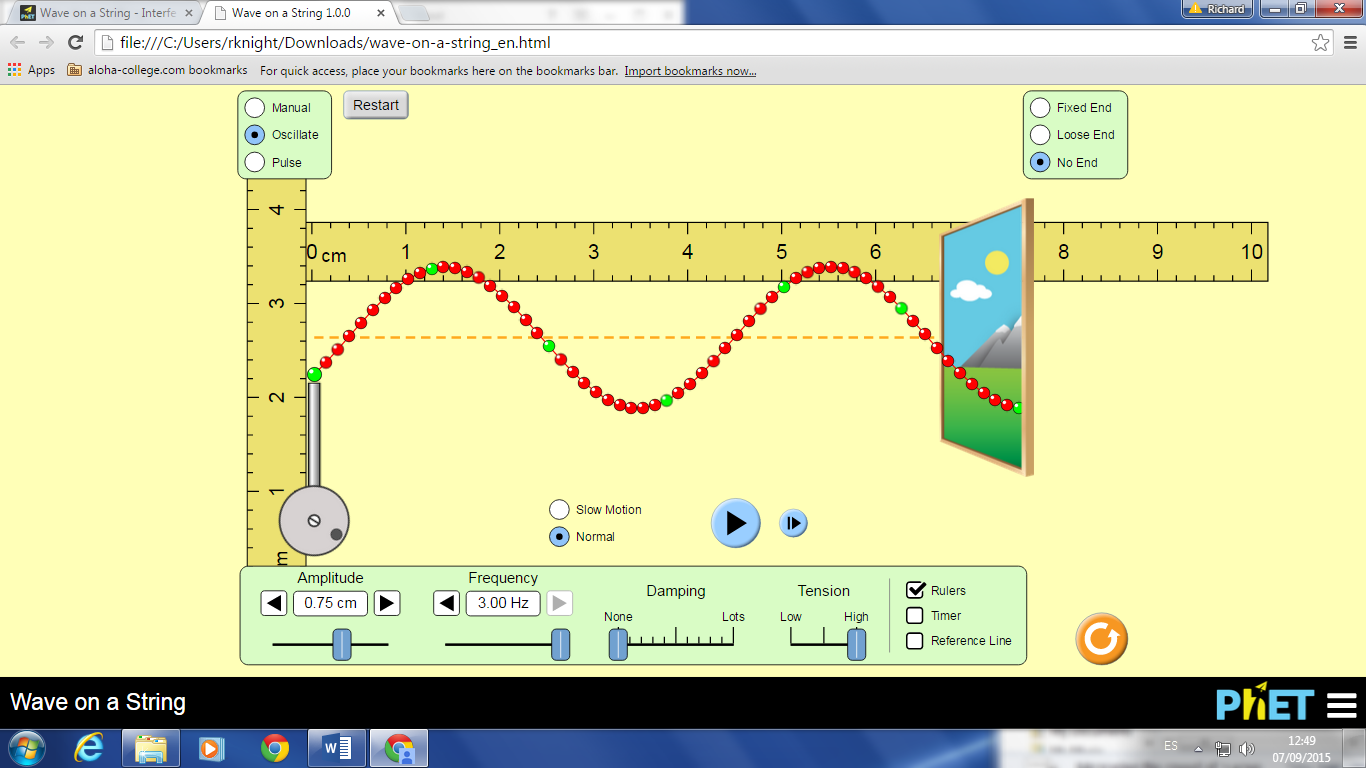
**Measuring waves**

1. Type into your browser https://phet.colorado.edu/en/simulation/wave-on-a-string or Google “Phet Wave on a string “ and you should follow the links until you get to a page that looks like this:



1. Set   
   Left hand side: “Oscillate”  
   Right hand side: “No end”  
   Frequency= 1.5 Hz  
   Damping = 0   
   Tension = high
2. Measure the wavelength of the wave and record it in the table.
3. Change the frequency and measure the wavelength again. Record your results in this table:

|  |  |  |
| --- | --- | --- |
| Amplitude | Frequency (Hz) | Wavelength (m) |
| 25 | 1 |  |
| 50 | 1 |  |
| 75 | 1 |  |
| 100 | 1 |  |

