**The Law of Conservation of Energy [Extra Credit DUE 10/23/14]**

Recall that the law of conservation of energy states that energy is neither created nor destroyed, but as shown in the rollercoaster illustration, energy can be converted from one form into another. Energy is constantly changing forms. Energy transfer can occur by doing work or heat transfer.

* For example, a match has stored chemical potential energy. Once the match is struck, the chemical energy is converted into light (see) and heat (feel) energy.
* Another example, water behind a dam has potential energy due to its position. Once the water is released over the dam, its potential energy is converted into kinetic energy. As the water turns the turbines of an electric generator, the kinetic energy is converted to mechanical energy. The mechanical energy is converted to electrical energy by the generator. As the generator turns, heat is created and released into the environment. The electric energy from the generator may power a light bulb and be converted to light energy. It may power a radio and be converted to sound energy. The possibilities are endless.

Common Energy Changes

|  |  |  |
| --- | --- | --- |
| **Use of Energy** | **Resultant change in energy** | **Energy given off as** |
| Turning on a battery powered flashlight | Chemical to electrical to light | Heat from flashlight bulb |
| Turning the turbine in an electric generator | Mechanical to electrical | Heat from friction within the generator |
| Turning on a light bulb | Electrical to light | Heat from bulb |
| Using a nuclear reaction to produce heat | Nuclear to thermal | Heat from reaction |
| Rolling a rock down a hill | Potential to kinetic | Heat from friction of rock against the earth |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Your task is to create an “Energy Conversion story Board. A description (with rubric) for your task is below:

* Create a scenario that allows for a minimum of 5 energy conversions.
  + Ex: A young boy eats an apple and watches TV before going for a walk.
* Illustrate/draw the story board in a way that “readers” can follow the energy conversions taking place.
* Narrate the story board according to your illustrations. Explain all of the energy transformations.

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Good** | **Average** | **Poor** |
| **Scenario** | Scenario is detailed enough to include 5 energy conversions. (5 pts) | Scenario is only detailed enough to include 3 energy conversions. (3 points) | Scenario is not very detailed. (1 point) |
| **Illustration** | The illustrations accurately depict the energy conversions and are neat, colorful, and creative. (10 pts) | The illustrations somewhat depict the energy conversions and are neat, colorful, and creative. (5 pts) | The illustrations do not depict the energy conversions and are not neat, colorful, nor creative. (1 point) |
| **Narration** | The descriptions accurately describe the energy conversions and are written in complete sentences. (10 pts) | The descriptions somewhat describe the energy conversions and are written in complete sentences. (5 pts) | The descriptions do not describe the energy conversions and are written in incomplete sentences. (1 pt) |