ENERGY – What is Energy?

Name: _____ Date: _____

**Instructions: From the reading, answer the following questions with complete and thoughtful sentences.**

1. If your hand supplies the energy for the hammer to do work, where does the energy to move your hand come from?

2. Where does potential energy come from?

3. Why do all objects above Earth's surface have gravitational potential energy?

4. Why does gravitational potential energy depend on both mass and height? (Hint: What two factors affect the strength of gravitational energy?)

5. A chef holds a 55g egg above the floor. The egg has 0.65J of gravitational potential energy. How far above the ground is the egg? (Hint: Rearrange the equation for gravitational potential energy to solve for height.) Write the equation. Show your work. Circle your answer.

6. What two factors affect an object's kinetic energy?

7. What will happen to the kinetic energy of an object if its speed doubles?

8. What is the snowboarder's kinetic energy when her speed is 5m/s?

9. What happens to an object's temperature if the kinetic energy of its particles decrease?

10. A bowling ball travels at 2.0m/s. It has 16J of kinetic energy. What is the mass of the bowling ball in kilograms? (Hint: Rearrange the kinetic energy equation to solve for mass.) Write the equation. Show your work. Circle your answer.

11. What is mechanical energy?

12. Where do many forms of nonmechanical energy come from?

13. Where does the energy in an unburned match come from?

14. What kind of energy do plants convert sunlight into during photosynthesis?

15. Name two kinds of nuclear energy.

16. Why is the sand cooler under the umbrella than outside the umbrella?

**ENERGY – What is Energy?**

**REVIEW**
**Define the following terms:**

**Energy –**

**Kinetic energy –**

**Mechanical energy –**

**Potential energy –**

1. **Explain** A boy on a bicycle is resting at the top of a hill. Then, he rides his bicycle down the hill. Describe how the boy's potential energy and kinetic energy differ at the top, middle, and bottom of the hill.

2. **Describe** Fill in the table. Decide what form or forms of energy apply to each situation and whether each form is mechanical or nonmechanical energy.

| Situation | Form(s) of Energy | Mechanical or nonmechanical? |
|---|---|---|
| Frisbee moving through the air | Kinetic and potential energy | |
| Cup of hot soup | | nonmechanical |
| Sunlight | Light energy | |
| Boulder sitting at the top of a hill | | |
| A lit lightbulb | Electrical energy and light energy | |

3. **Apply concepts** Why are water storage tanks usually built on towers or hilltops?

4. **Calculate** What is the potential energy of a 35kg child sitting at the top of a slide that is 3.5m above the ground? What is her kinetic energy if she moves down the slide at a speed of 5.0m/s? Write your equations. Show your work. Circle your answers.