

Spring 3-24-2017

Renewable Energy Education for a Better World

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Recommended Citation

Ryzhenko, Nataliya, "Renewable Energy Education for a Better World" (2017). *Community of Scholars Day—Posters*. 54.
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Renewable energy education for a better world

Inventive project combining art, science, and folklore.

by Nataliya Ryzhenko and Professor Anna Poor.

Rationale
Renewable energy education for a better world. Alternative energy is a critical topic in modern education because it allows to take a cleaner environment and can help people around the world to lead healthier and happier lives. It is our responsibility to teach about renewable power generation. These sources included solar, wind, soil, salt and wastewater derived energy.

Methodology

When we educate our new generations about energy sources we give them clues to solve one of their biggest challenges, the global energy crisis.

A brief summary of the program is provided below:

1. What is energy and its type, renewable energy.
2. Conversion of different types of energy, such as chemical to mechanical, elastic to mechanical, mechanical to thermal energy and so on. In this lab we experiment with these concepts and find examples in our everyday life.
3. Stored potential energy. We investigate elastic (rubber band and balloon) and electrical (battery) stored energy.
4. Chemical and geothermal energy. We speak about volcanoes and geothermal energy and recreate a mini volcano that runs on chemical energy in the classroom.

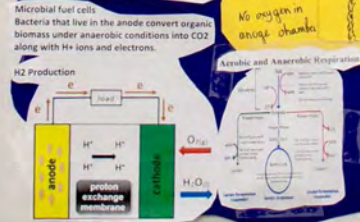
5. Microbial fuel cell (MFC) uses anaerobic cycle of bacteria to create electricity. We will explore what bacteria are and observe a working cell.
 6. Salt gradient is a wonderful source of energy which, for instance, a river merges with an ocean. We will construct a mini car that runs on this principle.
- * Solar energy is becoming more and more integrated into our lives. In this lab we will observe conversion of solar energy into mechanical energy.



Results

One of the sources of energy that is being researched is microbial fuel cells (MFC) in which anaerobic cycle of bacteria is used to create electricity. This type of energy is useful for application, where the usage of energy is close to its source, and where bacteria could be harvested, such as soil or waste water.

Summary



Incorporating clay, wood and stone with electronic components. Independent Study for Fine Art class with Professor Anna Poor. (FINE-4999-02)

INTRODUCTION

Project 1

Project 1 description text.

Project 2

Project 2 description text.

Future Directions

- Independent study as an example of alternative energy application.
- Online lectures and lab instructions free for all.
- Educational outreach for Course for University, classrooms, homeschoolers, and afterschool program.
- International outreach.



Special appreciation goes to professor Natalia Ryzhenko, the Director of the Museum and Laboratory of the Institute of Science and Technology at the University of Cambridge. Programs are also available for schools and community groups. For more information, please contact the author of this project.





Renewable Energy Source
SOLAR

AC KNOWLEDGE SHEET

What are the advantages of using renewable energy sources? List at least three advantages and explain why they are important.

How do you think we can use renewable energy sources to power our homes and schools? List at least two ways and explain how they would work.

What are the challenges of using renewable energy sources? List at least two challenges and explain why they are difficult to overcome.

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