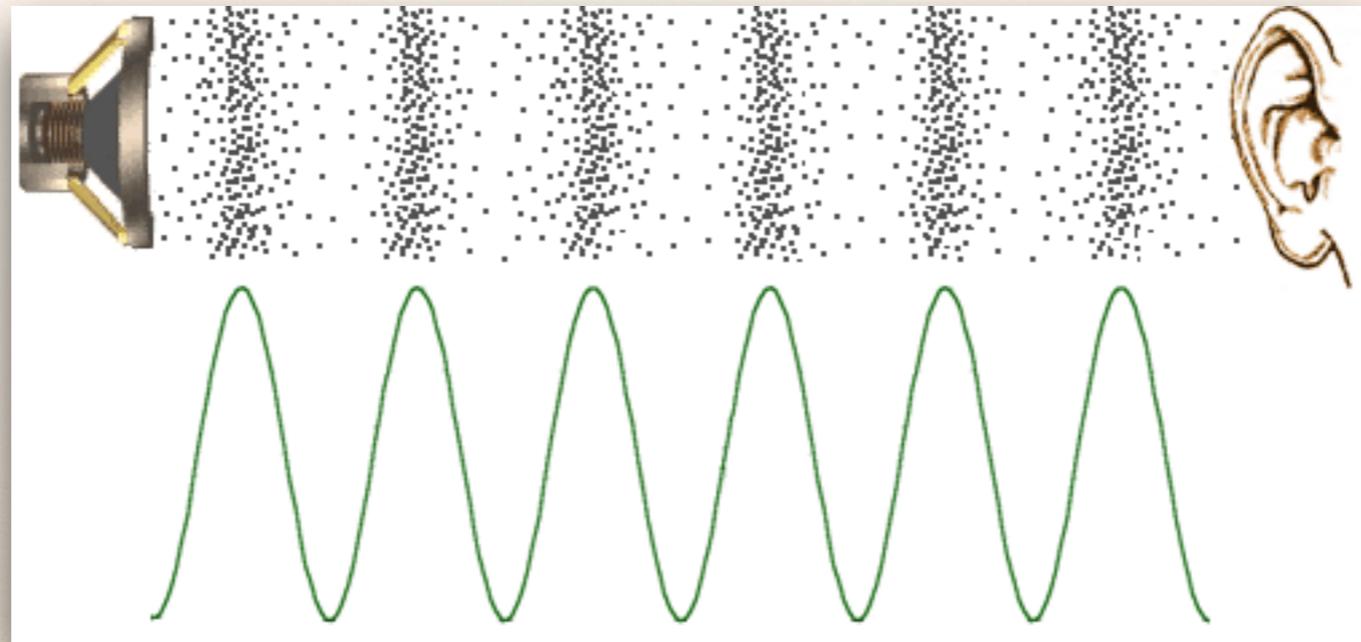


# MUSIC THEORY



**The basic materials of music are sound and time.**

**Sound** is the sensation perceived by the organs of hearing when vibrations (sound waves) reach the ear.



**The basic materials of music are sound and time.**

**Time** is the indefinite continued progress of existence and events that occur in apparently irreversible succession from the past through the present to the future.



# THE FOUR PROPERTIES OF SOUND

- ❖ **Pitch is the highness or lowness of a sound.** Variations in frequency are what we hear as variations in pitch: The greater the number of sound waves produced per second of an elastic body, the higher the sound we hear; the fewer sound waves per second, the lower the sound.
- ❖ **Intensity is the loudness or softness of a pitch.** In acoustics (the science of sound), intensity is the amount of energy affecting the vibrating body, and the physicist measures intensity on a scale from 0 to 130 in units called **decibels**. In musical notation, gradations of intensity are indicated with **dynamic** markings.
- ❖ **Duration is the length of time a pitch, or tone, is sounded.** For patterns of duration, the following terms are used: **meter and rhythm**.
- ❖ **Timbre is the tone quality or color of a sound.** It is the property of sound that permits us, for instance, to distinguish the difference between the sound of a clarinet and an oboe.

# NOTATION

The **staff** consists of five equally spaced horizontal lines.

