

# HOW TO READ MUSIC

**FOR BEGINNERS**

**A SIMPLE AND EFFECTIVE GUIDE TO  
UNDERSTANDING AND READING  
MUSIC WITH EASE**



**+EXERCISES**

**NICOLAS CARTER**

# **HOW TO READ MUSIC**

## **For Beginners**

*A Simple and Effective Guide to  
Understanding and Reading Music  
with Ease*

**Nicolas Carter**

**© 2017**

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# INTRODUCTION

What we call “Common notation” is, compared to the long history of musical sounds, a relative newborn. It was not the first form of musical notation and musical notation was not born as early as the earliest music. However, when you look at a sheet of music, you are looking at more than notes on a page – you are looking at a history. There is a genealogy to every piece of music that has been written down that transcends the specific history that piece’s creation. Each time someone transcribes or composes a piece of music using the western tradition’s common notation practices, they recall the history—from Bach to Schoenberg to Coltrane—that preceded that notation. The history of the music is in part the history of its being written down, and the writing of the thing bears on its content in some important ways. There is no way to understand modern music theory without also understanding modern musical notation, no way to make sense of a piece’s formal structure in any of the standard ways without also making sense of that piece on the page.

Common notation is how we speak to one another, it is how we learn music, how we share it, how we analyze and understand it, and, just as importantly, it is how we teach it. It may not be necessary for every practicing musician to read music as a second language, but it is absolutely essential to the professional practice of being a musician that they understand how common notation works, how a piece of written music is constructed, how they can learn about that music by reading it on the page, and how they can write their own music on the page in order to share it.

This guide is meant to instruct the uninitiated in the ways and methods of common musical notation. It is specifically a book about common notation (and tablature explanation) – not about chord analysis, Nashville notation, or any other ways of communicating music. The goal of this book is:

- To help you—the reader who has little or no knowledge of what a piece

of sheet music does and says—understand how that sheet works.

- To get you to experience and practice sightreading (the act of reading and directly performing a piece of music written down on a music sheet using common notation).
- The final aim is, while perhaps not fluency of the sort that those musicians who have studied common notation for decades possess, at least a sense of understanding that will help you as you move forward as a musician.

Music is part raw sensation and part linguistic phenomenon, and like all languages it has rules – formal and otherwise – for communication. The field of musical notation is populated by linguistic objects that conform to these rules, and understanding what those objects are, what they mean, and how they work (what rules they follow) will help you in a number of likely unforeseen ways.

# MUSIC THEORY COMPANION BOOK

This guide is meant to introduce the reader to the syntax and semantics of the written word of music. It is not, in itself, a guide to the structure of the music that we write down – the harmonic, melodic, and rhythmic forms that govern most of the music written or performed in the west in the modern era. That is the province of music theory, which is a fundamentally different thing than musical notation. However, the two are linked in a variety of important ways – at every turn, it seems, notation and theory work together. For that reason, there will be cause to lapse into theoretical explanations in this work from time to time.

The reader is strongly urged, however, to have a guide designed to introduce them specifically to theory. This book is in some ways designed to have a sibling, and that sibling is my *Music Theory: From Absolute Beginner to Expert* book, which I strongly recommend that you read before (if you're new to music theory) or alongside this book.

<https://www.amazon.com/dp/B01JX6EFKW>

This is an in-depth book that dives into how music theory works and explains everything in an easy to follow way. It helps you build a solid foundation by explaining important concepts in a way that facilitates practicality and understanding. These two books together form a body of knowledge that will be of tremendous use to any musician.

# **1. WESTERN MUSICAL NOTATION**



## **1.2. Title/Subtitle**

The title of a piece of music is located at the top of the sheet of music, usually written clearly in bold letters. It is the first thing you see on the page. The Subtitle usually follows right beneath the title.

## **1.3. Composer**

The name of the composer of a piece of music is listed below the title of the piece. Note that this is often distinct from the arranger of the piece, which can also be distinct from the person who transcribed the piece (transcribing in the simplest terms is the act of figuring out by ear and writing down how to play a composition usually for a medium other than that for which it was originally written).

## **1.4. Arranger**

The name of the arranger of a piece of music is listed along with that piece's composer (if the song was arranged by someone other than the composer him/herself). If the music score is exactly how the composer originally arranged it this attribution is omitted.



