



Grade Level: Middle School

Subject Correlation: Science, Reading

Objectives: Students will be able to:

1. Determine the difference between renewable and non-renewable resources.
2. Identify different forms of energy and the advantages/disadvantages of different forms of energy.
3. List the benefits as well as the environmental harms of using energy to improve our quality of life.
4. Appreciate the necessity of creating energy from renewable or inexhaustible resources.
5. Describe some ways in which technology affects nature, both good and bad.

Length: 35 minutes

Teacher Preparation: Visit the [Teachers Corner](#) at [Earth Day Network's Web site, www.earthday.net](#) where you can download [Renew Our Future](#), an informational packet about different energy sources.

Outline (with times)

10 minutes

Introduction: Life without Energy

Energy figures into almost every human activity: it heats our homes, fuels our cars, ploughs our soil and powers our machinery. Harnessing the world's energy supply has brought standards of living to new heights. We are so accustomed to energy use that one can scarcely imagine surviving at a time before it existed. Yet two billion people lack access to electricity – roughly one third of humanity.

As a class, discuss how easy access to energy and electricity in the US has greatly improved our standard of living. Be specific: transportation of people and goods, various forms of entertainment, communication, computers and access to information, better medical care, more comfortable homes..... Also, consider how people's lives are different who do not have easy access to energy and electricity – such as people in other countries or people who live more than 150 years ago. How do they manage without computers, light bulbs, televisions, stereos, video games, cars, telephones, heaters, air conditioners, and cars?

25 minutes

Where Does Our Energy Come From?

Most students (and adults) do not know where their energy comes from – or how fundamental it is to everything we do. The energy that powers our lights or heats our homes may come from coal, natural gas, nuclear energy, water, the wind, or the sun.

Students should read [Renew Our Future](#) to learn about various sources of energy including fossil fuels, nuclear energy, solar energy, wind energy, geothermal energy, biomass energy, and hydroelectric power.

After reading about different energy sources, complete the attached worksheet.

Follow up questions:

1. What are two major disadvantages of using fossil fuels for energy and electricity? (pollution and global warming)
2. How does the pollution caused by generating energy from fossil fuels in one part of the world affect people living in another part of the world? What about the affect on plants and animals?
3. Write a list of ten activities you do on a daily basis that require energy/electricity. Think of creative alternatives to at least four of these activities. How will this affect your Ecological Footprint? (See [Bobbie Bigfoot](#))
4. Two billion people lack access to electricity – roughly one third of all humanity. How are their lives different from yours due to their lack of access to electricity? In general, do you think these people have a larger or smaller Ecological Footprint than you?
5. Research the sources of energy used in your community. How do you feel about this? What can you and your classmates, along with your family, friends, and community, do to become part of the decision making process?

Additional Exercises:

1. Keep a daily journal that keeps track of your energy use. Review your journal to discover where you can conserve energy. Think about your personal activities as well as activities your family and friends participate in.
2. Be sure to look over the energy experiments page! (See the *Energy Experiments* lesson.)



Energy is Everywhere



In the appropriate spaces, write where each form of energy comes from and one positive and one negative trait of each form of energy.

Form of Energy	Short Description	One Positive and One Negative Trait
Fossil Fuels		
Nuclear Energy		
Solar Energy		
Wind Energy		
Geothermal Energy		
Biomass Energy		
Hydroelectric Energy		