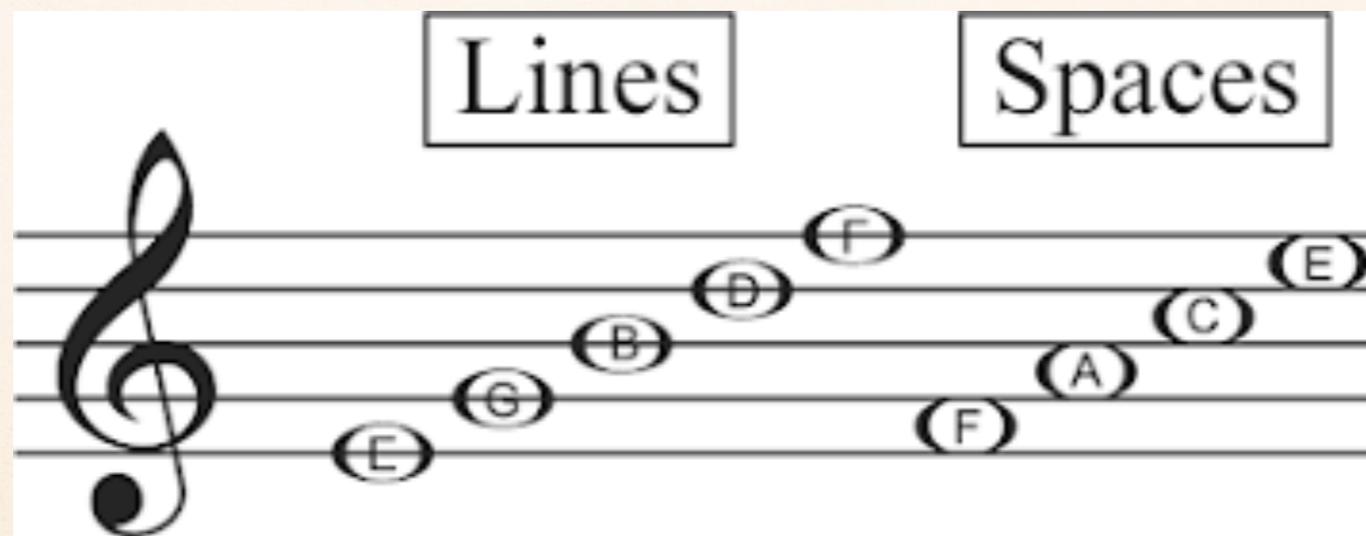


The various pitches are referred to by the first seven letters of the alphabet (A B C D E F G), as shown on the piano keyboard.



# NOTATION

The **treble clef** or **G clef** is an ornate letter G. The curved line terminates, or begins, at the second line of the staff, thus designating the letter name of a note on that line as G.



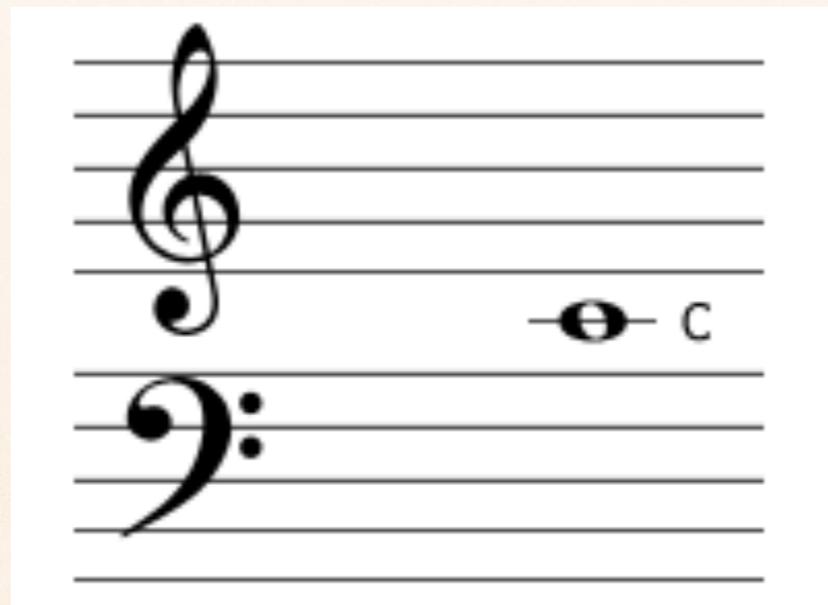
# NOTATION

- ◆ The **bass clef** is called the **F clef** because it was derived from the letter F. The dots are placed above and below the fourth line of the staff, designating that line as F.



