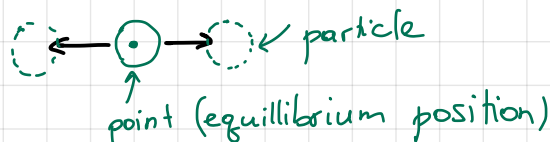


Vibration and Waves

Vibrations are oscillations of particles in matter about a certain point.



Vibrations disturb the medium. As a result, this disturbance travels through a medium.

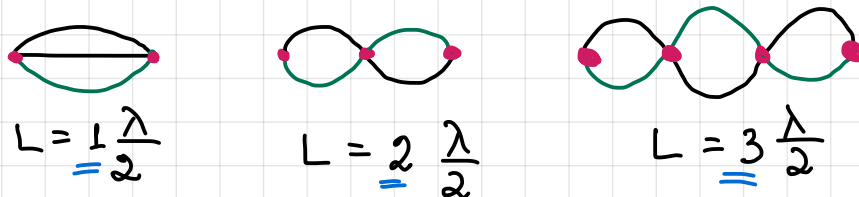
Therefore, vibrations create waves in matter. Since by definition, waves are nothing else than a disturbance of a medium, which propagates with a certain periodicity, frequency, wavelength, etc.

There are a few terms to clarify, when we talk about vibrations and waves.

In our review on waves and harmonics we established that when a travelling wave, propagating through a medium, is reflected at the boundary in such a way that it forms a standing wave within that medium, then the corresponding angular frequency is called the harmonic frequency.

Harmonic frequencies are also called natural frequencies.

Vibrational mode is just a pattern of vibration.



$$n = 1, 2, 3, \dots$$

A vibrational mode is characterized by the integer number (n) of the half waves.