

Frequencies and Sound

Frequencies play a large role in our lives. They are the foundations of sound, and they are the only reason that we can communicate with other individuals of our race. Everything has a specific frequency to the material that said thing is made of. From atoms to stars, frequency is everything. Frequencies, which are measured in Hertz (Hz) units, are the rate at which vibrations and oscillations occur. Frequencies are used to differentiate and determine vibrational patterns. For example, the piano keys have specific frequencies, and each one also has its own wavelength. Wavelengths are related to frequencies, as in physics, their definition is the distance between successive crests of a wave, especially points in a sound wave or an electromagnetic wave. Because of this we can use wavelengths and frequencies together to differentiate and determine vibrational patterns, as mentioned above. There is actually some mathematics involved in this, and this makes this an even better subject of study!

You may use this simple function: $f(n) = (\sqrt[12]{2})^{n-49} \times 440\text{Hz}$ to find the frequency f of the n th key. Conversely, starting from a frequency on the idealized standard piano tuned to A440, one obtains the key number by: $n = 12 \log_2 \left(\frac{f}{440\text{Hz}} \right) + 49 = n = 39.86 \log_{10} \left(\frac{f}{440\text{Hz}} \right)$

Healing with Frequencies

Frequencies can be put to use even past the piano, as they can help the body and the mind heal. Many ancient musical instruments were made for 432 Hz tuning, as this was the standard of instrumental tuning. This frequency soothes the mind with deep feelings of well being and peace, because the frequency of 432 Hz has the resonance of the Schumann resonance of 8 Hz. Robert Schumann was a German composer, pianist, and influential music critic. He is widely regarded as one of the greatest composers of the Romantic era. He was the creator of the Schumann resonance of 8 Hz. He found the frequency of the earth itself, and he named it the Schumann resonance. I have mentioned above that the frequency of 432 Hz soothes the mind with deep feelings of well being and peace, and this is because this frequency has a connection to the frequency of the earth. Your subconsciousness feels a connection to the earth, and it soothes itself because of this. Another frequency such as this one is 528 Hz. Even though the science on the reparative effects of the 528 Hz is still in its infancy, early research indicates that it has the ability to heal and repair the body. A 2018 study from Japan discovered that music tuned to the frequency of 528 Hz significantly reduced stress in the endocrine systems and autonomic nervous systems even after a mere five minutes of listening.

Music is an extremely big part of our lives, whether it allows us to express our emotions, calm us, or even make us feel very deep feelings. Music is everything. There are many scientific studies behind the resonance of frequencies, and how certain frequencies can help you. Different musical instruments have different connections to frequencies, so if you feel around for the perfect musical instrument that you want to play, this is all because of the way that frequencies affect us through that instrument, and how they make us feel when we play them. Thank you for reading my project!

