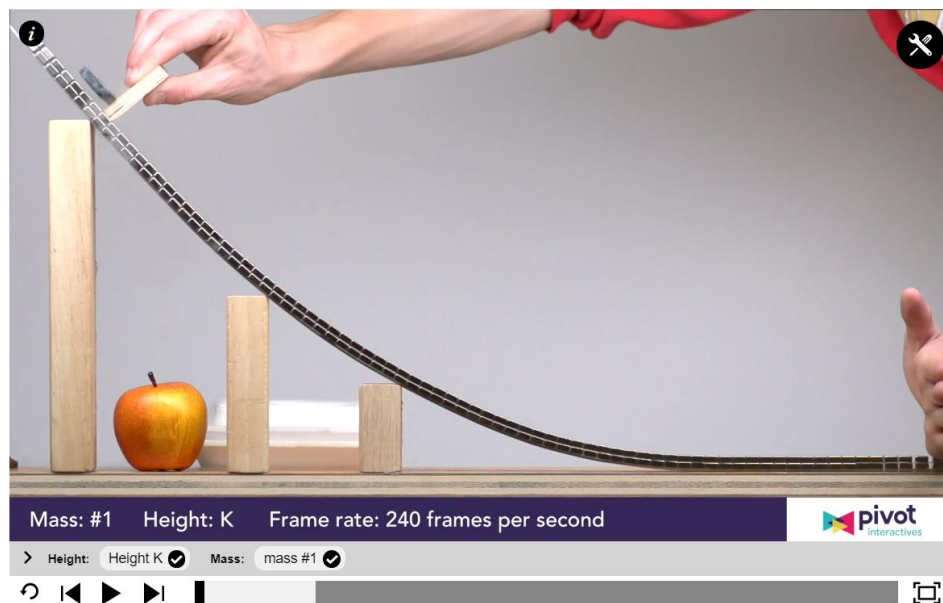


Pivot Interactives Height vs Velocity for a Puck on a Ramp

Purpose: To observe conservation of mechanical energy.

Access the Pivot Interactives lab “Mathematical Modeling: Height vs Velocity for a Puck on a Ramp”. For this lesson we will be using the video and measurement tools, but we will be using an Excel spreadsheet for the analysis.

Scroll down to the video of the track:



What you will do is compare the change in height of the superconducting puck during its trip down the track with its speed at the bottom and decide whether your result makes sense in the context of conservation of energy. There are eleven videos corresponding to eleven changes in height.

Measure the change in height for each of the videos, and measure the speed of the puck at the bottom as well. To do this, follow items 1 and 2 in “Tips for Making Measurements with this Interactive”, which is below the video window.

When you have completed the measurements of the change in height and speed at the bottom, open a spreadsheet and set up two columns, one for the change in gravitational potential energy and one for kinetic energy at the bottom of the track. We don’t know the mass of the puck, so the quantities you will actually be using (and plotting) are the change in gravitational potential energy divided by the mass ($PE/m=gh$) and the kinetic energy divided by the mass ($KE/m=.5v^2$).

Once you have made those two columns (with eleven rows, each corresponding to a different change in height) make a scatter plot and fit a linear trendline. Label the vertical and horizontal axes. Open a Microsoft Word document and copy a screen shot of your plot into the Word document. Then answer this question in the Word document: Is energy conserved?

Then submit your document via Canvas.