Potential and Kinetic Energy Notes
1. **Energy** is the ability to do work.

2. **Work** occurs when a force causes an object to move in the direction of the force.

3. When one object does work on another, energy is transferred.
   
   – Mr. Brown pushing a desk across the floor.
4. Kinetic energy is the energy the object has due to its motion.
   - A ball rolling down a hill.

5. Potential energy is the energy an object has due to its position, shape, or condition.
   - A girl on a 10ft diving board, a rubber band, two chemicals that react.
6. Kinetic energy is found using mass($m$) and velocity($v$):
8. Potential energy is found using height \( h \) and weight \( w \):
10. **Energy Conversion** – a change from one form of energy to another.

11. Machines help convert energy into a more useful form.
Energy Conversion Examples

• Kinetic to potential – skateboarding to the top of the ramp and doing a stall
• Potential to kinetic – standing on a diving board then jumping off
• Light energy to chemical – photosynthesis in plants
• Chemical to kinetic – eating breakfast and using that energy to walk, run, kick, etc.
More examples

- Potential to kinetic – stretching a rubber band and letting go
- Electrical to thermal – electricity powering a blow-dryer
- Electrical to light – turning on a light bulb
- Chemical to sound – an iPod running off battery power.