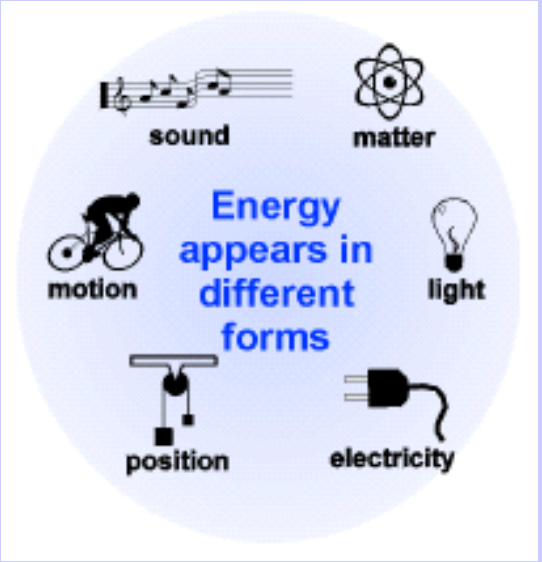
Chp 5.2 – 5.3

Energy

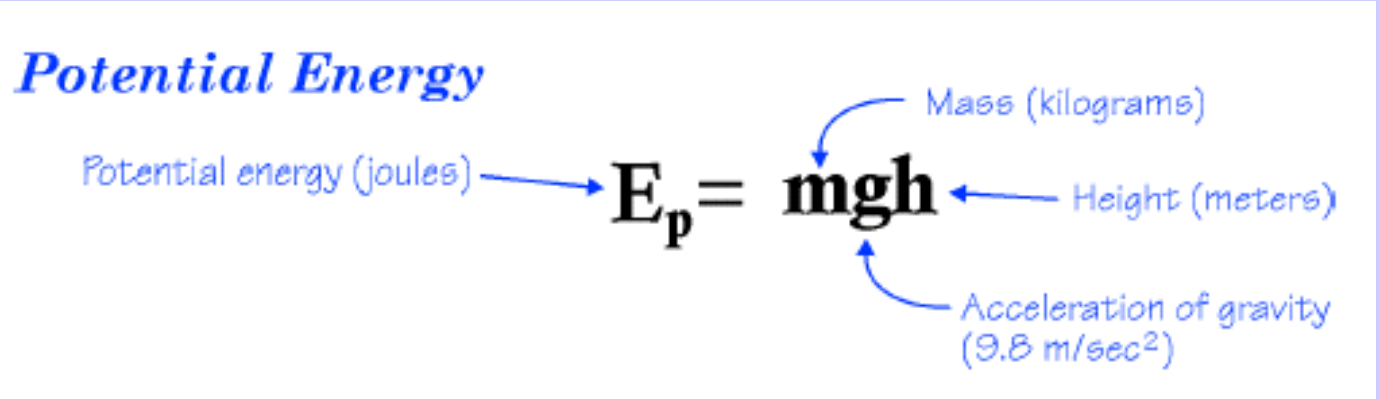
Energy

- Energy is the ability to do work.
- Any object that has energy has the ability to create force and to do work
- Energy appears in many different forms.
- Energy is measured in Joules (J)



Potential Energy

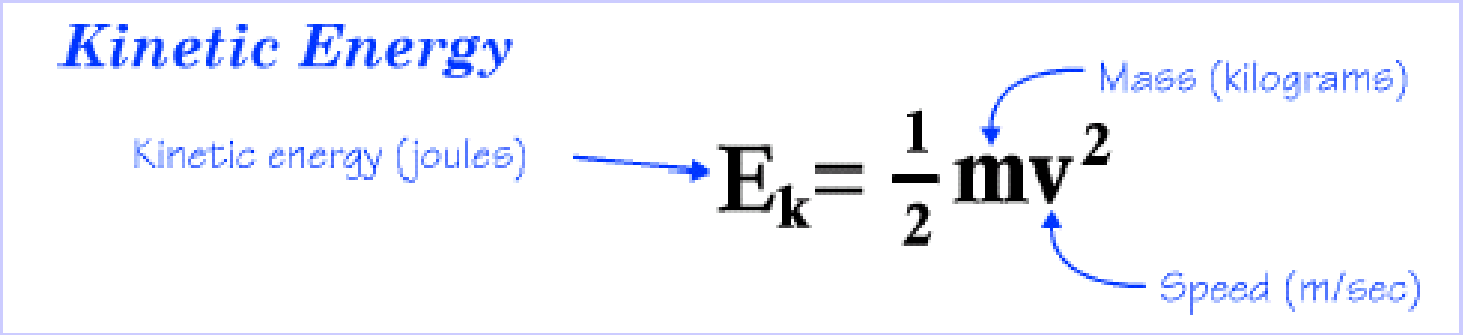
- Potential energy comes from the position of an object relative to the Earth.



