SOUND

CHARACTERISTICS OF A SOUND

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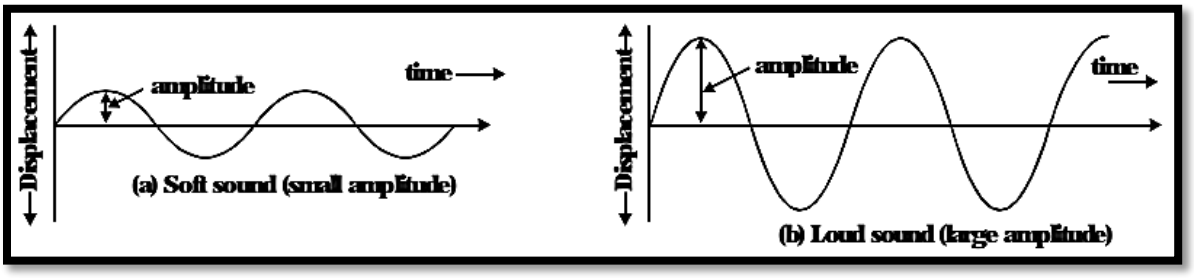
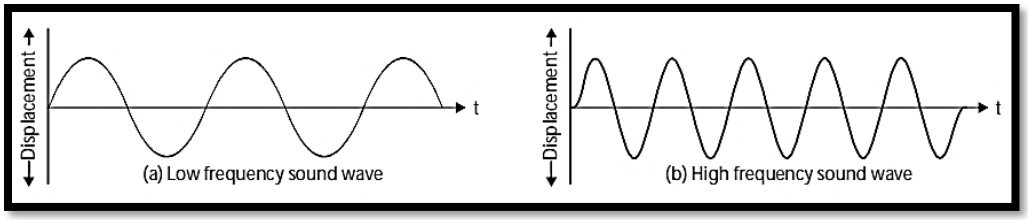
Loudness : When the string is plucked softly, it produces a feeble sound and when it is plucked hard, it produces a louder sound. In other words, in the first case vibrations with small amplitudes are produced and in the second case vibrations with large amplitudes are produced. This means that the loudness of a sound depends on the amplitude of vibration. It is measured in decibels (dB).



Pitch : The shrillness or flatness of a sound is known as pitch. We can distinguish between a man's voice and woman's voice of the same loudness without even seeing whether the speaker is a man or a woman. A man's voice is flat and has a low pitch, Whereas a woman's voice shrill and has a high pitch. The pitch of a sound depends on the frequency of vibration. The higher the frequency of a sound, the higher will be its pitch. In other words, high pitched sounds (such as the shrill whistling of a kettle or a jet engine) are created at high frequencies. This is obviously why we whistle for our dog; the high pitched sound attracts him. You can get a special 'dog whistle' that emits a very high pitched sound at a frequency much beyond 20,000 Hz; humans cannot hear it, but your dog will come bounding up to you when he hears the sound (inaudible to you)!



Difference between Loudness & Pitch	
Loudness	**Pitch**
Loudness depends upon the amplitude of vibration of the vibrating body.	Pitch is the frequenc y perceived by a listener.
Loudness depends upon the energy received by the ear.	Pitch does not depend upon the energy received by the ear.
Loudness does not change with the change in frequency.	Pitch changes with the change in frequency.

Quality or Timber : The characteristic of sound which enables us to distinguish between two sounds of the same pitch and loudness, produced by two different sources is called its quality or timber. For example, we can recognize a person by hearing his voice, we can also distinguish the sound of a guitar from that of a sitar or harmonium.