

1 SOUND

Scope: *The basic elements of a tone and music are explained.*

The world around us is full of *sound*. Sound is produced by the vibration of an object. These vibrations can occur at irregular or regular intervals of time. Sounds produced by irregular vibrations are considered noise while those produced by regular and repeated vibrations are more pleasing. A good definition for *music* for this study would therefore be: sounds organized within a framework of time.

Tone

A tone is a single musical sound. A tone, therefore the smallest unit of music, has four properties: *pitch, length, power and quality*.

① Pitch

Pitch is the highness or lowness of a tone. A tone is higher than another tone when it is produced by a larger number of vibrations per second than the other tone. In the illustration below, tone A is higher in pitch than tone B.



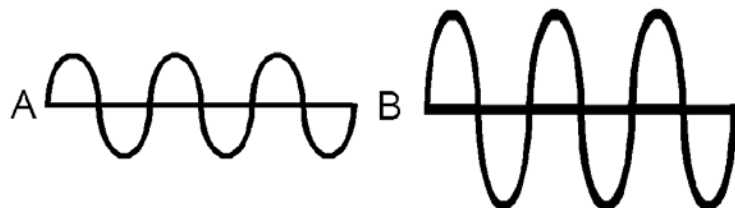
② Length

Length is the duration of a tone. A tone has greater length than another when it lasts longer than the other tone. Below, tone B has greater length than does tone A.



③ Power

Power is the intensity of a tone. A tone has greater power than another tone when its vibrations are stronger than the vibrations of the other tone. The greater the power, the louder the tone. The next illustration shows tone B with greater power than tone A.



④ Quality

Quality is the property of a tone that enables a listener to distinguish one person's voice from another, a trumpet from a trombone, etc.

② Copyright information



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Songs originally written before 1923 had protection for 28 years and could be renewed for an additional 28 years, giving them a total of 56 years of protection. In 1976, the renewal was changed to 47 years, giving songs in copyright at that time 75 years of protection.

Generally, songs written in or after 1923 until 1978 have 95 years of protection. This is the case of the illustration above. This song will go out of copyright protection in 2019.

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Music: art & science

Music is both an art and a science. The properties of a tone can be defined in scientific terms. The pitch of a tone can be measured in Hertz (vibrations per second). Length can be measured in seconds or fractions of a second. Power can be measured in decibels (db), a unit defining the strength of a sound. Rarely is a sound, whether sounded by a person or by some instrument, made up of only one tone. There are usually several tones being sounded at the same time, each at a different power. The unique combination of tones and power of each determine the quality or uniqueness of the sound in question. Each of these tones, called overtones, within the sound can be measured. Even though music can be defined precisely in scientific units of measurement, it is not usually presented in that way. Freedom in producing the actual pitches, length, power, and quality for each tone allows expression on the part of the one producing the music. Therefore music is also an art form.

Summary: *This chapter should lay the ground work for the rest of the book. Future chapters will present pitch (2 - 6), length (7), rhythm (8 - 9) and power (10).*

Exercises

Name the four properties of a tone:

1. _____
2. _____
3. _____
4. _____

Name the four properties of a song:

5. _____
6. _____
7. _____
8. _____

Name the measurement units for the following:

9. Pitch _____
10. Length _____
11. Volume _____