

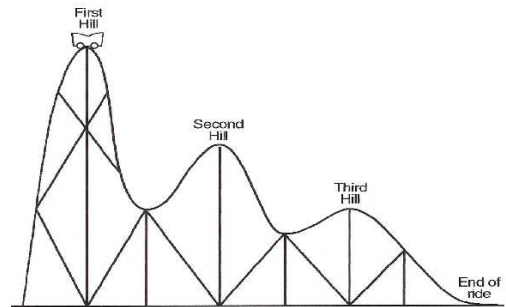
Name \_\_\_\_\_  
Honors Physics  
Period \_\_\_\_\_

Date \_\_\_\_\_  
Energy WS #6H  
Mrs. Nadworny

## Conservation of Energy

**Directions:** Read online textbook pages 181 – 186. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work. Answer in complete sentences where appropriate.

1. In the diagram, a 650 kg roller coaster car starts from rest at the top of the first hill of its track, which is 24 meters high, and glides freely to the end of the ride. [Neglect friction.]



- a. Where will the car have the most gravitational potential energy? Explain.
- b. Where will the car have the most kinetic energy? Explain.
- c. Using one or more complete sentences, describe how energy is transformed as the car travels from the top of the first hill to the end of the ride.
- d. Using one or more complete sentences, compare the kinetic energy of the car at the top of the second the hill to its kinetic energy at the top of the third hill. Give a reason for your answer.
- e. Calculate how fast the car will be going when it gets to the end of the ride.

2. A 0.740 kilogram water balloon is held out of a window 4.9 meters high. When it is dropped, it hits the ground below traveling at a speed of 8.1 meters per second.

a. Calculate the potential energy of the water balloon as it was held out the window.

b. Calculate the kinetic energy of the water balloon as it was impacting the ground.

c. Calculate how much energy was “lost” as it fell.

d. Where did that “lost” energy go?