# NOTATION

Together, the treble and bass staves make up a **Grand Staff**. The figure shows the point at which both clefs converge. The two Cs are the same pitch: middle C.



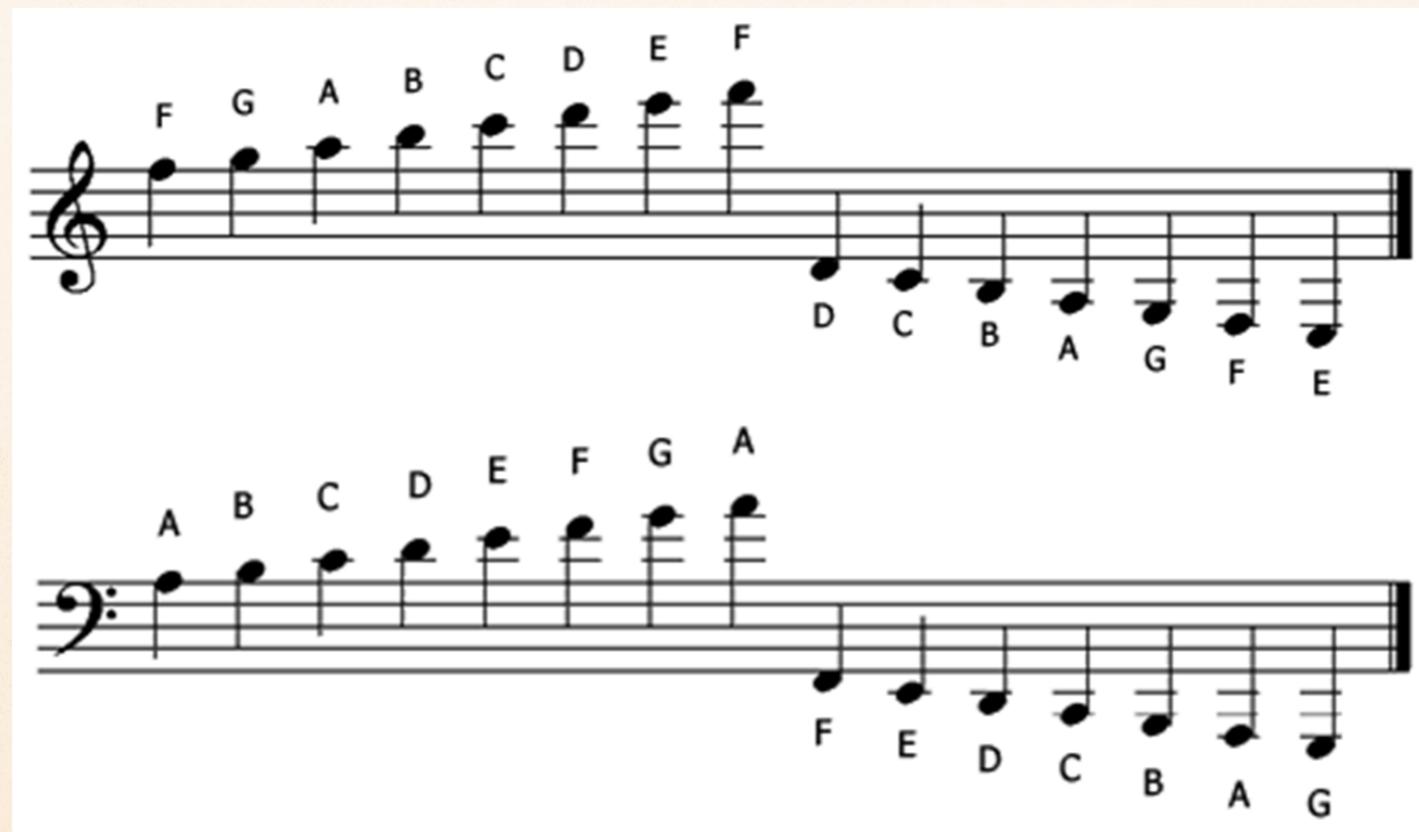
# NOTATION

A **C clef** may be positioned on any line of the staff to designate middle C. This clef is coupled with a set of secondary names that identify each of the possible positions.



# NOTATION

Pitches that go beyond the limits of the staff are written by adding **ledger lines** above or below the staff. They accommodate only one note.



