

Pitch Notation

Collection Editor:

Mark A. Lackey

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Collection Editor:

Mark A. Lackey

Authors:

Terry B. Ewell

Catherine Schmidt-Jones

Online:

< <http://cnx.org/content/col11353/1.3/> >

C O N N E X I O N S

Rice University, Houston, Texas

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Chapter 1

The Staff

People were talking long before they invented writing. People were also making music long before anyone wrote any music down. Some musicians still play "by ear" (without written music), and some music traditions rely more on improvisation and/or "by ear" learning. But written music is very useful, for many of the same reasons that written words are useful. Music is easier to study and share if it is written down. Western music² specializes in long, complex pieces for large groups of musicians singing or playing parts exactly as a composer intended. Without written music, this would be too difficult. Many different types of music notation have been invented, and some, such as tablature³, are still in use. By far the most widespread way to write music, however, is on a **staff**. In fact, this type of written music is so ubiquitous that it is called **common notation**.

1.1 The Staff

The **staff** (plural **staves**) is written as five horizontal parallel lines. Most of the notes⁴ of the music are placed on one of these lines or in a space in between lines. Extra **ledger lines** may be added to show a note that is too high or too low to be on the staff. Vertical **bar lines** divide the staff into short sections called **measures** or **bars**. A **double bar line**, either heavy or light, is used to mark the ends of larger sections of music, including the very end of a piece, which is marked by a heavy double bar.

¹This content is available online at <<http://cnx.org/content/m10880/2.14/>>.

²"What Kind of Music is That?" <<http://cnx.org/content/m11421/latest/>>

³"Reading Guitar Tablature" <<http://cnx.org/content/m11905/latest/>>

⁴"Duration: Note Lengths in Written Music" <<http://cnx.org/content/m10945/latest/>>

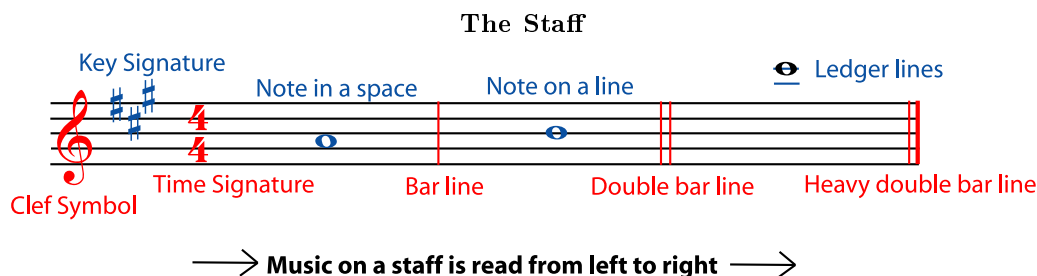


Figure 1.1: The five horizontal lines are the lines of the staff. In between the lines are the spaces. If a note is above or below the staff, ledger lines are added to show how far above or below. Shorter vertical lines are bar lines. The most important symbols on the staff, the clef symbol, key signature and time signature, appear at the beginning of the staff.

Many different kinds of symbols can appear on, above, and below the staff. The notes⁵ and rests⁶ are the actual written music. A note stands for a sound; a rest stands for a silence. Other symbols on the staff, like the clef⁷ symbol, the key signature⁸, and the time signature⁹, tell you important information about the notes and measures. Symbols that appear above and below the music may tell you how fast it goes (tempo¹⁰ markings), how loud it should be (dynamic¹¹ markings), where to go next (repeats¹², for example) and even give directions for how to perform particular notes (accents¹³, for example).

⁵"Duration: Note Lengths in Written Music" <<http://cnx.org/content/m10945/latest/>>

⁶"Duration: Rest Length" <<http://cnx.org/content/m11887/latest/>>

⁷"Clef" <<http://cnx.org/content/m10941/latest/>>

⁸"Key Signature" <<http://cnx.org/content/m10881/latest/>>

⁹"Time Signature" <<http://cnx.org/content/m10956/latest/>>

¹⁰"Tempo" <<http://cnx.org/content/m11648/latest/>>

¹¹"Dynamics and Accents in Music" <<http://cnx.org/content/m11649/latest/>>

¹²"Repeats and Other Musical Road Map Signs" <<http://cnx.org/content/m12805/latest/>>

