

Standing Waves Lab

Names _____

You will need your Chromebook to read the directions on the website. Work in your quadpods, and submit a group lab. Follow the directions on the lab site.

Both ends fixed

1. Click the play button to run the PHET
2. At the top click "Oscillate", "Fixed End", and at the bottom, set the amplitude to 0.16 cm, and the frequency to 0.41 Hz, the damping to "None" and the Tension to "High"
3. This is the fundamental frequency (f_0) of both ends fixed for this string. The standing waves (resonances) follow a pattern of $1f_0$, $2f_0$, $3f_0$...
4. See what happens when you change the frequency from 0.41 to 0.82 and 1.23 Hz (Hit "Restart" when you change the frequencies)

One end fixed:

1. At the top click "Oscillate", "**Loose End**", and at the bottom, set the amplitude to 0.16 cm, and the frequency to **0.21 Hz**, the damping to "None" and the Tension to "High"
2. Hit "Restart" at the top
3. This is the fundamental frequency (f_0) of one end fixed for this string. The standing waves (resonances) follow a pattern of $1f_0$, $3f_0$, $5f_0$... so these will be **0.21 Hz**, **0.63 Hz**, and **1.05 Hz**
4. See if you can get those resonances by changing the frequency. (Hit "Restart" every time you make a change)

Both ends free: (sorry - just watch that video)

Standing waves

Draw the first three modes of (The first mode is drawn for you...)

Both ends fixed:	One End Fixed:	Both Ends Free:
		
		
		