**Wave on a String Online Lab**

***Instructions****: Follow the instructions below,* ***record your observations and data in your journals or type into the document.***

**Procedure**

1. Navigate to <https://phet.colorado.edu/en/simulation/wave-on-a-string>  Click the gray play button in the center of the preview
2. First, set **damping to “None”** on the green control panel at the bottom center of the screen. In the top right, select **“No End.”** Wiggle the wrench to create a single pulse on the top side of the string.
   1. **Draw** your observations of this pulse as it travels to the right.
   2. **Label** the different parts of the wave
3. **Reduce the tension** and send another pulse.
   1. Describe the differences between this pulse and the previous one.
4. **Change to “Oscillate”** in the bottom left to produce a continuous stream of pulses. Check the **“rulers” box** and the **“timer” box**.
   1. Do not change the amplitude or tension settings during this experiment.
   2. Use the ruler to measure the wavelength of your wave (the distance from crest to crest).
   3. Leave the damping setting at “None”.
5. For five different frequencies, **measure the wavelength** of the wave produced. **Record** the tension setting and amplitude used. **Record** your frequencies and measured wavelengths in a table similar to the one shown below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Trials** | **Frequency**  **(Hz)** | **Wavelength**  **(m)** | **Wave Speed** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

1. What is the relationship between frequency and wavelength?
2. What is the relationship between wave speed and frequency?
3. Repeat step 5 for a **new amplitude setting** using the same tension setting as in step 5.
   1. What is the effect of amplitude on the wave speed?
4. Repeat step 5 for a **new tension setting** using the same amplitude setting as in step 5.
   1. What is the effect of tension on the wave speed?