¹³"Dynamics and Accents in Music" <<http://cnx.org/content/m11649/latest/#p0d>>

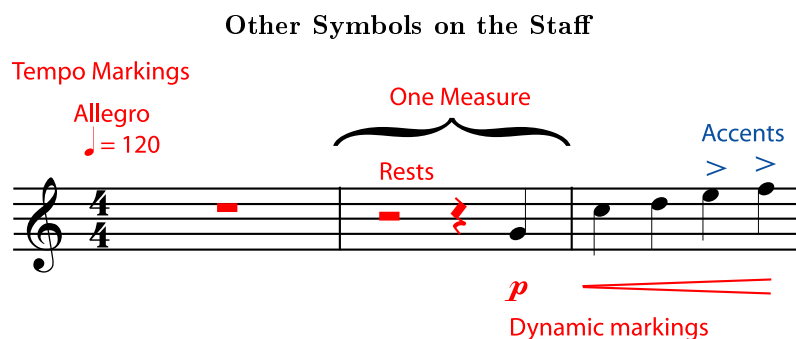


Figure 1.2: The bar lines divide the staff into short sections called bars or measures. The notes (sounds) and rests (silences) are the written music. Many other symbols may appear on, above, or below the staff, giving directions for how to play the music.

1.2 Systems of staves

The staff is read from left to right. Staves (some musicians prefer the plural **staves**) are read, beginning at the top of the page, one staff at a time unless they are connected. If staves should be played at the same time (by the same person or by different people), they will be connected by a long vertical line at the left hand side, to create a **system**. They may also be connected by their bar lines. Staves played by similar instruments or voices, or staves that should be played by the same person (for example, the right hand and left hand of a piano part) may be grouped together by braces or brackets at the beginning of each line.

Systems of Staves

Vocal line

The two staves of a piano part (left hand and right hand) are usually also connected by a brace.

Staves that are to be played at the same time are connected at least by a line at the left end. They may also be connected at each bar line.

(a)

(b)

Figure 1.3: (b) When many staves are to be played at the same time, as in this orchestral score, the lines for similar instruments - all the violins, for example, or all the strings - may be marked with braces or brackets.

Chapter 2

The Notes on the Staff

Music is principally written with symbols specifying pitch and symbols specifying timing. Symbols indicating pitch give instructions on whether sounds are high or low or anywhere in between. Symbols indicating timing provide instructions on when and how long to play or sing a sound. These symbols are combined in ingenious ways for music notation. When you master the fundamentals of music literacy, you will be able to read much of the music performed in the world today. The notation is commonly termed “Western Musical Notation.”

In this module we will present pitch notation. “Pitch” is a word we use for indicating where a note lies in a spectrum or range of musical tones. Musical pitches are designated by an alphabet letter or sometimes by a solfège syllable.

The musical alphabet uses letters A B C D E F G. Common solfège syllables are: Do Re Mi Fa Sol La Ti. In many countries the solfège syllables are employed to designate pitches. For instance, in France, “Do” is the name for “C,” “Re” for “D,” etc. This system of labeling pitches is termed “fixed Do,” since Do always designates the note C. In America we most commonly designate pitches by their alphabet letter name.

The musical alphabet repeats throughout the range or register of music. For instance, notice that the piano keyboard below has a repeating musical alphabet (given below the keyboard in Figure 1):

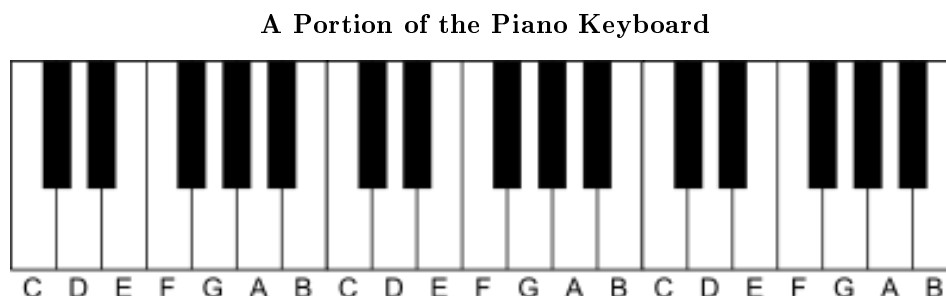


Figure 2.1: The graphics of the keyboard in Figure 1 are modified from Tobias R. – Metoc², <http://en.wikipedia.org/wiki/File:Klaviatur-3-en.svg>³ (Accessed 01 May 09). It is licensed for public use under the Creative Commons Attribution License.

