

## CHAPTER OVERVIEW

### 7: Pitch, Loudness and Timbre

The mechanism of human hearing does not operate as a perfect scientific instrument. In this chapter we relate a few *subjective* measurements of sound (things people report after hearing a sound) to *objective*, scientific measurements (measurements made in a laboratory using scientific instruments). The three subjective quantities of pitch, loudness and timbre are related to laboratory measurements of a sound wave's fundamental frequency, amplitude and waveform, respectively.

#### Key Terms:

Pitch, fundamental frequency,  $v = f\lambda$ , loudness, sound intensity (in  $\text{W}/\text{m}^2$ ), sound intensity level (SIL in dB), decibels (dB), inverse square law, just noticeable difference (loudness and frequency), timbre.

#### 7.1: Pitch, Loudness and Timbre

##### 7.1.1: Pitch

##### 7.1.2: Loudness

##### 7.1.3: The Decibel Scale

##### 7.1.4: Just Noticeable Difference

##### 7.1.5: Timbre (the first time)

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