

Name: _____

Date: _____

Directions: Go to Google Classroom under “5. Lab – Waves,” and open the simulation from PhET on your laptop.

<https://phet.colorado.edu/en/simulation/wave-on-a-string>

1) Before you begin, select “Oscillate” on the top left corner of the screen. Select “No End” on the top right of the screen. Set the “Damping” at the bottom of the screen to “None.”

2) Pause the wave by clicking the pause button below it. Select the “Ruler” tool by checking the “Rulers” icon at the bottom right of the screen. Determine the wavelength of this wave. Also, record the frequency of the wave (given in Hertz on the bottom part of the screen).

Wavelength #1 (in cm)	Frequency #1 (in Hz)

**Be careful with significant figures when measuring with the ruler!*

3) Determine the speed of this wave. (Hint: The speed of a wave is its wavelength times its frequency!)

Speed #1 (in centimeters per second)

**Be careful with significant figures in your calculation!*

4) Draw a sketch of this wave.

Wave #1

5) Press the orange reset button (bottom right of the screen). Choose two (2) frequencies that are higher than the one used in #2. Repeat step #2 for two more waves. Then, draw sketches.

Wavelength #2 (in cm)	Frequency #2 (in Hz)
Wavelength #3 (in cm)	Frequency #3 (in Hz)

**Be careful with significant figures when measuring with the ruler!*

Sketches

Wave #2
Wave #3

6) Calculate the speed of these two new waves.

Speed #2 (in centimeters per second)

Speed #3 (in centimeters per second)

**Be careful with significant figures in your calculations!*

6) What do you notice about the speed of waves #2 and #3 compared to wave #1?

7) What happens to the wavelength of a wave if the frequency goes up?

8) Reset all of the settings. Select "Oscillate" on the top left corner of the screen. Select "No End" on the top right of the screen. Set the "Damping" at the bottom of the screen to "None."

9) Adjust the "Amplitude" of the wave by sliding the bar at the very bottom of the page. Create two (2) waves that have different amplitudes than your original wave. Write down the amplitudes of those waves, and draw a picture showing what the new waves look like.

Wave #4

Amplitude (cm):

