

Go to www.simbucket.com -> Videos -> Pendulum Energy Lab

1. Play the simulation and observe the swing.

Location A - When the mass first passes the left edge of the paper.

Location B - When the mass first passes the right edge of the paper.

Location B' - As the mass passes the right edge of the paper for the second time on the return swing.

Location A' - As the mass passes the left edge of the paper for the second time on the return swing.

2. Use the "Measure Height" and "Measure Speed" buttons to carefully measure the height and speed at each location, filling out the table as you go.

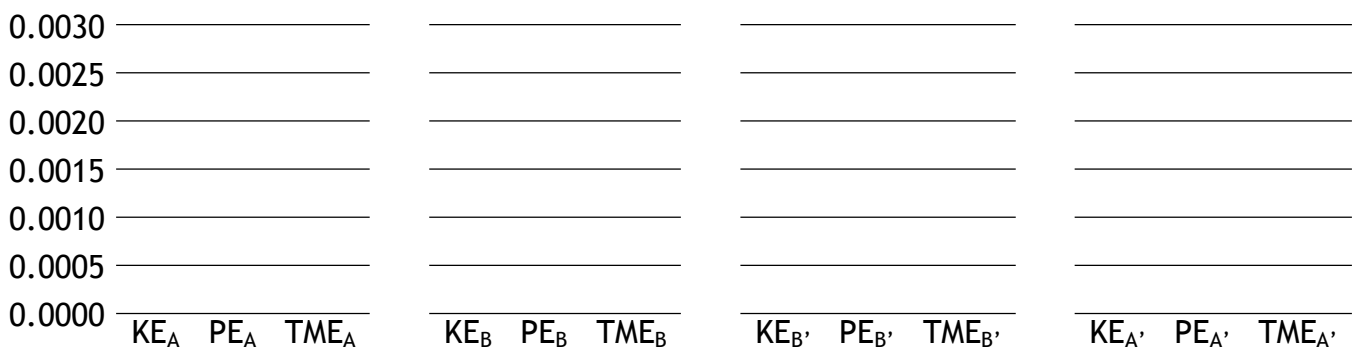
a. For the height measurement, you will need to interpolate between two frames.

b. For the speed measurement, try measuring the position 3-4 frames apart to improve the accuracy.

Location	Height (m)	g (m/s ²)	Mass (kg)	Speed (m/s)	KE (J)	PE _g (J)	KE + PE _g (J)
A		9.8	0.004				
B		9.8	0.004				
B'		9.8	0.004				
A'		9.8	0.004				

3. Create a bar graph showing the amount and type of energy at each point:

Energy (Joules)



Analysis questions.

1. According to the bar graph that you created, what happens to the Total Mechanical Energy as the pendulum swings?

2. Calculate the percent difference between the Total Mechanical Energy at Point A, and the Total Mechanical Energy at Point A' as it swings back?.

3. Why is there a difference between the Total Mechanical Energy at Point A, and the Total Mechanical Energy at Point A' as it swings back?

4. A common physics demonstration is to have a student place their face at the starting location of a bowling ball pendulum. The ball is released at rest in front of the student's nose, and allowed to swing forward and back again. Describe what will happen, and why this is a common demonstration of the Law of Conservation of Energy.