## 1.5. Instrument(s)

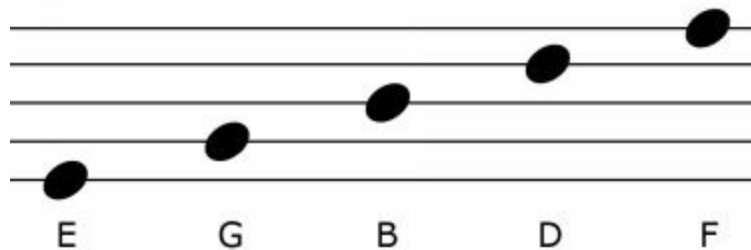
To the left of the staff, you can find the name of the instrument that staff is notating. In the case of a lead sheet (more on lead sheets later) there may not be an instrument listed. A sheet of music may contain the information for one instrument -- these are the sheets that would be given out individually to each instrumentalist in an orchestra, or they may contain all of the **staves** ("staves" is the plural of "staff") for an entire piece (for an entire orchestral arrangement). These latter sheets are often quite long and are intended for use by, for instance, a conductor or band leader. They are also used to analyze the structure and the content of complex pieces of music.

## 1.6. Staff Lines

The heart of a piece of sheet music is the staff itself. This consists of multiple parts, but the most fundamental are the horizontal lines running across the page. These are the skeleton of the staff or staves, and they contain much of the information that will be used to communicate the harmonic and melodic content of a piece.

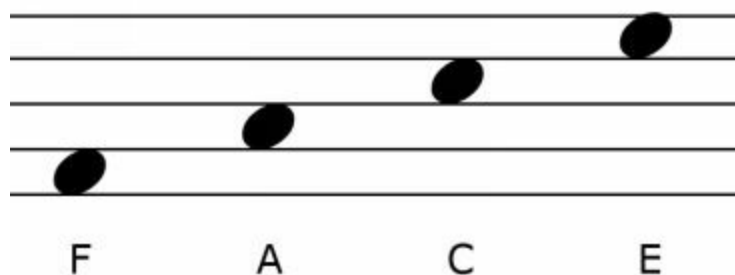
Each staff contains five horizontal lines. Each of those lines, as well as each of the spaces between those lines, denotes a particular note, or pitch. The exact note denoted by those lines is determined by the staff's **clef** (more on this in a separate section), but in the most common clef – the treble clef (shown at the beginning of the staff on Figure 1) – the notes are as follows:

From bottom to top, the five lines of the treble clef denote: E (above middle C – more on this soon), G, B, D, and F.



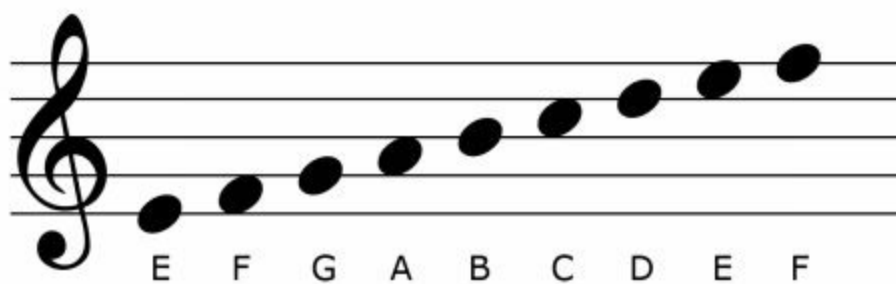
*Figure 1.6.1.*

From bottom to top, the four spaces between those lines denote: F, A, C (an octave above middle C), E.



*Figure 1.6.2.*

Notice that notes ascend by one letter each as you move up the lines and spaces, and descend by one letter each as you move down the lines and spaces.



*Figure 1.6.3. The treble clef at the beginning of the staff determines the note names and their pitches on each of the lines and spaces in-between.*

These letters represent the notes of the C Major scale (or its enharmonic equivalent, the A Minor scale). As we will see, this set of notes can be altered by changing the key of the piece. When the key has been changed, these notes are changed to represent the diatonic major (or relative minor) scale associated with that key. Without key alteration, however, those notes – descending to ascending; E, F, G, A, B, C, D, E, F – are the notes of the staff in standard treble clef.

