1103 Period 2 Solutions: Forms of Energy

2.1 How are Forms of Energy Defined?

1) **Forms of energy:** Your instructor will discuss the forms of energy that we will study in the World of Energy. Give an example of each form of energy listed below.

   a) **Mechanical Energy of Motion**

   b) **Thermal Energy**

   c) **Sound Energy**

   d) **Electrical Energy**

   e) **Magnetic Energy**

   f) **Radiant Energy**

   g) **Gravitational Potential Energy**

   h) **Strain Potential Energy**
2.2 What Happens When Energy Is Converted from One Form to Another?

2. Energy conversions:

a) Observe the demonstration of an exercise bicycle connected to large light bulbs. List the energy conversions that occur when the bulbs light.

b) Observe the demonstration of the toy train. List the energy conversions that occur when the train goes uphill and then downhill.

c) Your instructor will explain the electric drill activity. Be sure to hold the cardboard tube over the end of the drill while you perform this activity. List the energy conversions that occur.
2.3 Which Devices Involve These Energy Conversions?

3. **Illustrations of energy conversions:** Identify devices that illustrate a conversion from the initial to the final energy forms.

1) Chemical Energy $\rightarrow$ Electrical Energy

2) Chemical Energy $\rightarrow$ Radiant Energy

3) Chemical Energy $\rightarrow$ Thermal Energy

4) Electrical Energy $\rightarrow$ Mechanical Energy of Motion

5) Electrical Energy $\rightarrow$ Radiant Energy

6) Electrical Energy $\rightarrow$ Thermal Energy

7) Mechanical Energy of Motion $\rightarrow$ Electrical Energy

8) Mechanical Energy $\rightarrow$ Radiant Energy

9) Mechanical Energy of Motion $\rightarrow$ Thermal Energy

10) Nuclear Energy $\rightarrow$ Electrical Energy
11) Radiant Energy $\rightarrow$ Chemical Energy

12) Radiant Energy $\rightarrow$ Electrical Energy

13) Thermal Energy $\rightarrow$ Mechanical Energy of Motion

14) Thermal Energy $\rightarrow$ Radiant Energy
Period 2 Exercises: Forms of Energy

Write answers to the questions below. This sheet with your answers should be turned in at the beginning of Period 3.

1. Storing energy

   List devices that store the forms of energy listed below.

   a) Gravitational Potential Energy

   b) Strain Potential Energy

   c) Chemical Potential Energy

   d) Electrical Potential Energy

   e) Thermal Energy

2. Converting energy using solar cells

   Solar cells are devices that can convert light (radiant energy) into electricity. When a floodlight shines light onto a solar cell that is connected to a small motor, the rotor of the motor spins. Write the series of energy conversions that occur in this process, beginning with the floodlight and its energy source. Include any wasted energy.

3. Converting gravitational potential energy

   You raise a soccer ball above your head and then let the ball fall to the floor. Write the series of energy conversions that occur in this process, beginning with your arm raising the ball.

   At the end of this process, when the ball is motionless on the floor, into what form(s) of energy has the ball’s energy been converted? _____________________