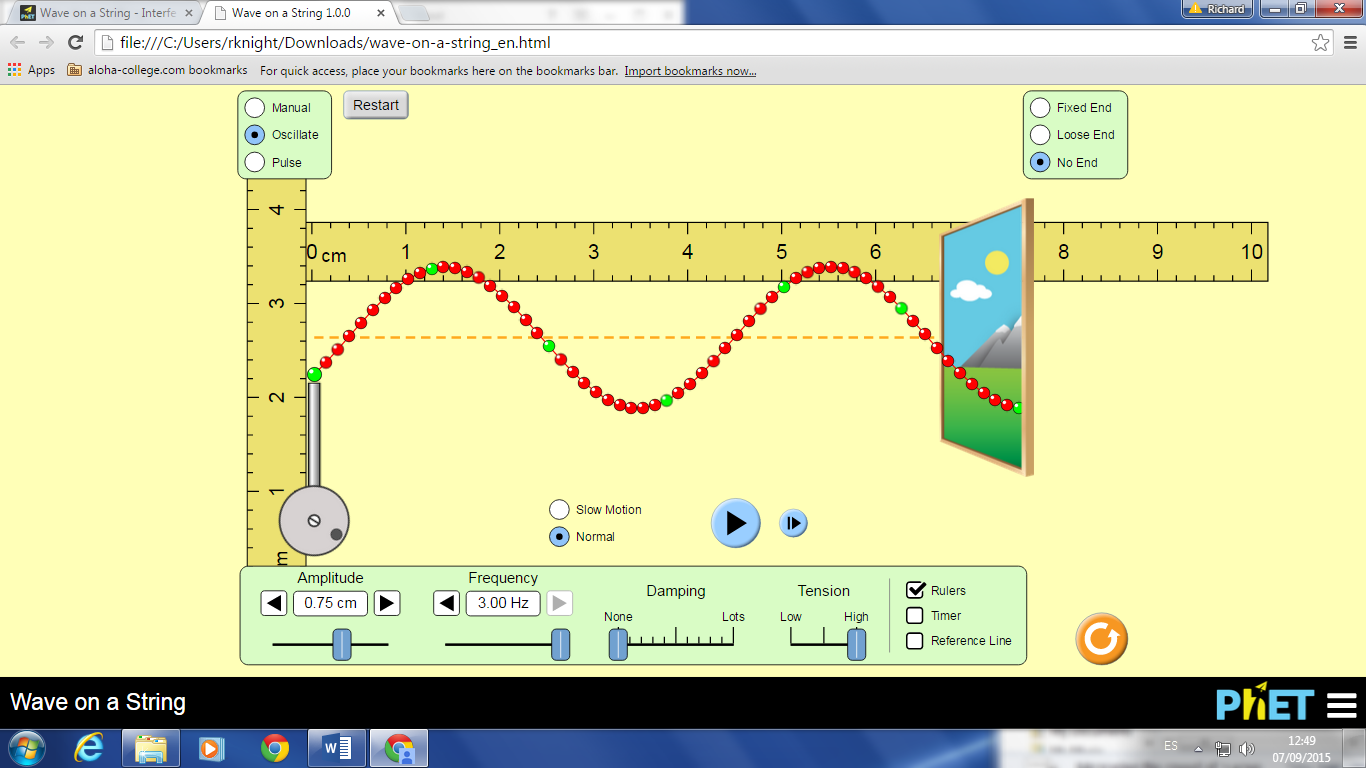
1. What happens to the wavelength when keep the frequency the same and change the amplitude?
2. Set Amplitude to 100, dampening to 0, damping to 0 and tension to “high”
3. Pause the animation and use the ruler to measure the wavelength at 0.5 Hz.
4. Record the result in the table and repeat step 3-4 until you have completed all of your readings.

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency (Hz or 1/s) | Wavelength (cm) | Wavelength (m) | Wave speed (m/s) |
| 0.5 |  |  |  |
| 1.0 |  |  |  |
| 2.0 |  |  |  |
| 2.5 |  |  |  |
| 3.0 |  |  |  |

1. Input the data to Microsoft Excel and plot a graph of the wavelength (m) vs frequency (Hz)
2. Describe and explain the trend in the graph.

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| --- | --- | --- | --- |
| Frequency (Hz or 1/s) | Wavelength (cm) | Wavelength (m) | Wave speed (m/s) |
| 0.5 |  |  |  |
| 1.0 |  |  |  |
| 2.0 |  |  |  |
| 2.5 |  |  |  |
| 3.0 |  |  |  |

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2. Describe and explain the trend in the graph.