

Handout #1

Potential and Kinetic Energy

1. Go to the websites located on the Energy web page. Locate and write down the definitions of what Potential and Kinetic Energy are:

Potential Energy:

Kinetic Energy:

2. Go to the website <http://www.funderstanding.com/k12/coaster/>. Test out the simulator. After you have tried the simulation a few times. Think critically about Potential and Kinetic Energy. Use your definitions and resources to help you answer the following questions:

- At what point is there the greatest amount of potential energy? Kinetic energy?

- What can you do in the simulation to increase the potential energy and the kinetic energy of the car?

3. Now build a roller coaster model using 2 to 3 pieces of Styrofoam tubing (cut in half), a marble and tape. This model should have a starting hill and one other hill to begin with. You are finished building this model when the marble you have goes through the roller coaster successfully. Then take your time to answer these questions:

- Take a ruler and measure how high your first hill is. Record this number:

- Take a ruler again and measure how high the second hill is. Record this number. _____

- How were these numbers different?

- Why were they different?

- Where were the greatest amounts of potential and kinetic energy located in this roller coaster?

- Finally what can you say about how roller coasters move after doing this experiment?

- What other experiments could you conduct to show potential and kinetic energy?

- What could you do differently to raise the amount of total energy in a roller coaster?
