Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ date \_\_\_\_\_\_\_\_\_\_\_\_ hour \_\_\_\_\_\_\_\_\_

The Physics Classroom – Pendulum

Log onto MOODLE, go to Simple Harmonics section and click on The Physics Classroom link to get to the website about pendulums. You may remember some of this information from previous chapters ☺

1. The mass that swings in a pendulum is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. In a closed system, all the mechanical energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In other words, the total mechanical energy is the same as the pendulum swings.

Look at the animation:

1. When the bob is at the highest point in the swing, all the energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. When the bob is at the bottom of the swing, most of the energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. In between there is some PE and some KE. The PE of the bob mostly depends on its

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it swings.

1. The KE of the bob mostly depends on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it swings.
2. Write the formula for calculating GPE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Write the formula for calculating KE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Notice on the website you can use their numbers to practice the calculations and then click on the link to see the answer. Cool, eh?

1. Look at the animation. When does the bob have the highest velocity?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the average velocity of the bob at the point in #9? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the top height of the bob? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 11

1. We know the period of a pendulum largely depends on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the string.
2. The length of a pendulum is measured from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to

the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the bob

1. Write the formula used to calculate the Period of a pendulum
2. By looking at the equation, if you shortened the length of a pendulum, what would happen to the period of that pendulum? Explain how you know this.
3. Calculate the period for a 2kg bob swinging on a 3m rope. Show work
4. Calculate the period for a 15g bob swinging on a 6m rope. Show work
5. What would be the period of pendulum #17 if it were on the moon? Show your work

\*If you have time, check out the You Tube “Super Cool Group of Pendulums” video on MOODLE ☺