

## Energy Lab - V2

This lab must be word processed.

Purpose - to determine the relationship between kinetic and potential energy and to verify the law of conservation of energy.

Procedure -

- 1.) Open Interactive Physics, NOT IP PLAYER.
- 2.) Click from the handout folder on I drive locate handout, science, Strachan, physics 11 folder then open energy1.
- 3.) Run the experiment and sketch the graphs, be very careful, as I will mark these for accuracy.
- 4.) Complete a table like the one below in your report:

	<u>Potential Energy (J)</u>	<u>Kinetic Energy (J)</u>	<u>Total Energy (J)</u>
When pendulum is highest			
When pendulum is lowest	Sample only do not use this table.		
Any point between high and low			

- 5.) Mark on your graphs the points when the pendulum is at its high points, and when its velocity is highest. Make sure the difference can be clearly seen.
- 6.) Close this file and open energy3.
- 7.) Run the experiment, carefully sketch the graphs.
- 8.) Record on your graph of  $\vec{v}_y$  the points when the mass is at its highest point, and lowest point.
- 9.) If the mass is 5.0 kg, calculate the  $E_k$  at its highest value.

DO NOT SAVE CHANGES IN INTERACTIVE PHYSICS!!

Discussion -

- 1.) In the first experiment was the value of  $E_k$  highest, lowest or somewhere in between when  $E_p$  was at a maximum?
- 2.) In the first experiment where in its path was the mass when it had its highest velocity?
- 3.) In the 2<sup>nd</sup> experiment. why is the maximum velocity not at the low point of the object's path?
- 4.) Where does the  $E_k$  go when the mass is falling in the 2<sup>nd</sup> experiment?
- 5.) Is the Law of Conservation of Energy violated in any experiment?

Conclusion -

Your meaningful conclusion should include something about the Law of Conservation of Energy, and the relation between  $E_p$  and  $E_k$  in each experiment. When you are fully finished close all applications.