## 1.7. Ledger Lines

A final note on the lines of the staff: It may already be clear that these notes -- from E above middle C to the F of the next octave -- are not enough. They aren't enough to notate the full pitch range of an instrument, even one for which treble clef is designed, such as a guitar.

In order to meet the needs of the full range of an instrument and a composition, it is possible to extend the staff up as well as down. This is done by placing small extension lines, called “*ledger lines*”, above or beneath the staff, and using those lines to notate the music that extends (in terms of pitch) below or above the existing staff range. These notes follow the same rules as the notes that fall on a not extended staff – they ascend and descend by single scale degrees.

Extending the staff up or down simply extends the scale that one is writing in thus covering more octaves (the scale – most often diatonic – that is represented by the staff in a certain key will repeat above and below that staff).

## 1.8. Clef

The clef in which a piece is written determines the note values of the lines on the staff (and the respective spaces between those lines). The clef is the very first thing that is written on a staff – it is the furthest thing to the left of the page, and it is written on each line of the staff down the page. Clefs are the crucial element of the staff and they will be explained in-depth in a dedicated section.

## 1.9. Key Signature

To the immediate right of the clef, before the time signature, on each line of the staff is placed the key signature. The key signature determines how the seven notes marked by the staff are altered in order to create whatever scale the piece of music is written in. In the case of C major or A minor key (as on figure 1.1.2), no alteration is needed to those notes, and so the key signature space is empty, but for every other key, diatonic or otherwise, the seven notes of that key can be thought of as alterations to the seven notes of C major, and so determining and notating the key of the music is as simple as placing sharps or flats on the staff lines themselves.

This is the key signature – some arrangement of sharps or flats (in diatonic keys it is always one or the other), in general ranging from one to six alterations (6 sharps/flats, but sometimes more). The key signatures themselves are standardized, so that, for instance, Bb major is always written down the same way (this allows the instrumentalist to quickly recognize the key of the song after having memorized each key signature). More will be said on key signatures in a later section.

## 1.10. Time Signature

To the right of the key signature on the staff is the time signature. This tells the musician how to count the beat of the music, and it also determines how many notes and rests of a particular rhythmic value fit into a bar of music – a bar being the fundamental unit of time in music, the length of which is determined by the time signature.

The time signature is expressed as a ratio—one number on top and another on the bottom (see fig. 1.1.2.). There will be more to say about time signatures and their variety in a dedicated section, but for now it is enough to note that it is given to the right of the key signature at the beginning of the piece (and whenever it changes) and that it is a ratio – a ratio, without getting fully into detail just now, that expresses the count (on the number on top) of some rhythmic value (the number on bottom) that goes into each bar. For example, the 4/4 time signature simply reads as four quarter notes in one bar, 6/8 would be six eighth notes in one bar, and so on.

The time signature, like the key signature, can be changed during a piece of music, and when it is changed the new signature is inserted at the beginning of whatever bar the change occurs at.

## 1.11. Tempo

The final piece of information that is immediately given to the performer on a sheet of music is the piece's tempo. Historically, this was communicated with written words—often in Italian—such as “allegro” and “vivace,” but it is common in contemporary music, and particularly in pop and jazz, for a sheet to simply note the precise tempo numerically (setting the value of a quarter note to, for instance, 80 or 120, which means that there are that many quarter notes in a minute).

Setting the beats per minute, or BPM, of a piece reduces any confusion about the exact pace at which the piece is meant to be played, although it is still customary in some compositional practices to use the old classical terms.

The tempo is not listed on the bar in the way that the clef, key signature, and time signature are, and it does not get listed more than once (it is not repeated with each new line) unless the tempo of the piece changes in course (in which case the tempo change is marked at the location of that change). Instead of being notated on the staff itself, the words or numerical value is listed, at the beginning of the piece, above the staff on the left side of the page.



## 1.12. Bars and Bar Lines

A staff is divided horizontally into bars (or measures), which are units of rhythm that allow the music to be divided evenly and counted. Unless the time signature has been changed, each bar contains the same amount of rhythmic material, and if neither the time signature nor the tempo is changed, then each bar takes up the same amount of time.

In general, bars are divided by vertical lines moving across the horizontal lines of the staff. There are, however, more ways than one that this is done.

Each composition is made up of a particular number of bars which are usually numbered in numerical order. This makes it easier to refer to them later. Bar number is usually written right at beginning of the staff above the clef (see figure 1.12.1.).

