Mechanical Energy

Mechanical Energy = K+U

Potential

$$U = mgh$$

(in gravity)

Kinetic

$$K = \frac{mv^2}{2}$$
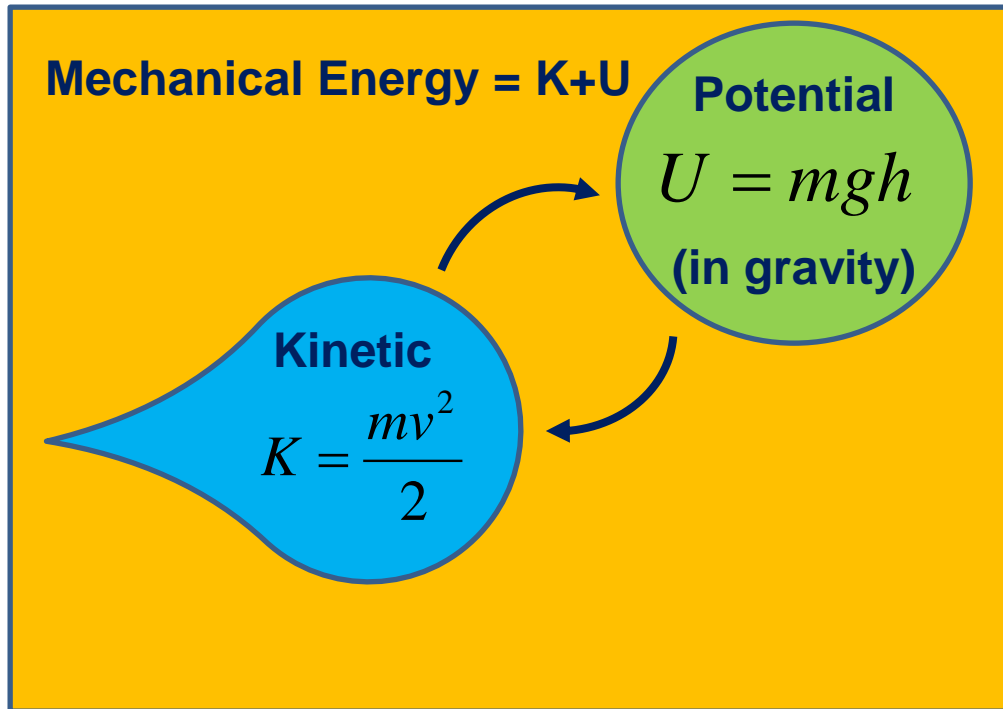
Unit of Energy & Work is called Joule (J)

$$1J = 1N \cdot m = 1\frac{kg \cdot m^2}{s^2}$$

Homework 17

Problem. Kingda Ka, the highest roller coaster in the world, has a drop of 140m. Imagine the roller coaster follows the trajectory pictured below, and neglect any friction or air resistance (so mechanical energy is constant).
a) What is the speed of the roller coaster on points A and B?
   • Hint: You do not need to know the mass of the roller coaster to solve this problem.

 b) Bonus: The roller coaster will try to climb back up to point C. What is the highest point that the roller coaster could get to?