

ENERGY

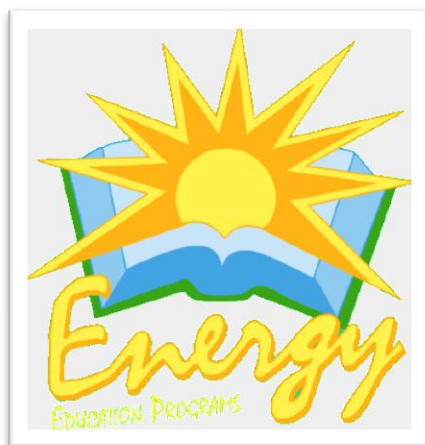


Name & Class: _____

Go to the following website:

<http://penfieldspride.wikispaces.com/Energy+Scavenger+Hunt>

There are 2 pictures on the wiki-spaces page. You will see the same pictures in this packet. You will click your mouse on the picture on the wiki page. This will take you to a website. You will need to read the information provided for you on the websites in order to answer the questions. **After** you have read the information on the sites, answer the questions that follow. .



On the left hand side of this website there is a list of topics. You will need read all of the topics and answer questions for each topic.

What Is Energy

1. Energy is the ability to do work. Work can mean a change in position, speed, state, or form of matter. Therefore energy is the capacity to change matter.
2. Give 2 examples of things we do that involve energy
 1. Getting up
 2. Going to school
3. What are the two basic concepts of energy:
 1. Energy is the ability or capacity to do work.
 2. Energy cannot be created or destroyed.

Potential & Kinetic Energy

1. What are the two states of energy?

Potential & Kinetic

2. What is potential energy? Give two examples.

Potential energy is stored energy, energy ready to go, or energy at rest.

1. a lawn mower filled with gasoline has potential energy
2. a car on top of a hill has kinetic energy

3. What is kinetic energy? Give two examples.

Kinetic energy is energy at work.

1. a lawn mower cutting grass
2. a car racing down a hill

4. What was the example of potential and kinetic energy in figure 3. Explain what was happening.

A pendulum is the example in figure 3. The figure is demonstrating how potential energy (at the top of the swing) changes into kinetic energy (as the pendulum is swinging) and back to potential energy (at the top of the swing).

Forms of Energy

1. What are the six forms of energy?

1. chemical
2. electrical
3. radiant
4. mechanical
5. nuclear
6. thermal

2. How are the six forms of energy related? Give an example.

The six forms of energy are related because they can be converted or changed from one form into another.

Chemical

3. Define chemical energy.

Chemical energy is stored in the bonds between atoms and molecules.

Electrical

4. Electrical energy is the energy carried by moving electrons in an electric conductor.

5. Do electrical generating plants create energy? Why or why not?

Electrical generating plants do not create energy. They change energy from other forms into electrical energy.

Radiant

6. Atoms absorb energy from an outside source and release (or "emit") this energy as electromagnetic radiation. This radiation can be in the form of waves .

7. Figure 5 shows the electromagnetic spectrum.

Mechanical

8. Mechanical energy pulls, pushes, twists, turns, and throws.

9. Machines use mechanical energy to do work. How do our bodies use mechanical energy?

Our bodies use mechanical energy to perform motions such as throwing a ball or moving a pencil to write on paper.

Nuclear

10. What are two kinds of matter used to produce nuclear energy?

Hydrogen and uranium are two kinds of matter used to produce nuclear energy.

11. What are two uses of nuclear energy?

Nuclear energy can be used in medicine in the form of radiation therapy to treat cancer. Nuclear energy is also used by the U.S. Navy. They use nuclear energy to power some of their submarines and large ships.

Thermal

12. Thermal energy is the energy of moving or vibrating molecules.

13. What is Figure 6 demonstrating?

Figure six is demonstrating changes in the states of matter—from solid, to liquid, to gas.

