Sine Wave Generator/String Vibrator Laboratory Activity

**Materials Key Terms**

Sine Wave Generator Wavelength   
String Vibrator Amplitude  
Ring Stand Frequency  
2 Patch Cords Wave  
Pencil Crest  
 Trough



**Part 1**

1. Set your string vibrator and sine wave generator up as shown in the picture above.
2. One person should hold the string one meter from the string vibrator making sure that there is tension on the string.
3. Turn on the sine wave generator and set the frequency to 140 hertz. The amplitude should be set to halfway.
4. Create tension on the string by gently pulling on it until the waves appear.
5. Count the number of waves and record in Table 1.
6. Increase the frequency by 5 hertz until you reach 170 hertz. Continue to adjust the tension on the string to make waves visible. Record the results in Table 1.

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| --- | --- | --- |
| **Frequency** | **Number of Waves** | **Wavelength Increase or Decrease?** |
| **140 Hz** |  |  |
| **145 Hz** |  |  |
| **150 Hz** |  |  |
| **155 Hz** |  |  |
| **160 Hz** |  |  |
| **165 Hz** |  |  |
| **170 Hz** |  |  |

**Discussion**

1. Draw a diagram of a wave. Label the crest, trough, amplitude, and wavelength.
2. Draw a diagram of a wave with a greater frequency than the wave you drew in the diagram above.
3. During this activity, as the frequency increased, the number of waves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. As the frequency increased, the wavelength \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Using the terms “crest” and “trough,” describe what happens to wave height when the amplitude knob is turned to the right.