

Energy Simulations

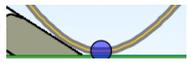
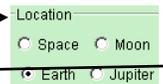
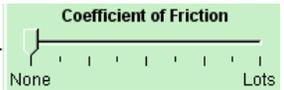
Objective: Students will explore the interaction between kinetic and potential energy. Students will apply the concepts of kinetic and potential energy to real-world examples.

Materials: pHet simulations (links are on my blog)

Energy Skate Park

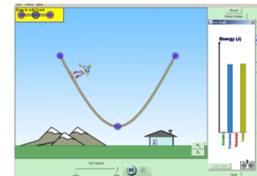
~To get to the Energy Skate Park Link go to my blog and click on the link

~**Part 1: EXPLORE:** Explore the simulation and **complete** the following checklist

- ◇ Move the blue dots on the track and run the skater 
- ◇ Try out different locations 
- ◇ Try different skaters 
- ◇ Try the different energy graphs 
- ◇ Add friction to the track 

Part 2: Reset the simulation. Then make your screen look like the picture by

- ~clicking to open the bar graph
- ~dragging the graph closer to the track.



In the data chart, write whether the energy INCREASED, DECREASED, or STAYED THE SAME

Skater's Movement	Image	Potential Energy	Kinetic Energy	Total Energy
Downhill				
Uphill				



Change your skater, and try again. Observe the energy in the bar graph, circle the correct word in parentheses to make the paragraph true:

As an object moves **down the track**, the kinetic energy (increases/decreases) and the potential energy (increases/decreases). When the object moves **up the track** the kinetic energy (increases/decreases) and the potential energy (increases/decreases).

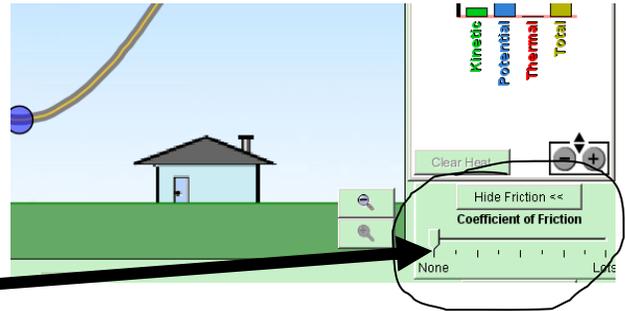
Part Three: Friction Exploration

~Reset the simulation

~Click open bar graph

~Click on **Track Friction**

~Use the slider to adjust the amount of friction



~Fill in the data chart based on the bar graph during your friction trials (INCREASE, DECREASE, STAY THE SAME)

Skater's Movement	Potential Energy	Kinetic Energy	Thermal Energy	Total Energy
Downhill				
Uphill				

Change the skater and repeat this part of the activity, and circle the correct word in parentheses to complete the paragraph.

As the skater moves down the track the kinetic energy (increases/decreases) and the potential energy (increases/decreases). The total energy (increases/decreases).

~Move the friction tab all the way to the right, and observe the thermal energy. What happens to thermal energy:

~Now: Design your own skate park. Draw a picture of your design below. What happened?

My skate park design:

Write down your observations as to what happened when you tested your skate park design: