

Cape Cod Regional Technical High School

12th Earth Science/Environmental

By: Lynn Fleischer

Academic Department: Environmental Science – including integration with the following shops: Plumbing, Masonry, Carpentry, Electrical, HVAC, Information Technology, Business Technology, and Culinary Arts.

Theme/Topic: Energy Resources (Unit 4/Chapter 26)

Length of Background Unit: 4 weeks

***Length of Final Project:** 1 week

BACKGROUND KNOWLEDGE:

Students will be able to define energy resources are found on Earth, and discuss alternative energy resources verses traditional energy. Use Glencoe, *Earth Science -Geology, the Environment, and the Universe*. Chapter 26.

Framework Standards:

Students will know and be able to:

- 2.1 **Recognize, describe** and **differentiate** between renewable and nonrenewable sources of energy.
- 2.2 **Explain** the advantages and limitations of renewable sources of energy.
- 2.2 Explain the advantages and limitations of nonrenewable sources of energy.
- 2.2 **Describe** ways in which people have tried to control the use of renewable and non-renewable sources of energy.
- 2.2 **Describe** the effects on the environment of using both renewable and non-renewable sources of energy.
- 2.3 Describe ways in which scientists are addressing effects on the environment of using both renewable and nonrenewable sources of energy.

Benchmarks:

Students will know and be able to:

- **Recognize** the Sun as the ultimate source of most energy on Earth.
- **Describe** how energy changes from one form to another.
- **Compare** and **contrast** renewable vs. nonrenewable energy sources.
- **Identify** and **distinguish** materials that are used as fuels.
- **Explain** how fossil fuels form.
- **Identify** alternative energy resources.
- **Recognize** the need for the conservation of energy.
- **Discuss** ways to conserve energy resources.

Name:

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Alternative Renewable Energy Resources
Final Project
Environmental/Earth Science
Ms. Fleischer

Performance Objectives: **You** will research a specific alternative renewable energy resource (**ARER**), and build a model of this **ARER**. You will also give a brief oral presentation of how their **ARER** works, including pros and cons of said **ARER**.

The student will:

- Research **ARER**
- Build a model of **ARER**
- Orally present the basics of how **ARER** functions and produces energy. You must include at least one pro and one con

Criteria for Success: You must follow grading rubric and have a cumulative grade of at least 60%. Check the “YES TEST” before you turn in your final product.

INSTRUCTION SHEET

Objective: you will select one type of alternative energy system and make a model of said alternative energy system and use the model as a demonstration prop during your oral presentation. You must include at least one pro and one con of your energy source.

1. Reading Assignment: Read Section 26.2 *Alternative Energy Resources* from your text (pp. 690- 697) to get background on various alternative renewable energies.

2. Research: You will have three days in the library to collect information and data related to your specific ARER. Your information should include a visual or diagram of your ARER, which you will use to build your model. See daily grading rubric.

3. Model: Your model should be between 18 x 24 inches up to 36 x 36 inches. Although your model **does not** have to be functional, it must be realistic enough to be used as a prop to enhance your oral presentation. All pieces or structures must also be labeled. See grading rubric.

4. Oral Presentation: Your oral presentation must be between 2-5 minutes long. You must incorporate your model in your presentation to demonstrate how your **ARER** generates energy. You must state at least one pro and one con about your energy source.

5. Time frame: you will have four days of class time to work on the project. I will stay after school if you feel you require more time.

6. Due date: Your oral demonstration project is due Friday _____. One late day will be allowed, at a reduction of a letter grade.

7. Final product: you will demonstrate to the class, using the model as a visual, how the alternative energy system works. Your model must be labeled. NOTE: Your model does not need to work, but must be used to demonstrate the basic theory behind the alternative renewable energy source. Demonstration must last 2 minutes.

Daily Grade: you will be given a daily grade on effort and accomplishment. If you miss a day, you must make up the time after school, or you will get a zero for that time lost.

WORK SCHEDULE:

- Monday-basic research and fact gathering
- Tuesday- drawing/planning construction
- Wednesday-construction
- Thursday-construction ends
- Friday-demonstration (NO construction)

Grading Rubric

Daily grade: 1-5(highest) effort and efficient use of time

M	T	W	TH	F	TOTAL
___	___	___	___	___	_____

FINAL GRADE:

Total of daily grade (25)	_____
Followed instructions (5)	_____
Model , neat, understandable, accurate(10)	_____
Complete(10)	_____
Accurate details(10)	_____
Labeled(5)	_____
Oral Presentation (15)	_____
“YES TEST” (5)	_____

YES TEST

Alternative Renewable Energy Resources Final Project Earth Science/Ms. Fleischer

Answer the following questions before the due date of your project. Reference numbers after each question refer to task on your final project instruction sheet. Circle the answer that applies to you.

- | | | |
|-----|----|---------------------------------------------------------------------------------------------------------|
| YES | NO | 1. Did you complete the reading assignment? (#1) |
| YES | NO | 2. Is your energy source an Alternative Renewable Energy Resource? (#2) |
| YES | NO | 3. Do you have a basic understanding of how your ARER works? (#2) |
| YES | NO | 4. Is your model neat and accurate? (#3) |
| YES | NO | 5. Is your model appropriately labeled? (#3) |
| YES | NO | 6. Have you prepared an oral presentation, which meets the 2-5 minute time requirement? (#4) |
| YES | NO | 7. Does your presentation include the use of your model? (#4) |
| YES | NO | 8. Does your presentation include at least one pro and one con of the ARER? |
| YES | NO | 9. Have you practiced you oral presentation so your delivery will be smooth, organized and informative? |

If you answered NO to any of these questions, I suggest you revisit the section in your project, which you did not complete.

THIS “YES TEST” MUST BE COMPLETED AND TURNED IN THE DAY OF YOUR PRESENTATION!!