Scientist: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**KE word problems**

**PE=*mgh* KE=**$\frac{1}{2}mv^{2}$ **Total E= PE + KE g= 9.8m/s2**

**KE=**$\frac{1}{2}mv^{2}$ **Solved for:**

**m:**

**v:**

1. I pick a golf ball up from the ground and throw it at 10m/s. The golf ball has a mass of 1kg. How much kinetic energy does it have?
2. Hulk Hogan lifts his wrestling opponent off the ground and throws them at 2m/s out of the ring. If the opponent has a mass of 90kg, how much kinetic energy does he have?
3. What is the approximate kinetic energy of a 880 kilogram race car traveling at 45 meters per second?
4. A 15kg bowling ball is hanging on a rope, not moving. How much kinetic energy does it have?
5. What is the kinetic energy of a 1.5 kilogram baseball ball is thrown with an initial velocity of 30 m/sec?
6. What is the kinetic energy of a 2,000 kilogram boat moving at 5 m/sec?
7. What is the velocity of a 500 kilogram elevator that has 4,000 joules of kinetic energy?
8. What is the mass of an object that creates 33,750 joules of kinetic energy by traveling at 30m/sec?
9. A machine lifted two objects; one object had a mass of 4 kilograms, and was lifted at a speed of 2 m/sec. The other had a mass of 2 kilograms and was lifted at a rate of 3 m/sec.
	1. Which object had more kinetic energy while it was being lifted?
	2. Which object had more potential energy when it was lifted to a distance of 10 meters?
10. A 50 kg teenager goes bungee jumping. After jumping off of the bridge, they’re falling at 4m/s when they are 70m in the air. How much TOTAL energy do they have at that moment?
11. Some teenagers are riding on a roller coaster and they are going through a loop at 20m/s. The loop is 45 meters tall and the total mass of the teenagers in the car is 100kg. What is their total energy at the top of the loop?

Answers: **1)** 50J **2)** 180J **3)** 891,000J **4)** 0J **5)** 756J **6)** 25,000J **7)** 4 m/s **8)** 75 kg **9)a)** The 2kg mass **b)** The 4kg mass **10)** 34,700J **11)** 64,100J