Energy Transformations

1. Explain how energy is transformed in Figure 7.

Energy is being transformed from electrical (plug) to mechanical (lever to push toast down) to thermal (heat to toast the bread).

2. Why do we transform energy from one form to another?

The reason we transform energy from one form to another is because different end uses require different forms of energy.

Law of Conservation

1. Energy cannot be created or destroyed.

2. FYI Can Energy Disappear? → What happens to some of the potential and kinetic energy on the roller coaster?

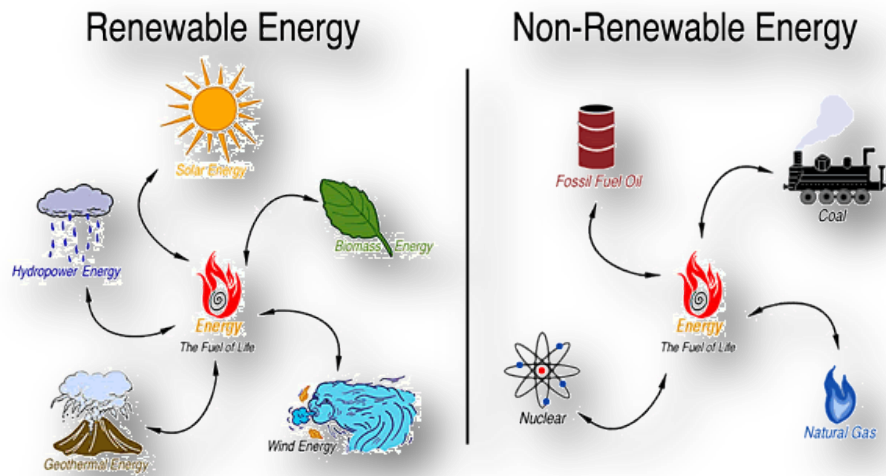
Some of the potential and kinetic energy on the roller coaster is lost to heat due to friction.

Energy Control Systems

1. What are the three parts of every energy control system?

1. The original source of energy
2. All the conversions the energy goes through, including the transmission (moving) of the energy from one place to another.
3. The eventual use of the energy.

2. Figure 8 is the a picture representing an energy pathway. Save this picture in your photos as "energy pathways for ppt". You will need to use this picture in your PowerPoint presentation.



In the left side of the website are headings. Under the heading "Energy Sources" you will see "Nonrenewable" and "Renewable." Click on these headings to answer the following questions.

Nonrenewable

1. What percentage of energy consumed in the United States comes from nonrenewable energy sources?

About 92% of the energy consumed in the United States comes from nonrenewable energy sources.

2. What are the four nonrenewable energy sources most often used:

1. oil
2. natural gas
3. coal
4. uranium

5. What makes an energy source nonrenewable?

An energy source is considered nonrenewable if it cannot be replenished (made again) in a short period of time.

6. What are the two types of energy sources?

1. renewable
2. nonrenewable

Renewable

1. What makes an energy source renewable?

Renewable energy sources can be replenished.

2. What are the five renewable energy sources that are used most?

1. biomass
2. water
3. geothermal
4. wind
5. solar

3. What percentage of energy is provided by renewable energy sources in the United States?

Renewable energy sources provide about 8% of the energy used in the United States.

Click on the word Solar on the Renewable page. It is blue and underlined. This will take you to another page.

Solar

1. The sun is the major source of energy on the planet. In the form of radiant energy, it has powered life on Earth for millions of years.
2. When solar energy is transformed into thermal energy, it can be used to:
 1. heat water—for use in homes, buildings, or swimming pools
 2. heat spaces—inside homes, greenhouses, and other buildings
3. Solar energy can be transformed into electrical energy by “solar cells” and concentrating solar power plants. Which state has the most concentrating solar power plants?

California has 9 concentrating solar power generating plants making it the state with the most in the U.S.



Stop after you finished reading about the two drawbacks of solar energy. 😊

After you show Mrs. Penfield your work, you may visit the other websites listed on the Wiki page.