**Wave Characteristics: frequency, amplitude, speed, & wavelength**

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| **Harmonic #** | **Frequency (Hz)** | **Wavelength (m)** | **Speed (m/sec)** Note: speed is frequency × wavelength) | **Amplitude (cm)** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |
| **6** |  |  |  |  |
| **7** |  |  |  |  |
| **8** |  |  |  |  |
| **9** |  |  |  |  |
| **10** |  |  |  |  |

Construct the following two graphs:

* Plot Frequency on the x-axis and Wavelength on the y-axis.
* Plot Frequency on the x-axis and Amplitude on the y-axis.

Answer the following questions using your data table and your graphs.

1. Describe how the frequencies of the different harmonic patterns are related to each other.
2. How does the speed of the wave changes compare to the changes in frequency and separately wavelength?
3. If the frequency increases what happens to the wavelength? If the frequency decreases what happens to the wavelength? What type of mathematical relationship is this?
4. If the frequency increases what happens to the amplitude? If the frequency decreases what happens to the amplitude? What type of mathematical relationship is this?

Use the wave-images to answer the following questions:



1. Is this a transverse or a longitudinal wave?
2. What is its wavelength? (use a ruler to measure the wavelength, on the image, in centimeters)
3. What is the frequency of this wave?
4. How fast is this wave traveling?
5. What is the amplitude of this wave?