

Earth Systems II – Unit 8 Study Guide

es2u8sg (Energy Resources)

<http://www.pbs.org/e2/index.html>

<http://www.kidwind.org/materials/buildingwindmills.html>

Learning Objectives

1. Describe the nature and origin of coal, and evaluate its extraction, use, and future depletion. 564-565
2. Describe the nature and origin of petroleum and evaluate its extraction, use, and future depletion. 565-574
3. Outline and assess environmental, political, social, and economic impacts of fossil fuel use. 575-581
4. Outline the major sources of renewable energy and assess their potential for growth. 620-623
5. Describe wind energy and the ways it is harnessed, and evaluate its advantages and disadvantages. 627-633

Vocabulary

coal crude oil energy conservation geothermal energy strip mining Hubbert's peak biofuels
ethanol biomass energy nuclear fission active solar passive solar wind turbines photovoltaic cells
natural gas hydrogen hydropower

Assignments (check off as you complete them)

- ___ Readings
- Notebook 10pts
 - ___ Notes on Learning Objectives
 - ___ Crossword
 - ___ Case Study "Sweden's Search for Alternative Energy"
 - ___ Activity - "Tapping a Reserve"
 - ___ Carbon Footprint (<http://www.carbonfootprint.com/index.html>)
- ___ Lab: "Ethanol Production" 10pts
- ___ Lab: "Aerogenerators" 10pts
- Vocabulary Quiz 10pts
- Test 10pts

Going Further: (extra credit)

Read the article/critique "Is Ethanol Energy Efficient?" and write a two paragraph summary supporting or refuting this question.

Minnesota Science Standards

- The student will identify the internal and external sources of energy for the Earth.
- The student will discuss the impact of the use of natural resources and other human activities on the Earth's climate.
- The student will apply the laws of thermodynamics to explain the cycling of materials and transfer of energy in the Earth system.
- The student will understand that matter and energy flow through different levels of organization of living systems, from cells to communities, as well as between living systems and the physical environment as chemical elements are recombined in different ways. Each recombination results in both storage and dissipation of energy.

www.mreclassroom.com (classroom site)

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