

## Vocabulary: Hearing: Frequency and Volume



### Vocabulary

- Decibel – a unit used to measure relative sound intensity, or loudness.
  - The symbol for decibel is “dB.”
  - The decibel is measured relative to a reference intensity level. The reference level may vary in different applications.
  - The decibel scale is a logarithmic scale. A decibel level of 20 is 10 times louder than a decibel level of 10 and 100 times louder than a decibel level of 0.
- Equal-loudness curve – a line on a sound *volume vs.* sound *frequency* graph that represents equal perceived volume across the spectrum of frequencies.
- Frequency – the number of times something happens in a given period of time.
  - The frequency of a sound wave is equal to the number of waves that pass a point each second.
  - The shorter the *wavelength* of a wave is, the greater its frequency. Longer wavelengths correspond to lower frequencies.
- Hertz – the SI unit of frequency.
  - The symbol for hertz is *Hz*.
  - One hertz is equal to one wave per second.
- Logarithm – the power to which a certain number (called the “base”) must be raised to in order to produce a given number.
  - The base for a logarithm is usually either 10 or the number  $e$  (2.7183).
  - For example, the base-10 logarithm of 1,000 is 3 because  $10^3 = 1,000$ .
  - Decibels use base-10 logarithms.
- Pitch – the perceived frequency of a sound.
  - Shrill sounds like sirens or smoke alarms are high in pitch and high in frequency.
  - The deep sounds made by foghorns and tubas are low in pitch and low in frequency.
- Threshold – the smallest detectable sensation.
- Volume – the intensity or magnitude of a sound.
  - The difference in the volume of two sounds can be measured in decibels.