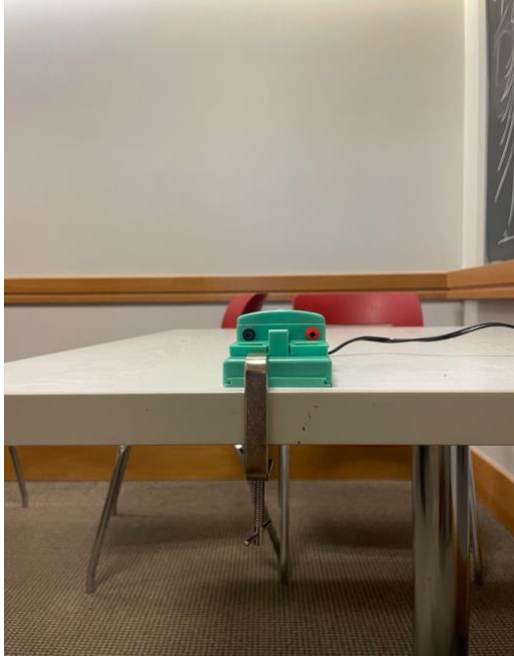


Handout

Instructions:

Step 1: Place the spark timer on the edge of the table and plug into the wall. Use a clamp to attach the spark timer to the table.



Step 2: Attach the pulley at an adjacent edge of the table to where the spark timer is.

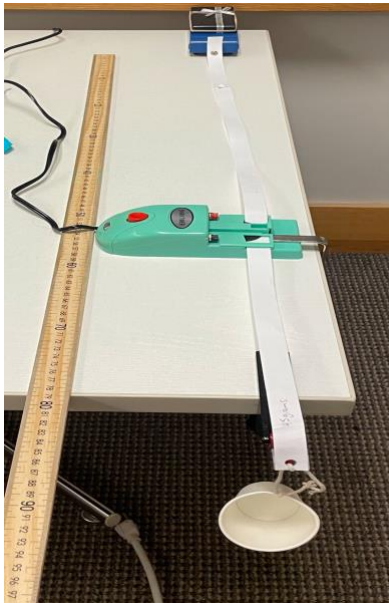


Step 3: Cut a piece of paper the length of the side of the table where both the pulley and spark timer are attached. Add a piece of tape at either end of the paper then make use of a hole puncher to cut through a hole at either end of the paper over the tape. Use a screw to pass through one end of the paper to the cart in order to connect the cart and the paper. Place the cart at the other adjacent edge of the table to where the spark timer is. The pulley and the cart should be on opposite ends of the table with the spark timer in between.



Step 4: Use the hole puncher to make a hole near the upper part of a cup. Make use of a piece of string to go through the spark timer and finally attach the cup to the opposite end of the piece of paper. Place the end of the paper attached to the cup over the pulley.

Note (only for older students): place a ruler at the edge of the table where the cart is to mark the starting point which will facilitate calculations later.



Lesson 2: JUST FOCUS ON ENERGY

What is Potential Energy?

What factors determine the potential energy in this lab and how do we measure it?

What is Kinetic Energy?

What factors determine the kinetic energy in this lab and how will we measure it?

Qualitative questions :

What do you notice about the dots in the paper in terms of their spacing at different ends of the paper?

The spacing of the dots corresponds to the speed of the box. Do you think the box is moving faster when the dots are spaced out farther when the dots are closer to each other?

As the box moves, the PE of the system is increasing, decreasing, staying the same? Why do you think this?

As the box moves, the KE of the system is increasing, decreasing, staying the same? Why do you think this?

Which of Newton's Laws do you see in this lab and where?

The total energy of the system is increasing, decreasing, staying the same

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

Weight _____ Distances between first 5 dots: Avg=

Distance between last 5 dots: Avg=

What do you notice about the qualitative data you collected?