• Objects that have potential energy don't use their energy until they move. Potential means that something is capable of moving

Kinetic Energy

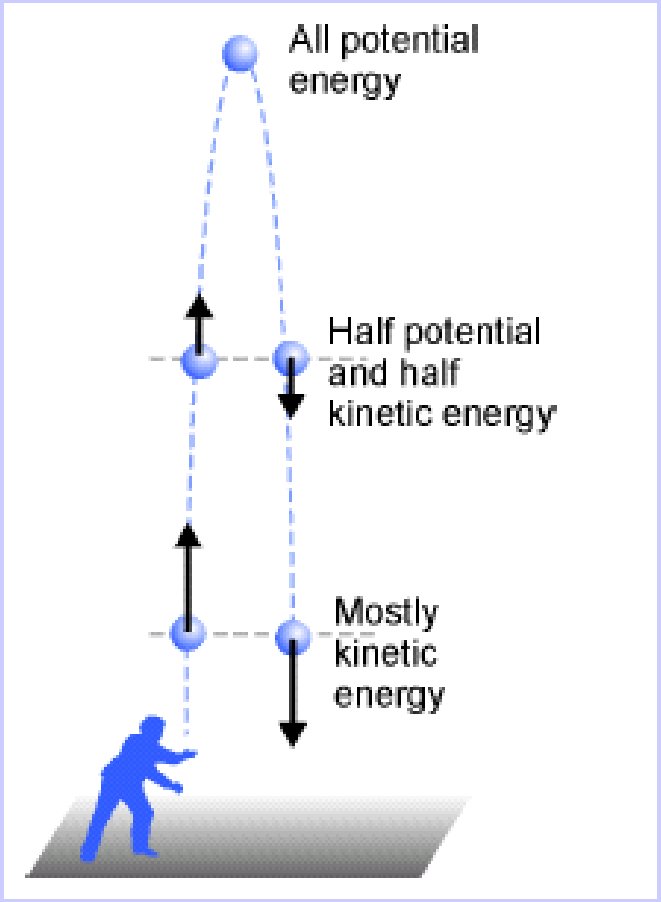
- Kinetic Energy is the energy of motion
- The amount of kinetic energy of an object is equal to the amount of work you do to get the object moving.



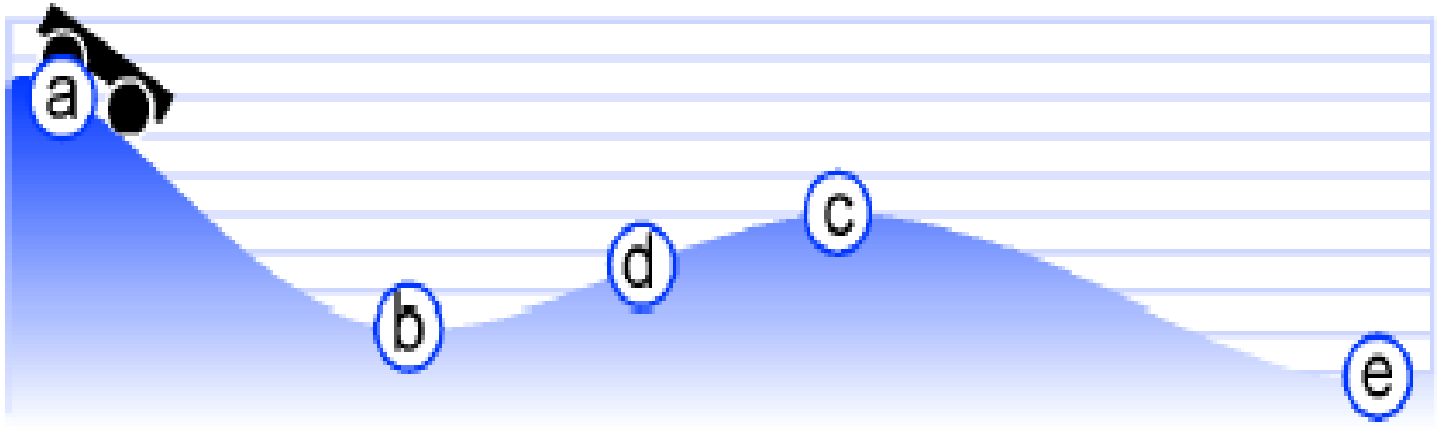
- An object at rest has no kinetic energy
- Kinetic energy depends on mass and speed
- Kinetic energy increases as the square of the speed
  - This means if you go twice as fast, your energy is four times ($2^2=4$)
  - If you go three times as fast, your energy is nine times ($3^2=9$)
- More energy means more force is needed to stop

Conservation of Energy

- Law of conservation of energy says that energy can never be created or destroyed, just transformed from one form into another.
- At any moment, the ball has exactly the same energy it had at the start. The energy is part kinetic and part potential, but the total is unchanged.



Rollercoaster



Kinetic Energy					
Potential Energy					

Smallest Energy Largest