### Single Bar Lines

Standard bar lines are single, light lines that divide one bar from another within the same section of a piece of music. These are far and away the most common bar lines.

### Double Bar Lines



*Figure 1.12.1. Note the double bar lines at the end of the tenth bar (the third bar pictured)*

Double bar lines are used to divide sections of a piece from each other. In addition to marking the end of one bar and the beginning of another, they perform the function of marking the end of one section of the musical piece and the beginning of a new section.

## Heavy Double Bar Lines



## 1.13. Notes

Notes are the meat of a bar. They indicate the sounds that are made by an instrument. A note consists of three things:

### 1. Note head

2. **Stem** (straight line coming from the note head, positioned upwards or downwards)

3. **Note flag** (curved line coming of the top of the stem – only eighth and shorter notes have flags; this is explained in the rhythm section)

There will be much more to say about notes in the course of this book, but for now we can say simply that a note, written on a staff, tells us two important things:

1. It tells us what pitch is to be produced by an instrument, and
2. It tells us how long that pitch is to be produced for.

The placement on the staff itself—where it is vertically—tells the performer which note to play (which pitch), while the shape of the note as it is notated tells the performer how long to hold that note for (there are, for instance, quarter notes, with their own distinct shape, that instruct the player to hold the tone for a single beat, or a quarter of a standard bar in 4/4 time).

The notes on the staff can stand single or they can be connected (this is called '*beaming*'), and with their stems positioned up or down.

The decision for a composer to write note stems up or down is preference. In general, some are written up (when the note is low on the staff) and others

are written down (when the note is high on the staff). It just makes it easier to write and read.

The choice to connect or beam the notes is sometimes due to the way they are grouped together rhythmically -- like in a triplet. Other times, it is just a convention, a way to make it look better and easier to read (when, for instance, notes are rising or falling in order for a period of time). It is important to emphasize that only notes with a flag can be beamed (eight notes and shorter).

## 1.14. Rests



*Figure 1.13 Notice the two rests in the first bar*

Since music consists both of sound and silence, times when a musician is playing and times when they are not, written music consists both of notated pitches (notes) and the space between those pitches when the musician is not playing. These spaces are called rests, and they must be used to fill all of the spaces between notes in order to add up to the total value of a bar.

For example, if a standard 4/4 bar is being used, then there is a certain amount of available space (totaling four quarter notes, or eight eighth notes, or something of equal value). If three quarter notes (three beats) are notated, and if the rest of the bar is meant to be silent, then the composer needs to insert a rest to fill the rest of the bar up. In this case, the rest would be a quarter note rest, which is a kind of beat-length rest. There will be more on rests as this guide progresses. For now, we will say that there are in general three types of notated rests:

1. Beat-length
2. Bar-length
3. “Tacet” rests.

### Beat-length Rests

A beat-length rest takes up the same amount of space as a given number of beats. It can be a quarter note rest, an eighth note rest, a half note rest, or it can be greater or less than any of those, up to a whole note rest (taking up the same space as four beats, or a full bar in 4/4 time).

## **Bar-length Rests**

A bar-length or measure-length rest instructs the player to rest for one or more bars at a time. These are useful during passages when an instrument is waiting for other instruments to finish their parts.

## **“Tacet”**

During long periods of resting, when a particular instrument is not playing (perhaps they do not play during this section of music at all), the word “tacet” may be written on the staff, instructing the performing to rest for a long period of time (until otherwise notated), for instance when a musician is silent for a whole movement. The word “tacet” is Latin and it means: it is silent.

## 1.15. Repeats



*Figure 1.14.*

When a section of music is to be repeated, even if it is to be varied at the end on the repetition, a repeat is often inserted into the score, marking the place where a performer is meant to stop and go back to a predetermined point in order to repeat the section. The repeat looks like a heavy double bar lines but with two black dots as shown on Fig. 1.14.

## 1.16. Codas



**Figure 1.15.**

A coda is used to write an ending to a piece of music or a section of a piece, particularly when the section that immediately precedes the ending in the music is not the section that immediately precedes it on the page (for instance, when a repeat has been used).

