POTENTIAL AND KINETIC ENERGY

Name _____

Potential energy is stored energy due to position. Kinetic energy is energy that depends on mass and velocity (movement).

Potential Energy = Weight x Height (P.E. = w x h)

Kinetic Energy = $\frac{1}{2}$ Mass x Velocity^2 (K.E. = $\frac{1}{2}mv^2$)

The units used are:
Energy = joules
Weight = newtons
Height = meters
Mass = kilograms
Velocity = m/s

For a closed system, the sum of the potential energy and the kinetic energy is a constant. As the potential energy decreases, the kinetic energy increases.

Solve the following problems.

1. What is the potential energy of a rock that weighs 100 newtons that is sitting on top of a hill 300 meters high?

   Answer: _____

2. What is the kinetic energy of a bicycle with a mass of 14 kg traveling at a velocity of 3 m/s?

   Answer: _____

3. A flower pot weighing 3 newtons is sitting on a windowsill 30 meters from the ground. Is the energy of the flower pot potential or kinetic? How many joules is this?

   Answers: _____ _____

4. When the flower pot in Problem 3 is only 10 meters from the ground, what is its potential energy?

   Answer: _____

5. How much of the total energy in Problems 3 and 4 has been transformed to kinetic energy?

   Answer: _____

6. A 1200 kg automobile is traveling at a velocity of 100 m/s. Is its energy potential or kinetic? How much energy does it possess?

   Answers: _____ _____