

Energy Webquest

Name _____

List 7 forms of energy. Complete the Table using the following link:

http://www.energy4me.org/download/ENGe4m_EnergySourcesPoster.pdf

RENEWABLE ENERGY	PROS	CONS
1) Solar Energy	• • •	• • • • •
2) Wind Power	• • • •	• • • •
3) Hydropower	• • • •	• • • •
4) Biomass	• • • •	• • • •
NON-RENEWABLE ENERGY	PROS	CONS
1) Petroleum	• • • •	• • • •
2) Natural Gas	• • •	• • • •
3) Coal	• • •	• • •
4) Uranium	• • • •	• • • •

RENEWABLE OR NON-RENEWABLE	PROS	CONS
1) Geothermal Energy	<ul style="list-style-type: none"> • • • 	<ul style="list-style-type: none"> • •

Go to this website <http://www.eia.gov/kids/energy.cfm?page=1>

Click on "Energy Basics"

1. Define energy.

2. What are the two types of energy?

On the left hand side of the screen, click on "Energy Sources." Look under the "Nonrenewable" heading to answer the following questions.

1. What percent of U.S. energy comes from nonrenewable energy sources?

2. List the four categories of nonrenewable energy sources.

Now, click on the major heading "Renewable"

1. The five renewable sources used most often are:

2. Why don't we use more renewable energy sources?

Go back to Energy Sources -click on "Electricity"

1. What does it mean to say that electricity is a secondary energy source?

Click on "Science of Electricity", Read "Magnets and Electricity"

1. Complete this quote:

By using moving _____ and _____ wire together, electric _____ create electricity. Electric generators essentially convert _____ energy (the energy of motion) into _____ energy.

2. How does a battery produce electricity?
3. Explain how we can produce electricity by turning a turbine.

Now click on "Electricity in the U.S."

1. What is the main way that we turn turbines in the U.S.?
2. Look at the graphic labeled "Sources of U.S. Electricity Generation" and complete the following chart:

Energy source	Percent of U.S. Electricity generated from this source
Renewable energy sources (includes hydroelectric at 8%)	
Petroleum	
Nuclear	
Natural Gas	
Coal	

Click on "Nonrenewable", then click "Oil"

1. Explain how oil is formed.
2. List the five states that produce the most oil in the U.S.
3. Complete the following chart for the top 5 oil-producing countries in the world:

Country producing oil	% of world's supply it produces

4. What is an oil refinery?

5. What three steps are used to refine oil?

6. Complete the following table showing what is produced from a barrel of oil:

Product	Amount produced from a barrel of oil
Diesel	
Other distillates (heating Oil)	
Jet Fuel	
Other products	
Heavy fuel oil	
LPG (Liquified Petroleum Gasses_	
gasoline	

7. Review these pollutants that come from petroleum. What are the negative environmental or health impacts of each?

Pollutant	Negative environmental or health impacts
Carbon dioxide (CO ₂)	
Sulfur dioxide (SO ₂)	
Nitrogen oxides (NO _x) and Volatile Organic Compounds (VOC)	
Particulate matter (PM)	
Lead and various air toxics such as benzene, formaldehyde, acetaldehyde, and 1,3-butadiene may be emitted when some types of petroleum are burned	

Now click "Natural Gas"

1. What is the primary component of natural gas?
2. Where is most of the natural gas used in the U.S. produced?
3. How is natural gas moved from the producing fields to the consumer?
4. What is LNG and how is it transported?
5. What are the top 5 natural gas producing states/regions in the U.S.?
6. Natural gas is a relatively clean burning fuel, meaning it produces less _____ than oil or coal.
7. Under "Advances in Drilling....", what is fracking and what are its environmental impacts?

Click on "Coal"

1. List the four types of coal and the characteristics of each:

Type of coal	% carbon content	State where it is mined

2. Describe surface mining.
3. Describe underground mining.
4. 93% of the coal used in the U.S. is used to produce _____.
5. What is mountaintop mining?
6. What are the primary pollutants that come from burning coal?
7. What are fly ash and bottom ash? What is used to remove these from emissions?

Go to "Uranium"

1. What is the difference between nuclear fission and nuclear fusion?
2. Which is used in nuclear power plants?
3. What is the most common fuel used in nuclear power plants?
4. What are the steps that produce electricity from this fuel?
5. Name the two types of nuclear power plants.
6. Nuclear power plants produce no _____ but they do generate _____.
7. What are two ways that spent fuel (which is still radioactive) can be stored?