Name:_____ **Date:**_____ **Period:**_____

Kinetic and Potential Energy Worksheet

Classify the following as a type of potential energy or kinetic energy (use the letters K or P)

1. A bicyclist pedaling up a hill _____ 2. An archer with his bow drawn _____

3. A volleyball player spiking a ball _____ 4. A baseball thrown to second base _____

5. The chemical bonds in sugar _____ 6. The wind blowing through your hair _____

7. Walking down the street _____ 8. Sitting in the top of a tree _____

9. A bowling ball rolling in the alley _____ 10. A bowling ball sitting on the rack _____

What examples can you find in your home that are examples of kinetic and potential energy? (name two for each type of energy)

11. Kinetic: _____

12. Kinetic: _____

13. Potential: _____

14. Potential: _____

Kinetic Energy – what does it depend on?

Kinetic energy depends on both . _____ and _____

Solve the following word problems using the kinetic and potential energy formulas (Be sure to show your work!)

Formulas: KE = 0.5 ·m· v² OR PE = m·g·h

v = velocity or speed m = mass in kg g = 10 m/s/s h = height in meters

1. You serve a volleyball with a mass of 2.1 kg. The ball leaves your hand with a speed of 30 m/s. The ball has _____ energy. Calculate it.

2. A baby carriage is sitting at the top of a hill that is 21 m high. The carriage with the baby has a mass of 1.5 kg. The carriage has _____ energy. Calculate it.

3. A car is traveling with a velocity of 40 m/s and has a mass of 1120 kg. The car has _____ energy. Calculate it.

4. A cinder block is sitting on a platform 20 m high. It weighs 7.9 kg. The block has _____ energy. Calculate it.

5. A roller coaster is at the top of a 72 m hill and weighs 134 kg. The coaster (at this moment) has _____ energy. Calculate it.

6. There is a bell at the top of a tower that is 45 m high. The bell weighs 19 kg. The bell has _____ energy. Calculate it.

7. Determine the kinetic energy of a 1000-kg roller coaster car that is moving with a speed of 20.0 m/s.

8. If the roller coaster car in the above problem were moving with twice the speed, then what would be its new kinetic energy?

9. A cart is loaded with a brick and pulled at constant speed along an inclined plane to the height of a seat-top. If the mass of the loaded cart is 3.0 kg and the height of the seat top is 0.45 meters, then what is the potential energy of the loaded cart at the height of the seat-top?

10. A 75-kg refrigerator is located on the 70th floor of a skyscraper (300 meters above the ground) What is the potential energy of the refrigerator?

11. The potential energy of a 40-kg cannonball is 14000 J. How high was the cannon ball to have this much potential energy?