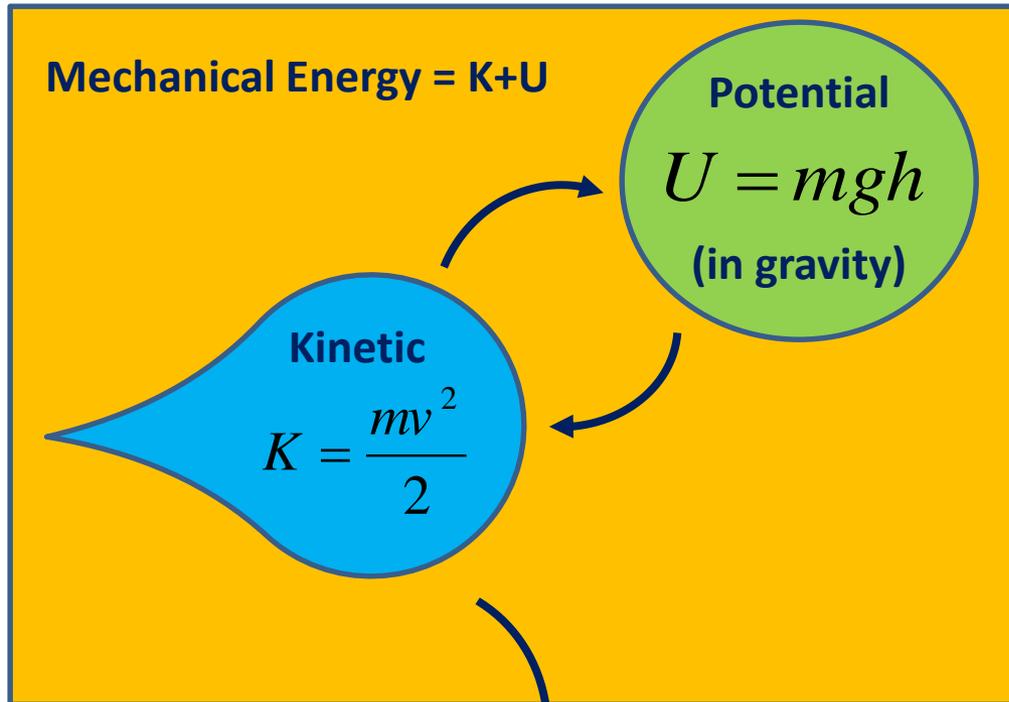


# Mechanical Energy and Work



**Change in Energy = Work**

$$W = F\Delta x$$

Unit of Energy & Work is called Joule (J)

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

# Homework

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 (energy is constant).

- a) What is the speed of the roller coaster on points A and B?
- *Hint 1: The loss of potential energy will be gained as kinetic energy.*
  - *Hint 2: 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?

