Sound Pitch

This article was checked by pedagogue

This article ws checked by pedagogue, but later was changed.

Checked version of the article can be found here (https://www.wikilectures.eu/index.php?title=Sound_Pitch&oldid=18553).

See also comparation of actual and checked version (https://www.wikilectures.eu/index.php?title=Sound_Pitch&diff=-&oldid=18553).

Sound pitch is the term given to the subjective sensation of the frequency of a sound wave. Sound travels though a medium as a longitudinal wave, has a measurable frequency, which is due to the longitudinal oscillations of the particles of the propagating medium per unit time. It is measured in Hertz (Hz), which is defined as the number of oscillations per second. For example, a particle undergoing 5000 longitudinal oscillations every 5 seconds will have a frequency of 1000 Hz. This frequency is detected by the human ear as the oscillations of the travelling wave through the air, and the cyclic changes in pressure they cause, reach the human ear which processes these vibrations into our perception of sound.

Pitch however, is not equal to frequency, it is the subjective perception of frequency. A high pitched sound correlates to a high frequency sound wave, and a low pitch to a low frequency wave, but pitch perception can be ambiguous and observer dependant. Due to the presence of harmonics, different observers can perceive a complex pitch as two or more pitches. This ambiguity is further demonstrated, along with the effects of changing intensity, with very high and very low frequency sounds. A sound of frequency >2kHz can be perceived as increasing in pitch when it is only increasing in intensity and the same applies for very low frequency sounds (<2kHz), perceived as decreasing in pitch as intensity rises.

It is thought that the lowest frequency difference between two sounds that can be perceived by the human ear is 2Hz. This ability to perceive differences in pitch between two or more sounds provides the basis for intervals in music. For example, two tones separated by an octave are formed by waves with a 2:1 frequency ratio, e.g. 256Hz and 512Hz between middle C and C5 respectively.