# NOTATION

Since the pitch spectrum is so wide, it is often necessary to identify a specific note by the **octave** in which it appears. Thus, middle C is distinguished from any other C in the pitch spectrum by the written designation C<sub>4</sub>.

The diagram illustrates the pitch spectrum across two staves (treble and bass clef) and a piano keyboard. The notes are labeled with octave designations:

- Octave 0:** A<sub>0</sub> (two ledger lines below), B<sub>0</sub> (one ledger line below)
- Octave 1:** C<sub>1</sub> (below one ledger line), B<sub>1</sub> (below one ledger line)
- Octave 2:** C<sub>2</sub> (below one ledger line), B<sub>2</sub> (below one ledger line)
- Octave 3:** C<sub>3</sub> (below one ledger line), B<sub>3</sub> (below one ledger line)
- Octave 4:** C<sub>4</sub> (middle C, below one ledger line), B<sub>4</sub> (below one ledger line)
- Octave 5:** C<sub>5</sub> (below one ledger line), B<sub>5</sub> (below one ledger line)
- Octave 6:** C<sub>6</sub> (below one ledger line), B<sub>6</sub> (below one ledger line)
- Octave 7:** C<sub>7</sub> (below one ledger line), B<sub>7</sub> (below one ledger line)
- Octave 8:** C<sub>8</sub> (below one ledger line), B<sub>8</sub> (below one ledger line)

The piano keyboard below shows the physical layout of keys, with arrows pointing to the C notes in each octave, labeled C<sub>1</sub> through C<sub>8</sub>. The C<sub>4</sub> note is specifically labeled as "Middle C".

# NOTATION

**Accidentals** are symbols that are placed to the left of the noteheads to indicate the raising or lowering of a pitch.

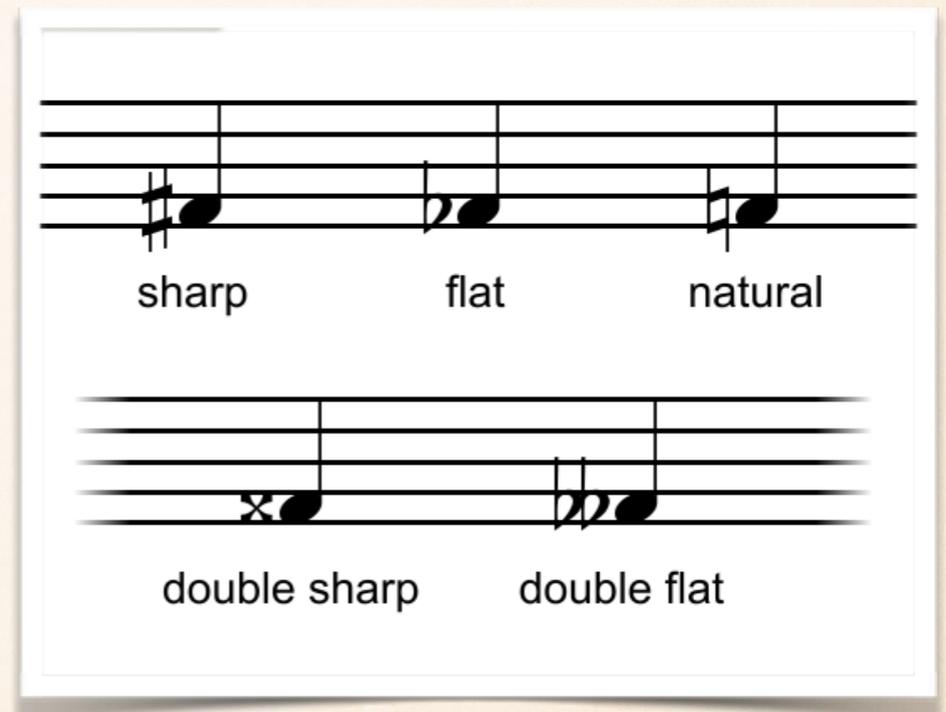
**Sharp:** raises the pitch a half step.

**Flat:** lowers the pitch a half step.

**Natural:** cancels any previous sharp or flat and returns to the natural, or unaltered, pitch.

**Double Sharp:** raises the pitch two half steps.

**Double Flat:** lowers the pitch two half steps.



◆ to be continued...