GREEN TEAM SCIENCE: Mrs. Ferdinand

Energy Unit Assessment Study Guide

Test Date: Wednesday, January 10, 2018

Vocabulary

You should know the definitions and applications of the following vocabulary words.
(*Use your Energy Quiz 1 as a study resource*).

1. **Potential Energy**: stored energy
2. **Gravitational Potential Energy**: the energy an object possesses by virtue of its position above the Earth's center.
3. **Kinetic Energy**: energy in motion
4. **Chemical Energy**: energy held in the bonds of atoms
5. **Thermal Energy**: energy transferred from a hot to a cold object
6. **Light Energy**: energy transferred by the movement of electromagnetic waves
7. **Nuclear Energy**: energy stored in the nucleus of an atom
8. **Electrical Energy**: current: movement of charge and energy from one place to another; static: energy stored in the building of charges
9. **Elastic Energy**: energy stored by compressing or stretching
10. **Energy Transformation**: the process of changing energy from one form to another.
11. **Energy Transfer**: the transfer of energy from one object to another
12. **The Law of Conservation of Energy**: Energy is not created or lost but is instead transformed or transferred into other energy types.
13. **Energy Efficiency**: the amount of useful energy generated by a system
14. **Insulator**: a material that slows down the rate of energy transfer
15. **Conductor**: a material that easily allows the transfer of energy

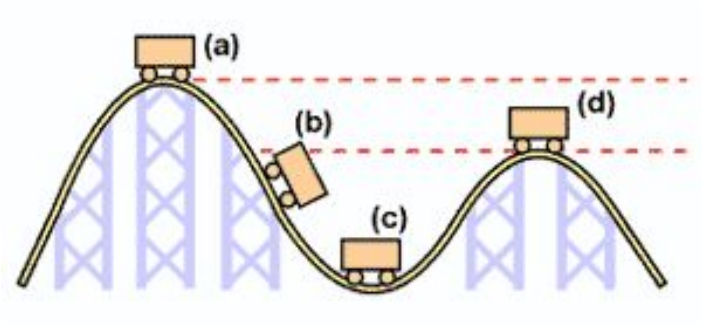
Activity 53: Home Energy Use

Review your answers to the Analysis Questions for this activity

- Look at the table of home features of A and B (page D6)
- If given a choice between 2 or more homes or home features, you must be able to determine which is the most energy efficient choice
- Using the table, cite evidence from the table to support your choice
- Be able to cite one tradeoff in your response

Activity 55: Roller Coaster Energy

- Be able to answer questions based on a diagram such as the one below. *Use your Energy Quiz 1 to as a study resource*.



1. At which point does the roller coaster train have the most kinetic energy? **C**
2. At which point does the roller coaster train exhibit the most gravitational potential energy? **A**
3. At which point did the energy transformation from gravitational energy to kinetic energy happen? **B**

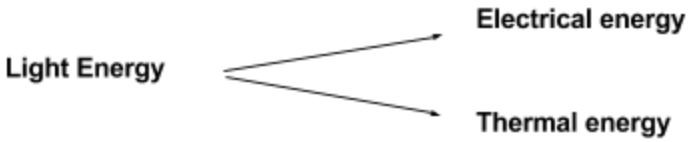
- You must be able to select an example of kinetic energy (given a scenario).
    - **Light, motion, sound, thermal**

Activity 56: Shake the Shot

- How are temperature and heat different?
    - **Heat is the transfer of energy from hot to cold while temperature is a measurement of average energy per molecule.**
- How are temperature and heat related?
    - **Temperature measurements are used to determine heating.**

Activity 57: The Conservation of Energy

- You should be able to apply the *Law of Conservation of Energy* to an energy flow diagram. For example:
    - Apply the *Law of Conservation of Energy* to the following energy flow (transformation) diagram happening within a solar powered calculator:

