

CHAPTER 1

Notation

TOPICS

Pitch	Sharp	Sixty-Fourth Note and Rest
Staff	Flat	Tie
Letter Names	Natural	Dot
Clefs	Double Sharp	Second Dot
Treble Clef	Double Flat	Irregular Divisions and Subdivisions
Bass Clef	Interval	Rhythm
Grand Staff	Enharmonic Equivalents	Pulse or Beat
Middle C	Half-Step Motion	Meter
Ledger Lines	Duration	Meter Signatures
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Alto Clef	Whole Note and Rest	Compound Meter
Tenor Clef	Half Note and Rest	Duple, Triple, and Quadruple Meters
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IMPORTANT CONCEPTS

Music notation is much more precise and complicated than written language. When we notate music, we use symbols that show three of the four properties of sound described in the introduction: pitch and duration are given accurately, and relative intensity is indicated. Furthermore, pitch and duration are shown simultaneously.

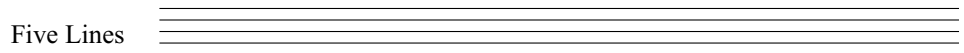
Notation of Pitch

The term *pitch* describes the highness or lowness (the frequency) of a tone. In music notation, pitches are represented by symbols positioned on a staff and identified with letter names.

The Staff

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

Figure 1.1



Letter Names

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 in Figure 1.2.

Figure 1.2



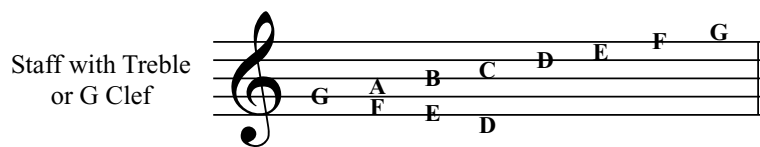
The Clefs

A *clef* is a symbol placed at the beginning of a line of music that establishes the letter names of the lines and spaces of the staff.

Treble Clef (G)

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

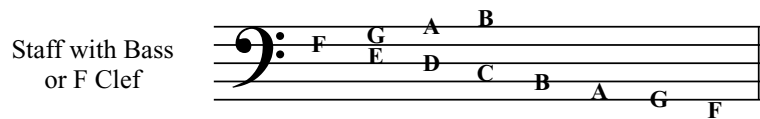
Figure 1.3



Bass Clef (F)

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.

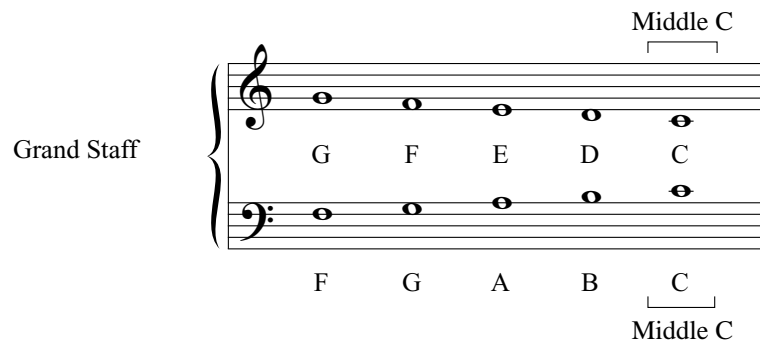
Figure 1.4



Grand Staff

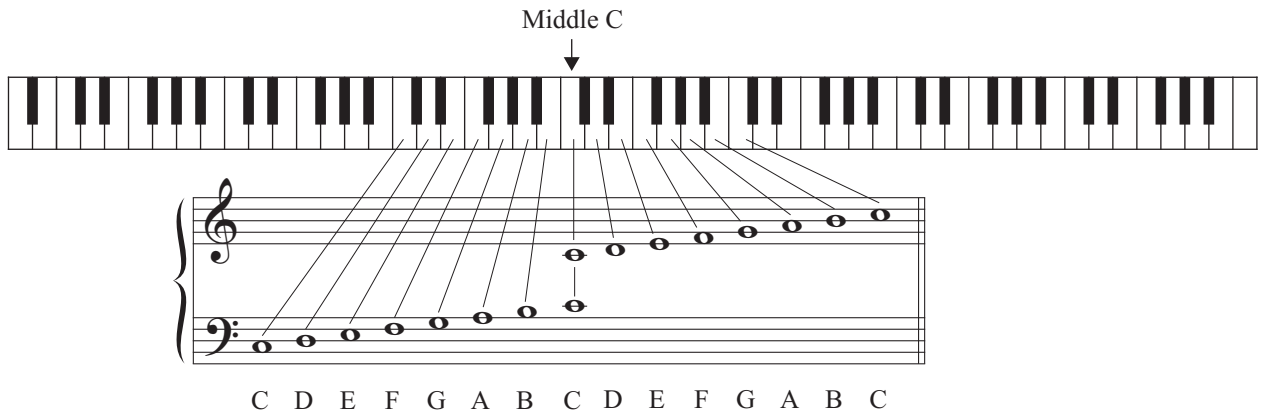
Together, the treble and bass staves make up a *grand staff*. Figure 1.5 shows the point at which both clefs converge. The two Cs are the same pitch: *middle C*.

Figure 1.5



The grand staff is associated most often with keyboard music. Figure 1.6 shows the relationship between the grand staff, the standard 88-key piano keyboard, and middle C.

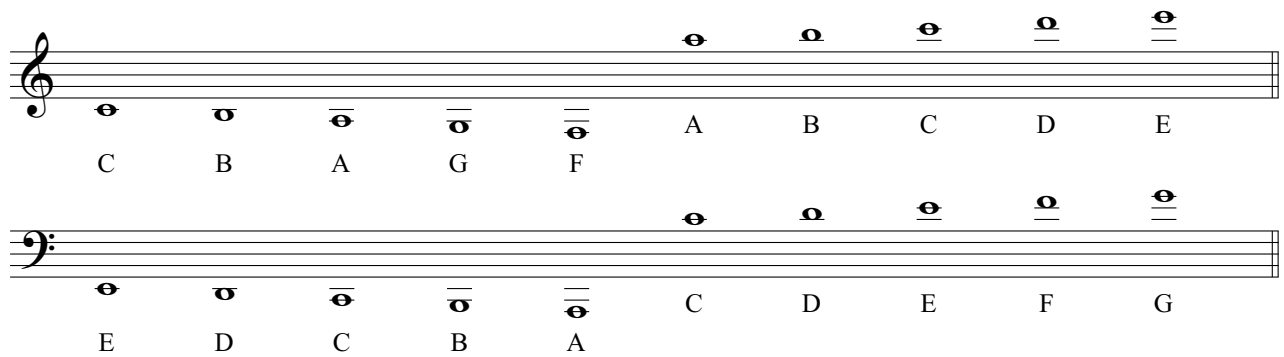
Figure 1.6



Ledger Lines

Pitches that go beyond the limits of the staff are written by adding *ledger lines* above or below the staff. Ledger lines, which parallel the staff, accommodate only one note (see Figure 1.7).

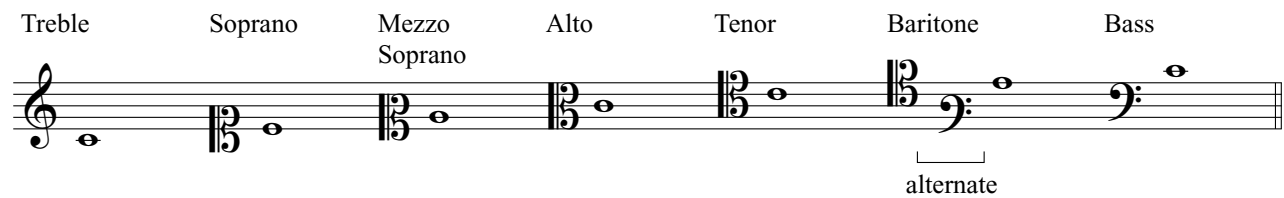
Figure 1.7



C Clef

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 (see Figure 1.8).

Figure 1.8



Alto Clef

The *alto clef* is a C clef that designates the third line of the staff as middle C. It is the standard clef used in music for viola.

Tenor Clef

The *tenor clef* is a C clef that designates the fourth line of the staff as middle C. The tenor clef is occasionally found in music written for cello, bassoon, or trombone.

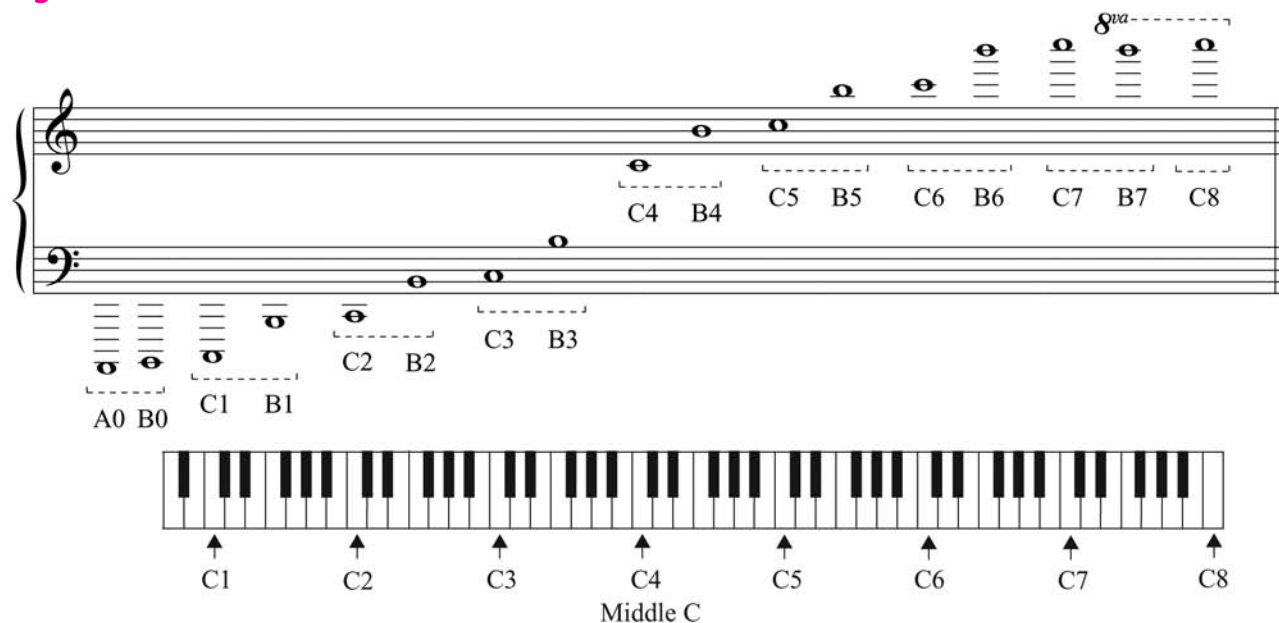
Soprano, Mezzo Soprano, and Baritone Clefs

The *soprano*, *mezzo soprano*, and *baritone clefs* are C clefs used less often than the alto and tenor clefs. In each case the line indicated by the notch of the clef is designated as middle C.

Octave Identification

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 C4 (see Figure 1.9).

Figure 1.9



The *8va* above the right portion of the treble staff in Figure 1.9 means that the pitch sounds an octave above the written note. This symbol is used when a large number of ledger lines make note reading difficult. A related symbol, *8vb*, is used to indicate when a pitch sounds an octave below the written note.

The system of octave identification in Figure 1.9 is recommended by the International Acoustical Society and is used in Braille music notation. Each octave of this system is numbered, beginning with A0 for the lowest note on the piano and extending to C8 for the highest note on the piano. Although the system shown in Figure 1.9 is used throughout this book, your instructor may prefer the system shown in Figure 1.10.

Figure 1.10

AAA BBB
Sub-contra

CC BB
Contra

C B
Great

c b
Small

One-line Two-line Three-line Four-line Five-line

CC C c c¹ c² c³ c⁴ c⁵
Middle C

The octave identification system in Figure 1.10 is often referred to as the Helmholtz system after the German acoustician who made the system popular. This widely used designation method has been prevalent since the nineteenth century.

Accidentals

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

Sharp (\sharp)—raises the pitch a half step.

Flat (\flat)—lowers the pitch a half step.

Natural (\natural)—cancels any previous sharp or flat and returns to the natural, or unaltered, pitch.

Double Sharp ($\sharp\sharp$)—raises the pitch two half steps.

Double Flat ($\flat\flat$)—lowers the pitch two half steps.

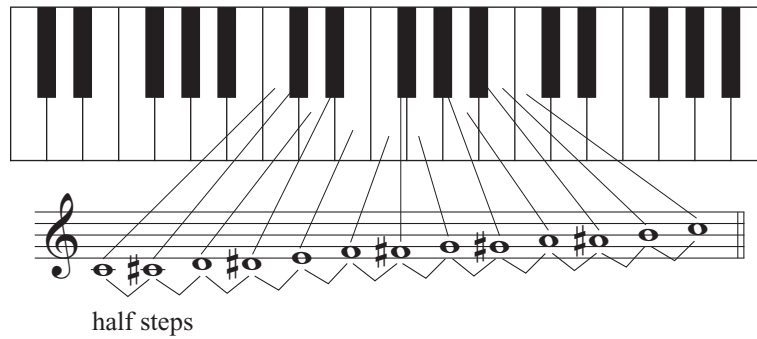
Figure 1.11

G Sharp G Flat G Natural G Double-Sharp G Double-Flat

Interval

An *interval* is the relationship between two tones. In Western music, the half step is the smallest interval used. It is the interval between any two adjacent keys—black or white—on the keyboard.

Figure 1.12



Enharmonic Equivalents

Enharmonic equivalents are tones that have the same pitch but different letter names.

Figure 1.13



Half-Step Motion

In passages of music involving *half-step motion*, a flatted note is followed most often by a note with a different letter name a half step lower.

Figure 1.14



A sharped note is followed most often by a note with a different letter name a half step higher in passages involving half-step motion.

Figure 1.15



Notation of Duration

The notation of *duration* is illustrated in the following chart:

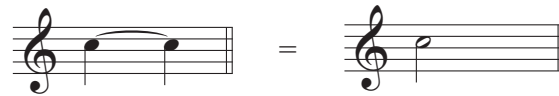
Figure 1.16

Name	Note	Rest	Equivalents
Breve (Double Whole Note)			Two Whole Notes
Whole Note			Two Half Notes
Half Note			Two Quarter Notes
Quarter Note			Two Eighth Notes
Eighth Note			Two Sixteenth Notes
Sixteenth Note			Two Thirty-second Notes
Thirty-second Note			Two Sixty-fourth Notes
Sixty-fourth Note			Two One Hundred Twenty-eighth Notes

The Tie

The *tie* is a curved line that connects two adjacent notes of the same pitch into a single sound with a duration equal to the sum of both note values.

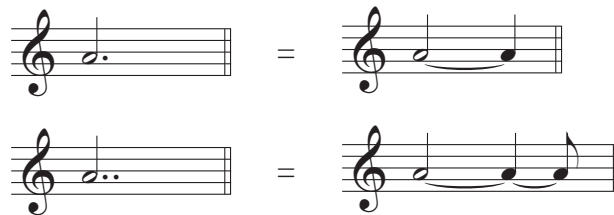
Figure 1.17



The Dot

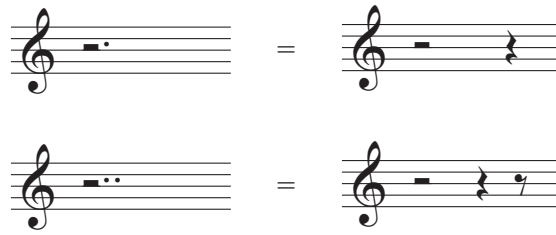
Placed to the right of a note head, the *dot* lengthens the value of the note by half again its value. A *second dot* lengthens the dotted note value by half the length of the first dot.

Figure 1.18



Dots may also be used with rests and affect them in the same way.

Figure 1.19



Irregular Division of Notes

A note value may be divided or subdivided into any number of equal parts, as shown in the chart in Figure 1.20. Those divisions and subdivisions that require added numbers are called *irregular divisions and subdivisions*.

Figure 1.20

Note:				
Divisions:				
2 parts				
3 parts				
Subdivisions:				
4 parts				
5 parts				
6 parts			Subdivisions:	Subdivisions:
7 parts			Subdivisions:	Subdivisions:

Rhythm

Rhythm is a general term used to describe the motion of music in time. The fundamental unit of rhythm is the *pulse* or *beat*. Even persons untrained in music generally sense the pulse and may respond by tapping a foot or clapping.

Meter Signatures

Meter can be defined as a regular, recurring pattern of strong and weak beats. This recurring pattern of durations is identified at the beginning of a composition by a *meter signature* (time signature).

Figure 1.21



The upper digit indicates the number of basic note values per measure. It may or may not indicate the number of pulses per measure (as we will see later in compound meters).

The lower digit indicates a basic note value: 2 signifies a half note, 4 refers to a quarter note, 8 to an eighth note, and so forth.

Figure 1.22

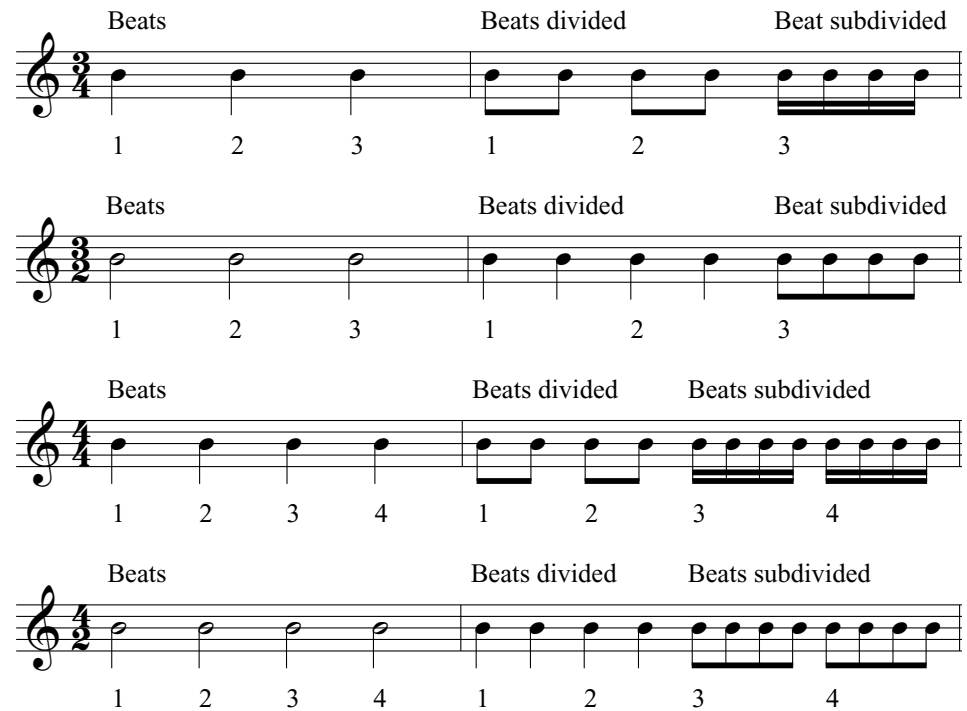


Although meter is generally indicated by time signatures, it is important to realize that meter is not simply a matter of notation.

Simple Meter







In *simple meter*, each beat is divided in two parts (simple division). The upper numbers in simple meter signatures are usually 2, 3, or 4 indicating two, three, or four basic pulses. Some simple meters showing the division of the beat are shown in Figure 1.23.

Figure 1.23



The basic pulse in simple meter will be some kind of a note value that is *not* dotted:


Figure 1.24


Meter Signature	Beat (Pulse)	Division
$\frac{2}{2}$ $\frac{3}{2}$ $\frac{4}{2}$		
$\frac{2}{4}$ $\frac{3}{4}$ $\frac{4}{4}$		
$\frac{2}{8}$ $\frac{3}{8}$ $\frac{4}{8}$		

Compound Meter

In *compound meter*, each pulse is a dotted note, which is divided into groups of three parts (compound division). The upper numbers in compound meter signatures are usually **6**, **9**, and **12**. In compound meter signatures, the lower number refers to the division of the beat, whereas the upper number indicates the number of these divisions per measure.

Figure 1.25







 means  = 2 dotted quarter notes per measure



1 2 1 2

Note that the basic pulse in compound meter will be some kind of dotted note value:

Figure 1.26

Meter Signature	Beat (Pulse)	Division
$\frac{6}{4}$ $\frac{9}{4}$ $\frac{12}{4}$		
$\frac{6}{8}$ $\frac{9}{8}$ $\frac{12}{8}$		
$\frac{6}{16}$ $\frac{9}{16}$ $\frac{12}{16}$		

In $\frac{6}{8}$ meter there are only two basic pulses, in $\frac{9}{8}$ meter there are three, and in $\frac{12}{8}$ meter there are four.

Figure 1.27

Duple, Triple, and Quadruple Meters

Both simple and compound meters will have two, three, or four recurring pulses. Meters are identified as *duple* if there are two basic pulses, *triple* if there are three, or *quadruple* if there are four. These designations are often combined with the division names to describe a meter. For example, $\frac{2}{4}$ is a “simple duple” meter and $\frac{6}{8}$ is a “compound duple” meter.

Figure 1.28

	Simple Meters			Compound Meters		
Duple Meters	$\frac{2}{4}$	$\frac{2}{2}$	$\frac{2}{8}$	$\frac{6}{8}$	$\frac{6}{4}$	$\frac{6}{16}$
Triple Meters	$\frac{3}{4}$	$\frac{3}{2}$	$\frac{3}{8}$	$\frac{9}{8}$	$\frac{9}{4}$	$\frac{9}{16}$
Quadruple Meters	$\frac{4}{4}$	$\frac{4}{2}$	$\frac{4}{8}$	$\frac{12}{8}$	$\frac{12}{4}$	$\frac{12}{16}$

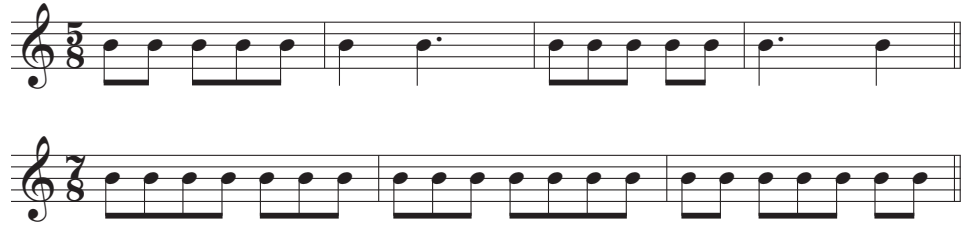
Asymmetrical Meters

The term *asymmetrical* means “not symmetrical” and applies to those meter signatures that indicate the pulse cannot be divided into equal groups of 2, 3, or 4 beats. The upper numbers in asymmetrical meters are usually 5 or 7.

Figure 1.29

Asymmetrical Meter Signatures:

$\frac{5}{4}$ $\frac{5}{8}$ $\frac{5}{16}$ $\frac{7}{4}$ $\frac{7}{8}$ $\frac{7}{16}$

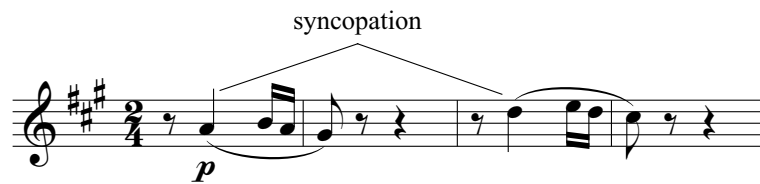


Syncopation

If a part of the measure that is usually unstressed is accented, the rhythm is considered to be *syncopated*.

Figure 1.30

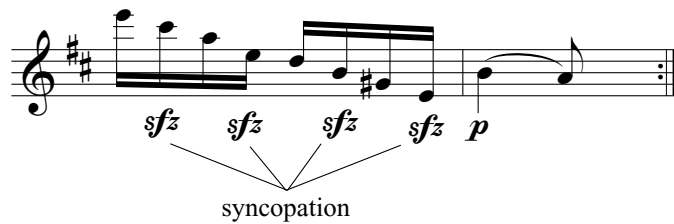
Beethoven: String Quartet in C-sharp Minor, op. 131, IV, mm. 1–4.



Parker: *Au Privave*, mm. 1–4.



Beethoven: String Quartet in A Major, op. 18, no. 5, III, Variation I, mm. 7–8.



Dynamic Markings

Dynamic markings indicate the general volume (amplitude) of sound. Although imprecise, such marks denote approximate levels of intensity. The following words, abbreviations, and signs are common:

Symbol	Term	Definition
<i>pp</i>	Pianissimo	Very soft
<i>p</i>	Piano	Soft
<i>mp</i>	Mezzo piano	Moderately soft
<i>mf</i>	Mezzo forte	Moderately loud
<i>f</i>	Forte	Loud
<i>ff</i>	Fortissimo	Very loud
<<	Crescendo (cresc.)	Gradually become louder
>>	Decrescendo (decresc.), or diminuendo (dim.)	Gradually become softer
<i>sfz, sf</i>	Sforzando, sforzato	Sudden accent on a single note or chord
<i>sfp</i>	Sforzando piano	Sudden accent followed immediately by soft
<i>fp</i>	Fortepiano	Loud followed immediately by soft

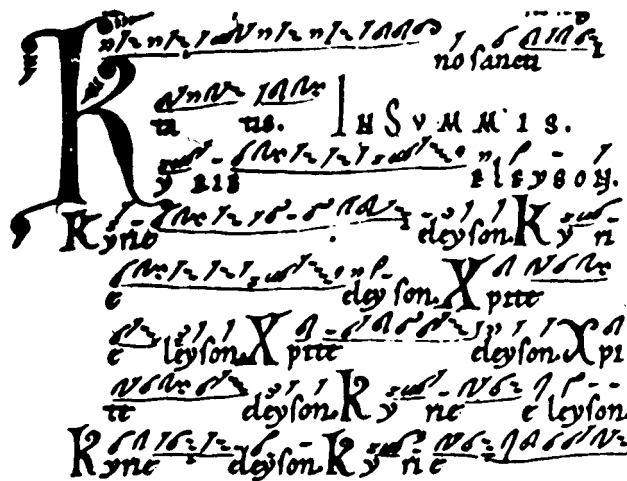
History

Neumatic Notation

The notation of both pitch and duration has evolved over the centuries. It has been a gradual process of transformation that continues yet today.

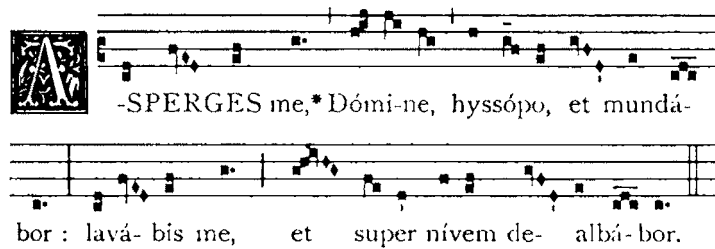
From about 650 to 1200, music notation consisted of a set of symbols called *neumes* (pronounced “newms”). These symbols took their name from the Greek word *forgesture*. Written above the Latin texts associated with the liturgy of the Christian church, neumes could not convey pitch or duration, but rather served as a memory aid in recalling previously learned melodic lines. Figure 1.31 is an example of neumatic notation from a twelfth-century manuscript.

Figure 1.31



Horizontal lines were gradually added to indicate the locations of F and C. In the eleventh century, a four-line staff appeared that included the F line, the C line, and two additional lines. Later, neumes were square or diamond-shaped, as shown in Figure 1.32. Combined with the staff, neumes could now indicate specific pitches. The four-line staff is still used to notate Gregorian chant.

Figure 1.32



Transcribed into modern notation:

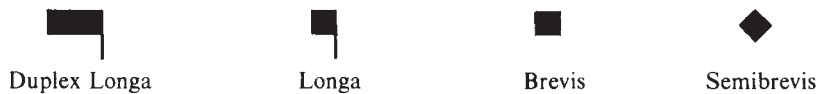


Mensural Notation

Mensural (measured) notation, a system that included durational values as well as pitch, developed during the thirteenth century as the single melody and free rhythm of Gregorian chant or plainsong gave way to measured music that included parts, descant, and, later, harmony and counterpoint.

Figure 1.33

Thirteenth-Century Mensural Notation



Present Notation

Our present system of notation evolved from thirteenth-century practices. A treatise on mensural notation, *De Musica Mensurabili (Ars Cantus Mensurabilis)*, by Franco of Cologne (active 1250–1280), contains the fundamental rules of modern notation. Our notation system has developed gradually since the thirteenth century, and graphic details such as the shape of notes and clefs have changed. New symbols have been (and continue to be) invented as needed to better communicate the growing complexity of music.

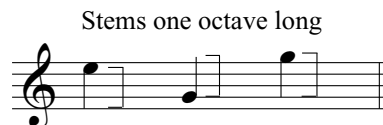
APPLICATIONS

The following series of directions highlight rudimentary elements of modern-day music notation. Whether preparing a score by hand or with the assistance of music notation software, a thorough knowledge of these standardized practices will ensure that the notated music is represented correctly.

Some Directions for Notation

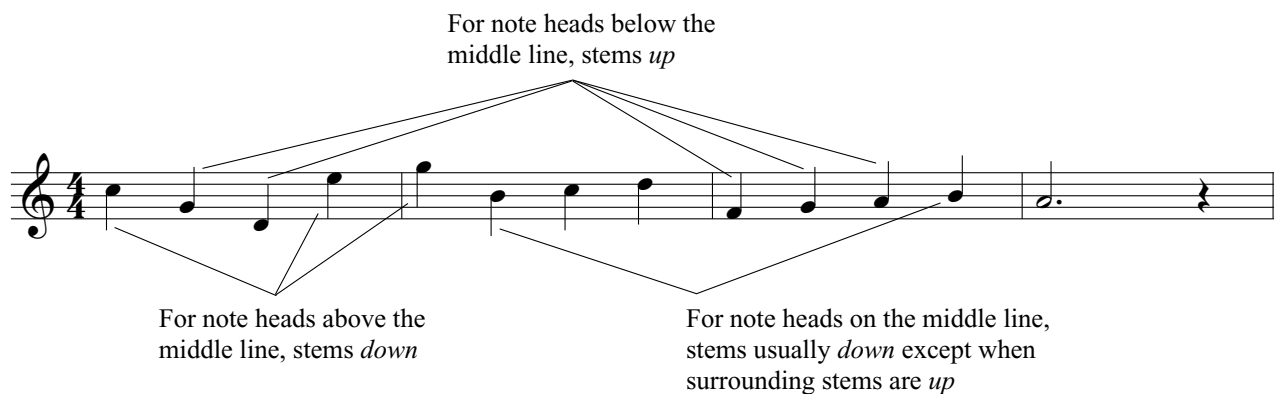
1. Noteheads are oval in shape and positioned on the staff lines and spaces at a slight upward slant. Stems are thin, vertical lines that are directly connected to the head. The stems of single notes within the staff should be about one octave in length.

Figure 1.34



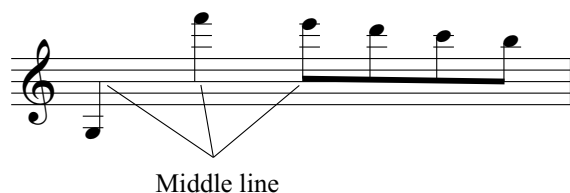
- When a staff contains only a single melody, stems go down on those notes above the middle line and up on those notes below the middle line. When a note is on the middle line, the stem is usually down, except when the stems of adjacent notes are in the opposite direction.

Figure 1.35



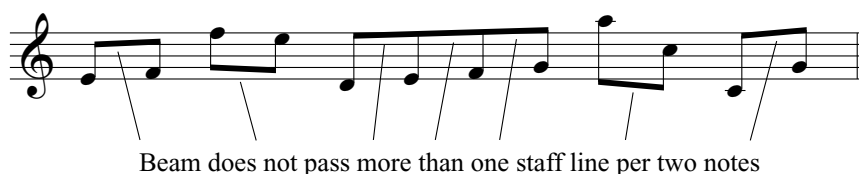
- When stemmed notes are placed on ledger lines, the stems should extend to the middle line of the staff.

Figure 1.36



- When connected by beams, stemmed notes should be modified so that the beams are slanted to cross no more than one line of the staff for each group of notes. Beams are slightly thicker than note stems.

Figure 1.37



- When two melodies occupy the same staff, the stems for one melody are up, and the stems for the other melody are down. This makes it possible to distinguish the melodies.

Figure 1.38



6. Beam groups of eighth notes (and smaller values) according to the beats in the measure.

Figure 1.39



7. In compound meter, it is important to show the basic pulse structure of the measure and the division (of three) as clearly as possible.

Figure 1.40



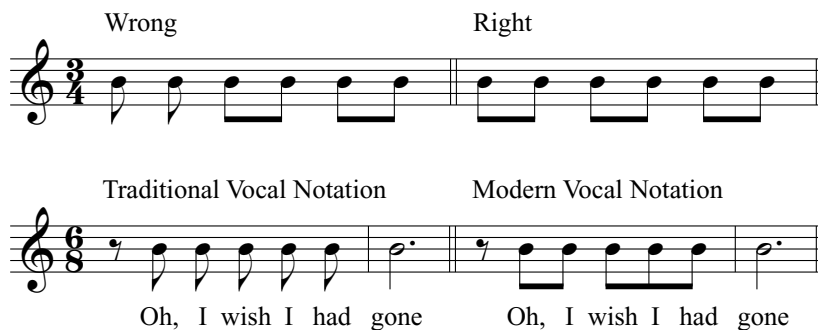
8. Use flags for eighth or shorter-value notes that are not grouped within a beat.

Figure 1.41



9. Connect no more than six notes by beams unless all are part of one beat.
 10. Flagged and beamed notes are generally not mixed, except when notating vocal music. In vocal music, flagged notes have traditionally been used when the text–music relationship involves one note for each syllable. However, modern practice has moved toward the use of “instrumental” notation for vocal music.

Figure 1.42



11. Irregular divisions of a beat or measure are indicated by showing the number of notes in the resulting group by means of an Arabic numeral. The note values of the irregular group are notated the same way as the regular group, provided the number of notes in the irregular group is less than twice that of the regular. For example, a triplet retains the same note values as a regular duplet.

Figure 1.43

Regular group is eighth notes Irregular group is also eighth notes

Regular group is quarter notes Irregular group is also quarter notes

When the number of notes in the irregular group is more than twice the number of the regular, then the next smaller note value is used; for example, a quintuplet would employ the next smaller note value.

Figure 1.44

Regular group is eighth notes Irregular group is sixteenth notes
(contains more than twice the notes of the regular group)

12. The whole rest can be used to indicate a full measure of rest in any meter.
13. Use two quarter rests rather than a half rest in $\frac{3}{4}$ meter.

Figure 1.45

Wrong Right

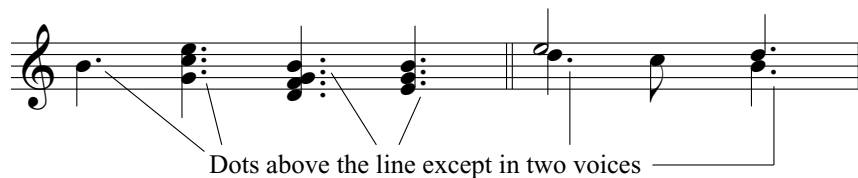
14. When notes of a chord are on an adjacent line and space, the higher of the two is always to the right, regardless of the direction of the stem.

Figure 1.46

Higher note to the right

15. When a dotted note is on a line, the dot is usually placed slightly above the line. When two separate voices are placed on a single staff, the dots are below the line on the notes with stems down.

Figure 1.47



16. Dynamic markings should be added above, between, or below staves according to the nature of the music or score:

Instrumental Music

The markings in *instrumental music* are usually placed beneath the staff to which they refer. Sometimes, because of inadequate space, it is necessary to place markings above the staff.

Vocal Music

Vocal music markings are usually placed above the staff to which they refer. This is done to avoid confusion with the words of the text.

Piano Scores

The markings in *piano scores* are placed between the staves if the markings are to apply to both staves. If markings are needed for each staff individually, the markings should go just above or below the staff to which they refer.

Markings should not be placed on the staff, although the crescendo and diminuendo will protrude into the staff on occasion.

Figure 1.48

