

## ENERGY TRANSFORMATIONS Review

**Be sure to review the following:**

1. Understand radioactivity and describe the half-lives of elements
2. Examine the phases of matter and the related atomic and molecular motion
3. Analyze energy transformations and the flow of energy in systems
  - a. Understand molecular motion involved in thermal energy changes due to conduction, convection, and radiation.

Assessment will focus on the following:

1. Describing the process of radioactive decay in which the unstable nucleus of a radioactive isotope spontaneously decays.
2. Calculating the amount of a radioactive substance that will remain after one half-life.
3. Analyzing graphs, tables, and other displays of data to determine the length of half-life or the amount of materials remaining after one half-life.
4. Understanding that as temperature increases, the motions of molecules increases.
5. Describing a solid as a composition of particles closely situated in position giving a definite shape and definite volume and that little motion occurs between particles as compared to other phases of matter.
6. Describing a liquid as a composition of particles free to move, giving a definite volume but not a definite shape and that particles have a greater range of motion as compared to solids.
7. Describing gases as a composition of particles that move more than particles of either a solid or a liquid, giving no definite volume or shape, and colliding more randomly than particles of solids or liquids.
8. Understanding that a phase change requires a gain or loss in energy.
9. Describing the two forms of energy encountered during a single energy transformation, including chemical, heat, light, electrical, and mechanical.
10. Identifying the processes of conduction, convection, and radiation that occur during thermal energy changes.

Become Familiar with the following terms:

Alpha radiation  
Beta radiation  
Gamma radiation  
Half-life  
Solid  
Liquid  
Gas  
Phase change

Melting  
Freezing  
Sublimation  
Vaporization  
Condensation  
Conduction  
Convection  
Radiation