Properties of Waves Lab

Name: ___Key___ Date:_____ Class:_____

To to Google Classroom - Science, Click on the Waves on a String Simulator link

1. **Click the button for the ruler, set damping to "NONE" and click the button for "no end"**

2. Click the **"Oscillate"** button. Describe what is happening.

Description	Needs to include decription of energy source, medium, type of wave
Drawing	

3. Next we are going to measure **wavelength** of different waves. Move the **Frequency** and **Amplitude** sliders to the numbers listed in each row. Let the wave run for a few seconds and then pause the wave and use the ruler to measure the wavelength. Record your findings in the table with a description.

Amplitude	Frequency	Wavelength (cm)	Description (describe or draw the wave)
0.75 cm	1.50 Hz	4 cm	
1.25 cm	1.50 Hz	4 cm	
0.75 cm	1.00 Hz	6 cm	
1.25 cm	1.00 Hz	6 cm	
1.25 cm	3.00 Hz	2 cm	
0.50 cm	3.00 Hz	2 cm	

4. Use the measurements for each wave above and calculate the **speed** of each wave in the table below.

Amplitude	Frequency	Wavelength (cm)	Speed (cm/s)
0.75 cm	1.50 Hz	4 cm	6 cm/s
1.25 cm	1.50 Hz	4 cm	6 cm/s
0.75 cm	1.00 Hz	6 cm	6 cm/s
1.25 cm	1.00 Hz	6 cm	6 cm/s
0.50 cm	3.00 Hz	2 cm	6 cm/s

5. How does changing the **Frequency** affect the wavelength? (may use illustrations to help explain)

Higher frequency = shorter wavelength

6. How does changing the **Amplitude** affect the wavelength?

Amplitude does not affect wavelength
★ Encourage students to look at data to answer these questions

7. How does changing the **Frequency** affect the energy of the wave?

Frequency is not linked to the energy

8. How does changing the **Amplitude** affect the energy of the wave?

More Energy = Higher amplitude

9. The **amplitude** of a wave is related to the energy of a wave. Did you see anything on the screen that made you think this or could prove your point? How could you demonstrate this relationship?

Amplitude slider

10. What are the relationships that are present between **frequency**, **wavelength**, and **amplitude** of a wave?

As frequency is increased wavelength ... decreases

Wavelength increases and frequency is decreased
Amplitude is not connected to wavelength + frequency