

The Octave

The octave is the interval between one musical pitch and another with half or double its frequency. The octave relationship is a natural phenomenon. The term “octave” comes from the Latin word “octavus” which means “eighth”. Some college textbooks and some learned authorities call the octave a diapason. Octaves form even ratios. Higher octaves to the tone in question are 2, or 4, or 8, or 16 times the frequency of the original.

“A” is called “A” No Matter What the Pitch

The human mind interprets both notes in the octave as being essentially the same. That’s because the overtones of both notes are nearly identical. (More about overtones and harmonics later). Because tones that are an octave apart seem more or less identical, they bear the same name. The octave tone above an “A” is still called an “A”. When written on the musical staff, these two tones appear in different places. When written as text or used in conversation, something more is needed to distinguish between the two.

The lowest octave, called the first octave or the contra octave, begins at C1 (32.7 Hz) and ends at C2, (65.4 Hz). Instruments in this range include bassoon, tuba, bass and the lowest full octave of a piano with a full keyboard. (Not all pianos have all 88 keys and at least one maker, Bösendorfer makes an instrument that goes even lower).

Middle C

Unfortunately there are six systems of nomenclature to identify the various octaves. The key to understanding how octaves are named is to determine how each system describes something called “middle c”. Contrary to what many think, “middle c” is not the middle key on a piano keyboard. “Middle c” is that tone that lies between the bass and the treble clefs. In theory if the music is mostly above the pitch of middle c, it is transcribed in the treble clef. If the music is mostly below the pitch of middle c, it is transcribed in the bass clef. The standard set by Acoustical Society of America System shows middle c as “C4”.

Vocal Range

The lowest male voice is called “basso profundo”. These rarest of vocalists sing into the first octave. An operatic soprano must be able to sing two octaves above middle C. That’s all way up to C6.

Short Hand

The interval of the octave is sometimes written as P8. When transcribing a passage that moves well above or well below the staff, copyists may write the passage within the staff and then indicate that it is to be played an octave higher or an octave lower. When the symbol “8vb” appears in music, it tells the player to perform the indicated section an octave lower than it is written. “8vb” is shorthand for the Italian phrase *all’ottava bassa*. The symbol “8va” means the opposite. That is, play this section an octave higher than written. “8va” is shorthand for the Italian phrase *all’ottava*.

Master of the Musical Universe

No matter how it may be described, the octave, P8, the diapason, the octave is the master of the musical universe. Scales are merely subdivisions of the octave. Overtones are generated from the concept of the octave. Melodies move within and often span octaves. Chords are constructed within the constraints of the octave. Whether or not the octave is played within a musical passage, it is always present, in the background, organizing the structure of music.