¹This content is available online at <<http://cnx.org/content/m22934/1.1/>>.

²<http://commons.wikimedia.org/wiki/User:Metoc>

³<http://en.wikipedia.org/wiki/File:Klaviatur-3-en.svg>

Pitches furthest on the left are lower sounding. Higher and higher pitches are sounded by moving up the piano keyboard in the right hand direction.

Pitches are represented by “notes” placed on a “staff.” The most common staff in musical notation is one with five lines and four spaces.

A Staff

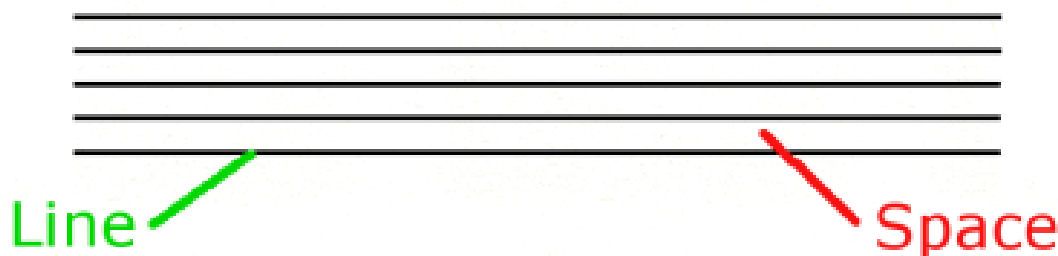


Figure 2.2

The lower part of the staff is for lower notes; the higher portion is for higher notes. The staff by itself, however, doesn’t provide us the information we need to designate the position of a pitch. There are many more pitches in most music than just those provided by these five lines and four spaces. For the wider range of musical pitches we need a group of musical symbols called “clefs.” Some of the clefs used in music notation matched the names given to voices: soprano, mezzo soprano, alto, tenor, bass. For now we will just introduce two of the most common clefs—treble and bass.

The treble clef or G clef designates the staff for higher pitched instruments such as flute, trumpet, or violin. The clef circles around a line that is G, which is the second line from the bottom. The blue letter G doesn’t usually appear in music notation. The red note on the treble staff is a G. The bass or F clef designates a staff reserved for lower pitched instruments such as bassoon, tuba, or cello. The left most portion of the clef starts on the F line—4th line from the bottom. The F line also appears between the two dots to the right of the clef. The red note on the bass staff is an F.

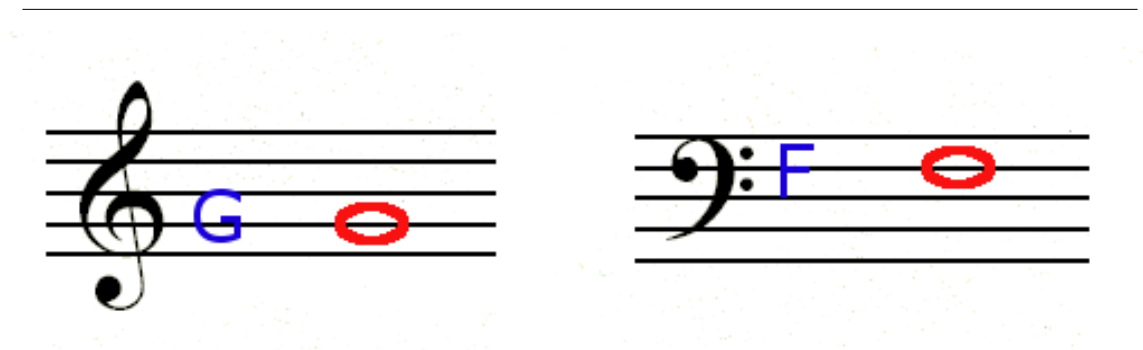


Figure 2.3

The treble and bass staves are often paired in piano music with the "grand staff" or "piano staff." The grand staff features a brace, bar and then the two staves.

