

**1. Types of Energy**

- a. **Electrical Energy** – this type energy describes the flow of electrons through materials; electricity is generated as a result of interactions between electric and magnetic fields.
- b. **Chemical Energy** – this type of energy is the result of bonds between atoms in molecules; when chemical bonds are made or broken, chemical energy is released or absorbed.
- c. **Sound Energy** – this type of energy is described by the wave-like movement of molecules through air or something else, such as solids or liquids; sound is the vibration of matter that we hear with our ears; vibrations are caused by the movement of air particles.
- d. **Thermal Energy** – this type of energy is the result of the movement of particles in the substance; you can feel it when standing next to a warm or cold substance.
- e. **Radiant Energy** – this type of energy is associated with light; although light does not appear to have any color, it is actually made up of all the colors in the rainbow.
- f. **Mechanical Energy** – this type of energy describes movement or the potential for movement, called kinetic energy and potential energy.
  1. **Kinetic Energy** – the energy of an object in motion; any object that is in motion has kinetic energy
    - a. **Examples:**
      1. bus driving down the street
      2. bird flying
      3. baseball moving through the air
  2. **Potential Energy** – described as stored energy; energy stored by doing work against a force like gravity
    - a. **Examples**
      1. Riding a bicycle up a hill; potential energy is stored in the bicycle as you ride uphill, once you reach the top and start coming down, the potential energy is released and kinetic energy is gained
      2. Pulling a rubberband; the more you pull it, the more potential energy it will have; when you release the rubberband, the potential energy is converted to kinetic energy.

**Electricity and Magnetism Notes**

1. **Source of electricity? Movement of electrons**
2. **When electrons move through a wire, an electric current is formed and this current is what powers your television, lights, computers, etc.**
3. **Conductors are substances that allow the transfer/movement of electrons easily.**
4. **Wires are wrapped in poor conductors (insulators) so that you do not get shocked. Insulators hinder electrons from moving freely.**
5. **There are two types of circuits:**
  - a. **Series circuit has a single pathway for electrons to flow through. If the circuit is open, the flow of electrons stops.**
  - b. **Parallel circuit has more than one pathway for the current to flow. If one path is broken or interrupted, the electrons flow through another path.**

