

Natural Resonate Frequency

The Details:

You have experienced natural resonate frequency if you've ever plucked a rubber band, banged on pots and pans, or tried to make a glass sing by gliding your finger around the rim of a glass. For every object, there is a note (frequency) that it naturally makes when it vibrates. This is its natural resonate frequency. A big, loose rubber band, for example, would naturally sound a very low note when plucked or vibrated, but a tiny, tight rubber band would naturally sound very high.



There are just a few factors that go into an object's natural resonate frequency:

- 1) Length—longer objects make lower notes. That's why the low notes on a piano have very long strings. The high notes have very short strings.
- 2) Width—the thicker the object, the lower the note. A big, thick pot is generally going to make a deeper sound when you drop it than a thin one.
- 3) Tension—things that are pulled tight or are harder to bend make for higher notes, and therefore, a higher natural resonate frequency
- 4) Composition—Different objects also vary their sound depending on what they are made of. In fact, even more than frequency, composition changes the timbre (character) of the sound. For example, banging on a block of wood sounds different than banging on a block of metal, even if they make the same note.

Tuning Forks:

A tuning fork is a musical tool used in tuning various instruments. The metal fork is made the right length and width to make exactly the note marked on it. There are tuning forks for pretty much any note. "A" tuning forks, for example, vibrate at exactly 440hz, where tuning forks for lower notes are created to have a lower natural resonate frequency.