The Grand or Piano Staff

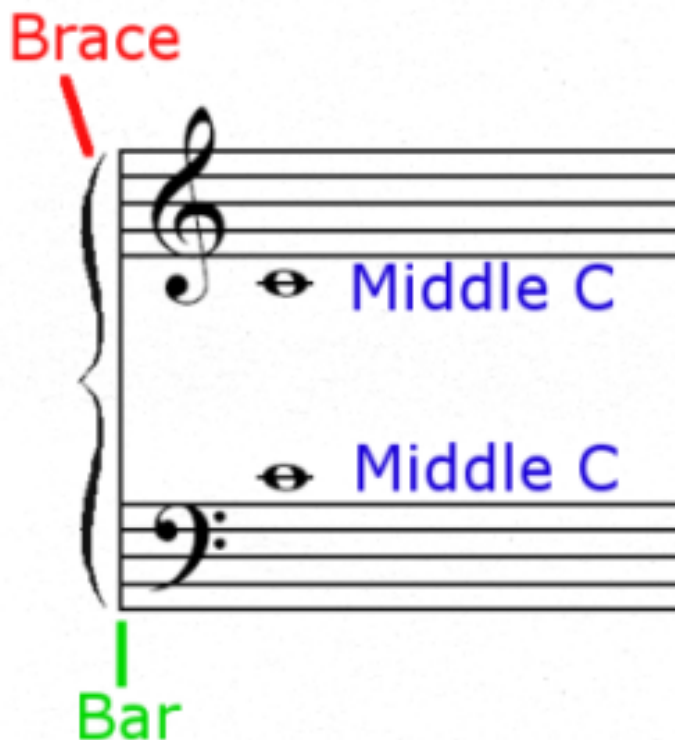


Figure 2.4

Description The grand staff is used for keyboard instruments such as piano, organ, and harpsichord.

Notice the position of “middle C” on the grand staff. It is below the treble staff and above the bass staff. This note is called middle C because it is the C that is located in the middle of the piano keyboard.

This video gives a further demonstration of the location of middle C and introduces the piano keyboard:

Introduction to the piano keyboard (11 minutes) [RealPlayer](#)^{4 5} | [Windows Media](#)⁶ | [iPod or QuickTime Player](#)^{7 8} (mp4)

You will also notice that a short line segment appears in the middle of the note in Figure 4. This short line is called a “ledger line.” These added lines are a bit similar to ladders. They are extensions of the staff, either above or below, so that additional pitches may be given in the music. Figure 5 below gives a high C above the treble staff and a low C below the bass staff.

⁴<http://terryewell.com/tu/theory/TheoryIntro.ram>

⁵<http://terryewell.com/tu/theory/TheoryIntro.ram>

⁶<http://terryewell.com/tu/theory/TheoryIntro.wmv>

⁷<http://terryewell.com/tu/theory/TheoryIntro.mp4>

⁸<http://terryewell.com/tu/theory/TheoryIntro.mp4>



Figure 2.5

Chapter 3

Pitch: Sharp, Flat, and Natural Notes¹

The **pitch** of a note is how high or low it sounds. Pitch depends on the frequency² of the fundamental (p. 47) sound wave of the note. The higher the frequency of a sound wave, and the shorter its wavelength³, the higher its pitch sounds. But musicians usually don't want to talk about wavelengths and frequencies. Instead, they just give the different pitches different letter names: A, B, C, D, E, F, and G. These seven letters name all the **natural** notes (on a keyboard, that's all the white keys) within one octave. (When you get to the eighth natural note, you start the next octave (Chapter 6) on another A.)

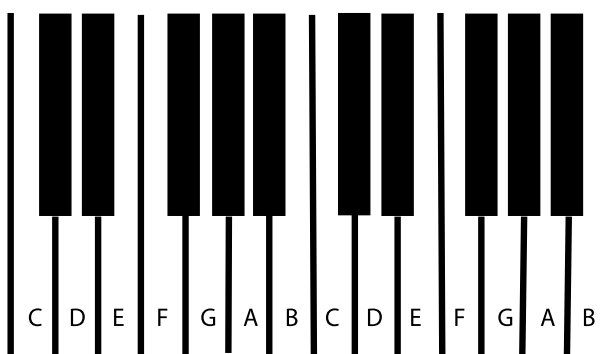


Figure 3.1: The natural notes name the white keys on a keyboard.

But in Western⁴ music there are twelve notes in each octave that are in common use. How do you name the other five notes (on a keyboard, the black keys)?

¹This content is available online at <<http://cnx.org/content/m10943/2.14/>>.

²"Acoustics for Music Theory": Section Wavelength, Frequency, and Pitch <<http://cnx.org/content/m13246/latest/#s2>>

³"Acoustics for Music Theory": Section Wavelength, Frequency, and Pitch <<http://cnx.org/content/m13246/latest/#s2>>

⁴"What Kind of Music is That?" <<http://cnx.org/content/m11421/latest/>>

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