprofit organizations and careers.. Projects will focus on researching local environmental justice organizations and related career pathways. Day Four: Youth will explore how organizations and companies are adapting their work due to Covid-19 crisis. Project work will have youth explore the relationship between Covid-19, environmental inequality and communities of color. Youth will attend a career webinar looking at climate change impacts in NYC and how schools and city agencies are working together to address the climate crisis.

**Final Outcomes or Products:**
Youth will gain the knowledge and understanding of what environmental justice is, issues that impact NYC, what local environmental justice and advocacy organizations are working on to address these issues, and career pathways in the nonprofit and community-based sector.

**WEEK TWO**

**Learning Goals and Industry Context:**The theme for Week Two of the program is ENERGY EFFICIENCY. Youth will learn about how conventional electricity is produced, and then complete an energy audit to gain a better understanding of their personal energy consumption and the benefits of reducing their carbon footprint. Youth will also explore careers in energy efficiency in NYC. The Service Learning project will also be introduced.

**Plan for Implementation (Include the exact sequence of Activities):**Week Two Theme: ENERGY EFFICIENCY. Day One: Youth will learn about how conventional electricity is produced in a power plant Youth will also play the powerplant hook up game. Day Two: Youth will review the Con Ed carbon footprint project and the powerplant game. Youth will learn about measuring energy with Volts, Amps, and Watts. They will play a watt matching game to understand how different appliances use electricity. Youth will complete a project to conduct a load analysis and complete their own energy audit. This project is designed to reflect what an energy auditor would do in the field. Day Three: Youth will work on an energy efficiency PSA project. They will also research career pathways in energy efficiency and complete an assignment about heat waves and their impact. Youth will attend a career webinar on clean energy careers in NYC. Day Four: Youth will start working on their service learning project.

**Final Outcomes or Products:**Youth will gain an understanding of electricity production and consumption, energy efficiency, how to read an electricity bill, how much electricity different appliances use, and how to conduct a load analysis. Their products will include an energy audit, career research on energy efficiency careers in NYC, and will have conducted a SWOT analysis to kick off their service learning project.

**WEEK THREE**

**Learning Goals and Industry Context:**The theme for Week Three of the program is RENEWABLE ENERGY. During this week youth will learn about how transitioning to renewable energy can produce our electricity in a sustainable way to address the climate crisis. Youth will learn about the different types of renewable energy with focus on solar energy here in NYC, and focus on exploring solar career pathways.

**Plan for Implementation (Include the exact sequence of Activities):**. Week Three Theme: RENEWABLE ENERGY. Day One: Youth will learn about what renewable energy is, discuss different forms of renewable energy, watch videos about renewable energy, and answer a Q&A about the videos. Day Two: Youth will learn all about solar energy including how it works, how it is installed, and different career pathways. Youth will complete a project where they use mapping software to assess a NYC building for solar potential and design a mock solar installation. Youth will attend a career webinar on solar energy careers in NYC. Day Three: Youth will continue their research into careers in solar in NYC. They will also continue to work on a project to design a solar system for a building looking at which solar panel orientation will generate the most electricity. Day Four: Youth will work on their service learning project.

**Final Outcomes or Products:**Youth will gain an understanding of how renewable energy can help address the climate crisis in NYC and how NYC agencies are working together to increase solar power for residential, government, and commercial buildings. Youth will also learn about career pathways in renewable energy with a focus on solar careers. Products will include the solar site assessment and proposed solar design project which reflects work done by solar professionals in the field.

**WEEK FOUR**

**Learning Goals and Industry Context:**The theme for Week Four of the program is SUSTAINABLE FOOD & WATER SYSTEMS. Youth will explore how community gardens act as agents of change to promote food and social justice. In addition, students will strengthen their engineering and design thinking skills as they analyze the combined sewer overflow (CSO) issue in NYC to create a more sustainable water management system. Youth will explore engineering, design, and urban agriculture career pathways.

**Plan for Implementation (Include the exact sequence of Activities):** Week Four Theme: SUSTAINABLE FOOD & WATER SYSTEMS. Day One: Youth will learn about food systems looking at local food vs. food that is imported from other parts of the world. They will discuss water use in agriculture and resource intensive crops. Youth will work on a project to learn about the history of community gardens and social justice in NYC. Day Two: Youth will learn about the environmental benefits of community gardens and work on a civic engagement project to design and propose a new community garden for their neighborhood. Youth will spend time working on their service learning projects. Day Three: Youth will learn about drinking water systems and wastewater systems in NYC, watch a video about the Combined Sewer system, and use mapping tools to explore where sewer outfalls are placed around the city. Youth will practice engineering and design skills to propose a solution for CSO systems that would prevent stormwater from emptying into our waterways. Youth will spend time working on their final projects and presentations. Youth will attend a career panel and discussion with youth climate leaders in NYC. Day Four: Youth will work on their service learning project and final presentations.

**Final Outcomes or Products:**Youth will gain an understanding of the issues with conventional food and water systems and about innovations in urban agriculture, community gardening, stormwater management, and water conservation. Youth will gain an understanding of the engineering and design process and an understanding of career pathways in engineering, urban agriculture, and design. They will also gain an understanding of careers working for NYC government agencies such as Department of Environmental Protection.

**WEEK FIVE**

**Learning Goals and Industry Context:**The theme for Week Five of the program is CLIMATE RESILIENCE & ACTION. During this week youth will understand NYC’ s climate risks and develop different strategies to increase community adaptation and build resistance to the effects of climate change. They will focus on exploring how NYC is working to adapt to a changing climate and how they can contribute to solutions. They will learn more about careers in city agencies and a variety of emergency response and climate action focused careers.

**Plan for Implementation (Include the exact sequence of Activities):** Week Five Theme: CLIMATE RESILIENCE & ACTION. Day One: Youth will learn about sea level rise through an interactive NASA application. They will work on a project to map sea level rise and storm surge in NYC using topographic maps. Youth will spend time working on their service learning final projects and presentations. Youth will attend a career panel on sustainable food and composting in NYC. Day Two: Youth will learn about the Know Your Zone website and they will work on a project to develop their own emergency response plans. Youth will spend time working on their final projects and presentations. Day Three: Youth will present their final projects to the school community and industry representatives and special guests. Day Four: Final Day celebration and wrap up.

**Final Outcomes or Products:**Youth will gain an understanding of climate resilience and action here in NYC. They will complete their final service-learning civic engagement project and deliver final presentations to their peers, families, the school community, industry representatives, and special guests.

**If applicable, please describe the types of tools and equipment to be used and the projected plan of supervision while in use**
NA

**If applicable, please describe your plan for a culminating event that showcases participants achievements:** The program will culminate with a final presentation on Zoom where youth will present their final service-learning civic engagement project to their peers, families, the school community, industry representatives, and special guests.