Project: Understanding Renewable Energy

FOR THE TEACHER

Summary
In this project, students will conduct research in order to become an “expert” on a specific type of renewable energy source. Students will produce a media presentation and a poster board as well as participate in a symposium focused on renewable energy sources.

Grade Level
High School

Objectives
By the end of this project
- Students will be “experts” on their chosen renewable energy source.
- Students will have participated in a simulated research symposium.
- Students can identify and explain different sources of renewable energy and how they work.
- Students can apply their knowledge and make a recommendation to the school/town about improving energy efficiency.

Chemistry Topics
- Renewable energy
- Environmental chemistry

Time:
Teacher Preparation: Time will vary (see teacher notes)
Lesson: 8-10 days for research, student presentations, and the symposium

Materials
- Computer lab for research
- Projector for media presentation
- Posters and poster stands (or tape)- for the symposium
- where appropriate explain use in parentheses so that teachers will know if other materials might do the job, for example: thick book (to prop up the ramp)
- Handouts created by groups for other students

Safety
- No specific safety precautions need to be observed for this activity.

Teacher Notes
- Teachers should familiarize themselves with the different sources of renewable energy and how they work.
- It may be helpful to ask your librarian to develop or create a library guide or group of useful links of reliable information.
• Student presentations can take 2 or 3 days, while the symposium takes 1 day. While student groups are presenting their information to the class, the class not only has the handouts created by students, but I usually ask that students come up with 3 questions for the symposium.
• During the symposium, 2 students should stay at their poster and present while 2 students do their gallery walk and ask the questions they come up with during the presentation. This way students cannot “hide” and the symposium is more realistic.
• I’ve also found it helpful to show students examples of strong and weak work. When students see these I find the quality of their work improves.
• Students sometimes say that another group member has the information. Be clear about how you want students to be communicating with each other and perhaps have a localized space where group members can store and share their information, like google docs.
• To make the symposium more real, invite administrators, parents, and other classes to come to the symposium and ask questions to the groups.
• Teachers should create and share rubric(s) for assessment with students.
• Different teachers value different components of the project process and product and so I leave it to you to determine how you will assess your students.

FOR THE STUDENT

Lesson

Understanding Renewable Energy

Background
Students will act as researchers and conduct an in depth study of a particular type of non/renewable energy: nuclear, solar, wind, hydroelectric, geothermal, bioenergy, etc.
Students will create a media presentation with a partial outline handout about their alternative source of energy.

Some guiding questions to be addressed:
• How does it work?
• What are the benefits?
• What are the drawbacks?
• Is it currently in use? If yes, where? If not, where would it work best both in the United States and globally?
• Is it feasible? How would it affect the economy (if at all?)?
• Are any current efforts being made either through legislation/government action/ or action in the private sector to explore/implement this type of non/renewable energy source?

Students will also create a poster board and we will hold a symposium for the other science classes and the school administration to demonstrate our knowledge and make recommendations about potential non/renewable energy sources that the school and town could use.

The poster should summarize your research and serve as a visual aid so that people without any background in renewable energy are able to understand and gather
information from it and understand it enough to be able to ask questions. The poster must include, but is not limited to the following:

- At least 1 picture of the non/renewable energy source.
- Information about how it works.
- Current information regarding legislation or where it is currently in place.
- Could the school or town make use of this particular non/renewable energy source?