

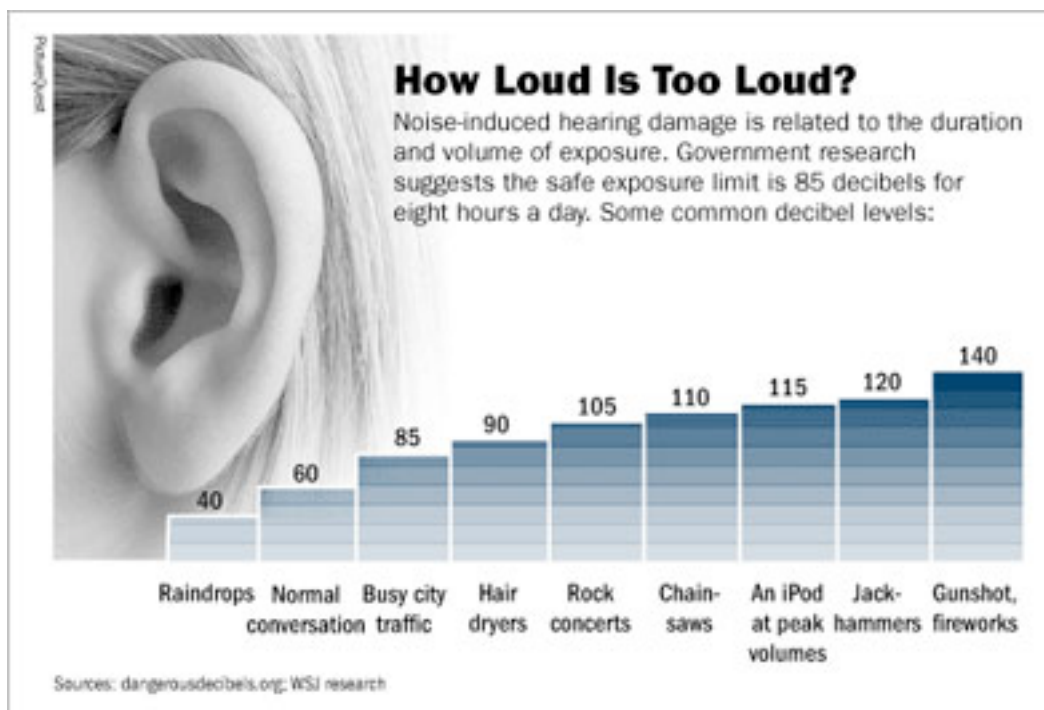
Pitch and Volume of Sounds

from *Physical Science: Sound Energy* by Trisha Callella & Marilyn Marks

Sound is produced whenever an object vibrates. Vibrations are just the rapid back-and-forth movements of the object. Sometimes the whole object will vibrate. Other times, just a part of the object may vibrate and produce a sound.

The faster the object vibrates, the higher the **pitch** of the sound. Pitch describes how high or low a sound or note is. This is sometimes also referred to as the frequency of the sound. The human ear cannot hear every single frequency. Smaller, thinner objects can vibrate faster than larger, fatter objects. That is because there is less matter in the object that has to vibrate back and forth.

The strength of the vibrations determines the sound's **volume** or intensity. Volume describes how loud or soft a sound is. Many musical instruments use a cone-shaped structure to amplify the sound and create a louder volume. These cone-shaped instruments work like a megaphone. The flared end of a clarinet, a trumpet, or a tuba helps create a louder sound. Other musical instruments have a "sound box" that produces a louder sound. The body or case of a violin or cello helps to create louder sounds.



Decibel Comparison Chart

Typical average decibel levels (dBA) of common sounds

dBA - Example

150 - Artillery Fire

140 - Fireworks

130 - Pneumatic Drill

120 - Emergency Siren

110 - Car Horn

100 - Electric Drill

90 - Heavy Traffic

80 - Ringing Phone

70 - Alarm Clock

60 - Normal Conversation

50 - Average Home

40 - Quiet Library

30 - Quiet House at Night

20 - Leaves Rustling

10 - Breathing

0 - Silence

Threshold of pain

Threshold of discomfort



FG Wilson
300-450VA
67dBA
75% load
@7 metres

Threshold of hearing