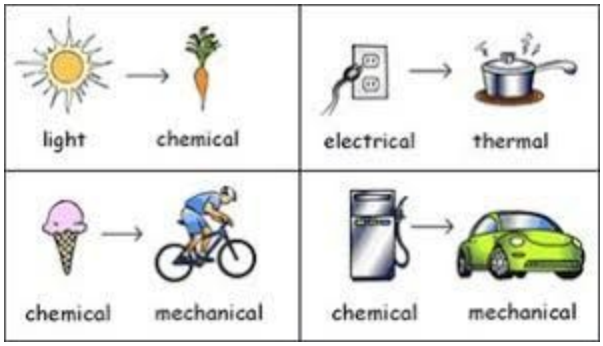


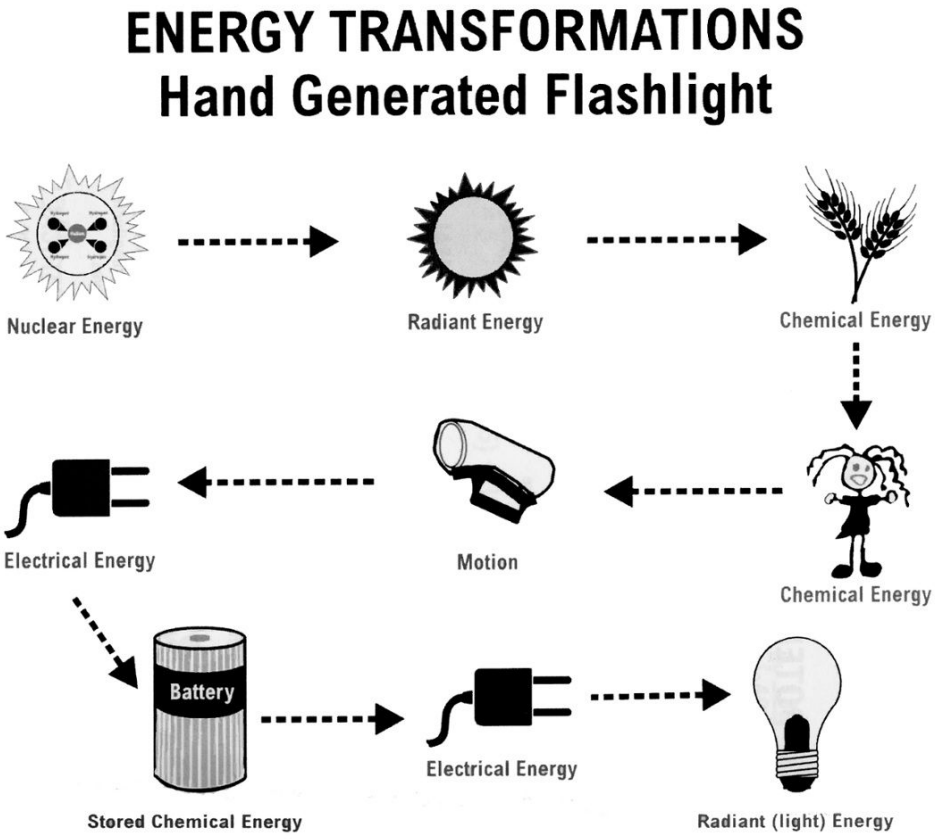
- You should be able to draw an energy flow diagram (like the one above) which shows the type of energy before and after a transformation. Draw an energy flow diagram for showing the transformation of energy

Activity 58: Follow The Energy

- Refer to the *Follow The Energy* table which you completed (and we discussed in class) showing the energy before and after the transformations on the 16 different event cards.

- You should be able to "*follow the energy*" for a given scenario.





Activity 59 and 60: Ice Melting Contest & Ice-Preserving Contest

- Know the difference between conduction and insulation
    - **Conduction: direct transfer of energy when materials touch each other**
    - **Insulation: the restricted flow of energy**
- Know the difference between a conductor and an insulator.
- What is the purpose of insulation?
    - **Preserve energy: keep energy from transferring outdoors in the winter and from moving inside in the summer**