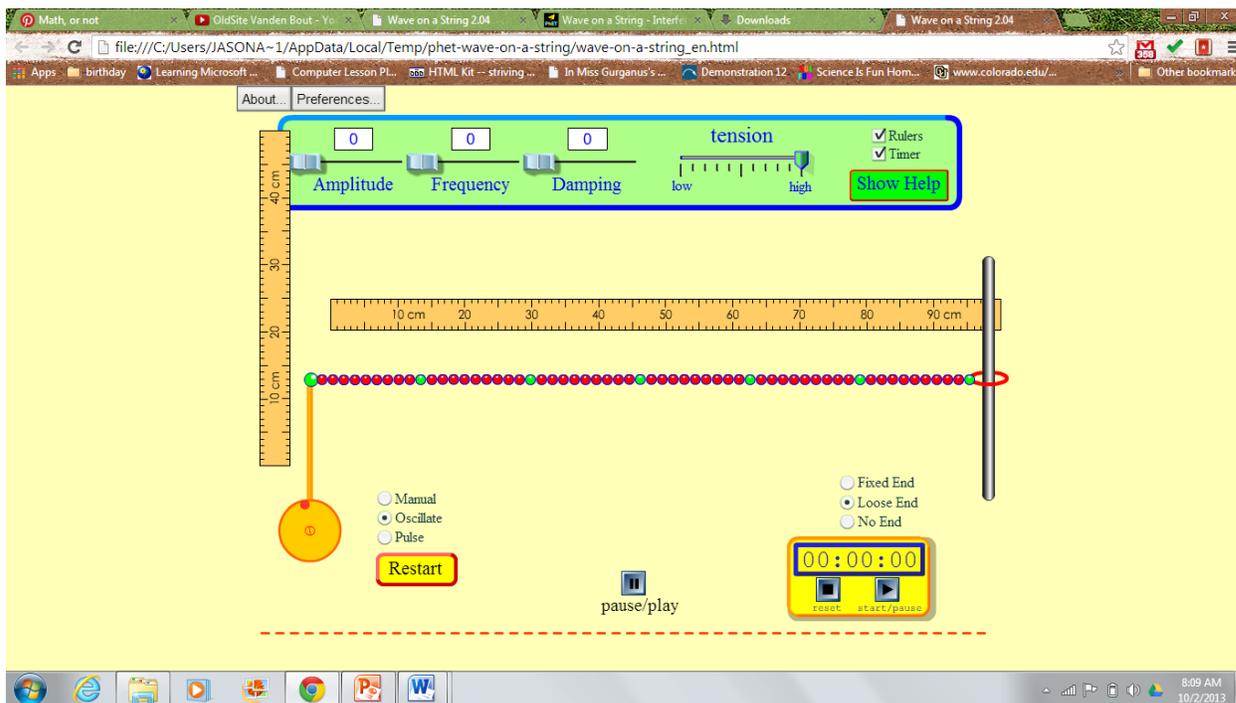


Properties of a Wave Lab

Name: _____

1. Go to the address <http://phet.colorado.edu> and click on the orange **play with sims** button.
2. On the left side, under simulation click on the **Chemistry** link.
3. On the Chemistry simulations page, scroll to the bottom of the page and open the **wave on a string** simulation. Click the run now button to start the simulation.



4. Adjust the simulation to have the following settings (see pic above):
 - a. Set to oscillate
 - b. Set to no end
 - c. Set amplitude, frequency and damping to 0
 - d. Set tension to high
 - e. Check the rulers and timer boxes
5. Record your observations of the string with the initial settings.
6. Set the both the frequency and the amplitude to 35. What happens to the string?
7. What is an oscillation or disturbance that travels through space called?

8. Based on your observation of the wave define the following properties of a wave:
 - a. Peak
 - b. Wavelength
9. Set the frequency to 50 and adjust the amplitude to several different settings. What happens to the string as you adjust the amplitude? Record your observations.
10. Based on your observations, define the amplitude of a wave.
11. Adjust the frequency button to several different settings. What happens to the string as you change the frequency? Record your observations.
12. Based on your observations, define the frequency of a wave.
13. You will now explore the relationship between frequency and wavelength. Set the amplitude to 50 and calculate the frequency of the wave for 5 different settings of frequency. To calculate frequency use the timer and count the number of peaks that pass through a given point per second.
14. Next, measure the wavelength for each of the frequencies you calculated in step 13. Measure wavelength using the movable ruler and the pause button. Report your measurements in nanometers.

15. Record your values of frequency and wavelength in a data table and then create a graph plotting frequency vs. wavelength.

16. What is the relationship between frequency and wavelength?

17. Light can be described as a wave. How fast does light travel? Are speed of light and the frequency of light the same thing? Explain.