Energy Unit

Grade Level: 10th

Estimated Length: 19 days

Illinois State Standards

12.E.4a Explain how external and internal energy sources drive Earth processes (e.g., solar energy drives weather patterns; internal heat drives plate tectonics).

13.A.4c Describe how scientific knowledge, explanations and technological designs may change with new information over time.

13.B.4c Analyze ways that resource management and technology can be used to accommodate population trends.

13.B.4d Analyze local examples of resource use, technology use or conservation programs; document findings; and make recommendations for improvements.

Objectives

1. Students will list six types of energy.

2. Students will conduct research using technology in which they will assess which resources to use.

3. Students will select specific information to use in their power point presentation.

4. Students will organize a power point presentation so that it is cohesive.

5. Students will present their power point in which they will explain their topic to the audience.

6. Students will work in their group to discuss all six forms of energy.

7. Students will compare and contrast the six forms of energy.
8. Students will analyze the data presented for the six types of energy.

9. Students will write a paper with their evaluation of the best energy source with supporting evidence to back up their claim.

**Background**

Students will have prior knowledge from the Chemistry, Astronomy, and Earth Science quarters.

**Materials**

1. Computers with Internet access
2. Power Point Criteria
3. Written proposal directions

**Procedure**

1. Students will think about the problem of an increasing global population and decreasing natural resources. Then students will identify six forms of energy. (Examples: solar photovoltaic, batteries, biofuel. Hydrogen fuel cells, electricity from waste heat, wind, and nuclear fuel.)

2. Students will sign up for one form of energy that they are interested in researching. Students should be in six groups of three to four students.

3. Students will have between six and ten days to work with their group to research their topic and create a power point presentation.

4. See attached sheet for the power point criteria.

5. Students will need six days to present their energy presentations to the class. Students should take detailed notes on the six presentations.

6. See attached sheet for presentation rubric.

7. After all of the presentations, students will be working in their groups as if they are a company looking to invest in an alternative energy source. Students will need two days to discuss and debate which form of energy is the best to invest in. Which energy source is the best for long term? Which energy source is the most cost effective? How would this help the problem of
increasing population vs a decreasing amount of natural resources? How could you improve this form of energy production?

8. Students will have one class period to type up and turn in their investment proposal (which energy they want to invest in and why).

**Assessment**

1. Power point content and presentation.

2. Written proposal for investment choice

**Power Point Criteria**

Your power point must answer the following questions:

1. What is it?
2. How is it made?
3. Is it renewable or no renewable?
4. How do we harness it?
5. How do we use it?
6. What is the efficiency?
7. What are the United States statistics?
8. What are some examples?
9. What are some advantages?
10. What are some disadvantages?
11. How does using is energy affect the environment?

**Written Proposal Criteria**

Include the following information in your written proposal:

1. Your company name
2. Which energy source you want to invest in
3. How much money you want to invest
4. Why you want to invest in this form of energy including the pros and cons.
5. How the energy design could be improved.
6. What you think the Earth will be like in thirty years after using this energy source.

Resources

National Energy Educatin Development Project www.need.org
Department of Energy http://www.energy.gov
World Organizations http://www.world.org/weo/energy