

Name _____
Period _____

JMJ

Date _____
Physical Science

Chapter 5 Energy and Energy Resources Homework Sheet

Lesson 1

1. What is energy?
2. What is the origin of the word energy in Greek?
3. What is Kinetic energy?
4. What does an object's kinetic energy depend on?
5. Which object has more kinetic energy? A blue car with a mass of 1,500 kg and a speed of 25 m/s OR a green car with a mass of 1,500 kg and a speed of 15 m/s.
6. Which object has more kinetic energy? The green car from question #5 or a truck moving at the same speed of 15 m/s with a mass of 8,000kg?
7. Can energy be present even if the object is not moving? If yes, how?
8. What is potential energy?
9. What are 3 forms of potential energy?
10. What factors determine the gravitational potential energy stored between an object and Earth?
11. If Mary is holding a bag at waist level or if she is holding it above her head a different gravitational potential energy is present in both situations. In which situation is there more gravitational potential energy?
12. If Mary is holding a 20kg bag above her head or a 30 kg bag above her head a different gravitational potential energy is present in both situations. In which situation is there more gravitational potential energy?
13. What is elastic potential energy?
14. What happens to the stored elastic potential energy in a stretched rubberband when it is released?
15. Name some materials that might store a lot of elastic potential energy. How are all of these materials similar?
16. What is chemical potential energy? When is chemical potential energy released?
17. In what way are all forms of potential energy the same?
18. REVIEW question: What is WORK?
19. Review question: What does work on?
20. How is energy related to work?
21. When work is done on an object, does the object's energy increase or decrease?
22. When work is done by an object, does the energy increase or decrease?
23. What is energy measured in?
24. Define the additional types of energy and give an example of each.
 - a. Mechanical energy
 - b. Sound energy
 - c. Thermal energy
 - d. Electric energy
 - e. Radiant energy
 - f. Nuclear energy

Lesson 2

- 1) What is the law of conservation of energy?
- 2) Explain the energy transformation in a rollercoaster. Use KE and GPE.
- 3) When you use a bicycle, mechanical energy gets transformed into what type of energy? Does the total amount of energy change?
- 4) What produces thermal energy?
- 5) How can you reduce friction? Give an example.
- 6) Which energy do we run off of? Why?
- 7) All forms of energy transform into which type of energy?
- 8) Give an example of different types of radiant energy?
- 9) A flashlight converts CPE-EE-RE. However, TE is also transformed. A jet engine transforms CPE-ME/KE. However, SE is also created. In these examples, what type of energy are these (TE&SE)? Why?
- 10) Most of the time WE is in the form of which type of energy?
- 11) Discuss the energy transformations of the following:
 - a. Television
 - b. Toaster
 - c. Car
 - d. Mixer
 - e. Iron
 - f. Sun
 - g. Hot-air balloon
 - h. Photosynthesis
 - i. glowstick
 - j. tanning bed

Lesson 3

- 1) Where do the sources of energy come from?
- 2) What is a nonrenewable resource? List the four nonrenewable resources and their specific name (if they have).
- 3) What is a renewable resource? List the five renewable resources and their specific names (if they have).
- 4) How are these fossil fuels formed?
- 5) What is petroleum and natural gas created from and where?
- 6) What is coal created from and where?
- 7) What will happen in time with these burning of the fossil fuels? What gas gets released? What does this gas do?
- 8) Discuss the energy transformation of the electric power plant.
- 9) How much of these fossil fuels are being used (in percentage) and for what purposes?
- 10) Discuss the energy transformation of the nuclear power plant. Why is it so harmful?
- 11) Discuss the energy transformation of a hydroelectric power plant. What does it use to produce electricity?
- 12) Discuss the energy transformation of solar panels. What are the advantages and disadvantages of solar energy or using a solar panel?
- 13) What is the energy transformation of a wind turbine? Where are they most practical?
- 14) What is biomass? What is biofuels? Why are they both helpful?
- 15) What is geothermal energy? How can it produce electricity?
- 16) In a percent, how much energy is provided using fossil fuels? Using nonrenewable energy resources?
- 17) Give one way to conserve energy.