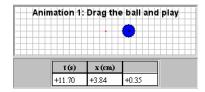# Worksheet for Exploration 7.5: Drag the Ball to Determine PE(x)

Potential energy is energy associated with the configuration of an object or a system **(position is given in meters and time is given in seconds)**. Since potential energy can be converted to kinetic energy, an operational way to determine potential energy is to let the system evolve from an unknown configuration to a known configuration and measure the kinetic energy. You can use this technique to measure and plot potential energy functions, PE(x). Restart

Plot the potential energy as a function of position for both animations. Note that these interactions may or may not be physical interactions.

Procedure: Reset will initialize the system to a known potential energy. This initial configuration has been marked with a small red dot. Assume this configuration has zero potential energy, $PE_o = 0$, and the object has a mass of 1 kg. Use the mouse to move the object to a new position and release it. The object will have zero initial velocity when it is released. If the object returns to the original position you can record the velocity and calculate the kinetic energy. This kinetic energy must have come from the potential energy at the new position if the interaction is conservative.

Note: Animation will stop after 100 s.

b. You may place both plots on the same graph below. Fill out the tables for your measurements of potential energy vs. position for each animation.

Positions	Potential Energy Animation 1	Potential Energy Animation 2

c. Plot Potential Energy vs. position. You may want to plot these carefully on a plotting program.