These are often used as follows: A coda is written at the end of the section or piece (marked by the coda sign). Then, another coda symbol is placed earlier in the piece. The words "D. C. Al Coda" are written somewhere between those two symbols, and when the player reaches those words, they return to the beginning of the piece, play it through until they reach the first coda sign, and then skip to the second coda sign and play the coda (the ending, or tail).



## **1.17. Endings**

When a section of music is repeated, it is possible to write multiple different endings into the score. This is achieved by numbering the endings and instructing the performer to play them on subsequent repetitions of the repeated section.

## **1.18. Form**

There are various ways of notating the form of a piece of music. These include using introductions and endings, as well as form letters or section titles.

### **Introductions**

An introduction occurs before the body of the piece and is used to preface the piece itself.

### **Form Letters/Section Titles**

Form letters and section title are used to cue the shifts between sections of a piece of music. In common Western music section titles often include: Intro, Verse, Pre-Chorus, Chorus, Bridge, Solo, Ending, etc.

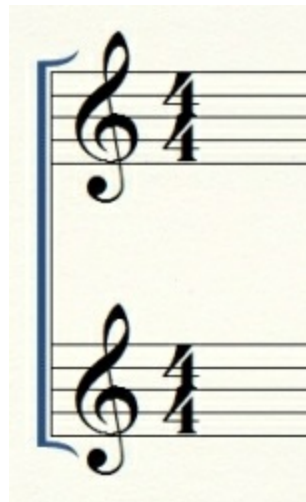
### **Tags**

A tag is an ending that extends the final phrase of a piece, often adding a few beats (sometimes less than a full bar in length).

## 1.19. Brackets and Accolades

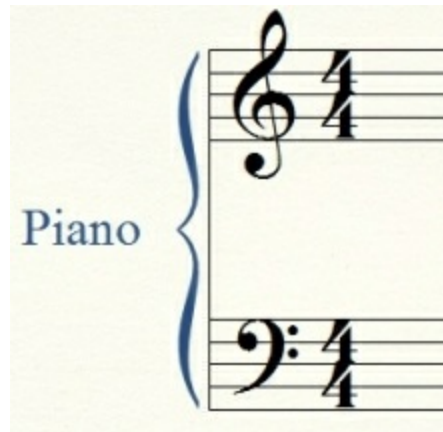
Two or more staves can be connected with a vertical line at the beginning thus creating a system of staves, which indicates that the music written on these staves is to be played simultaneously. This line can also be a bracket and brace.

Brackets indicate that the music on the staves is to be played simultaneously by multiple instruments. They are shown as an additional vertical joining the staves.



*Figure 1.18.1. A bracket*

A brace (also called an “accolade”) on the other hand indicates that the music written on the staves is to be played simultaneously by a single instrument, such as harp or piano.



*Figure 1.18.2. A brace/accolade*

## **2. UNDERSTANDING CLEFS**

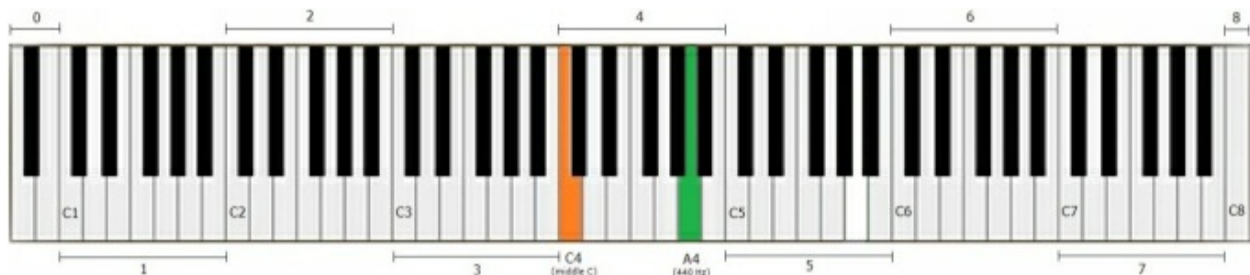
## 2.1. Standard Pitch and Middle C

We know that there are only 12 notes in Western music and that each note has its own pitch:

A, A#/Bb, B, C, C#/Db, D, D#/Eb, E, F, F#/Gb, G, G#/Ab

These notes repeat themselves after each octave and go in circle from higher to lower registers, or vice versa. Each note is pre-determined to vibrate at a certain frequency and that frequency is measured in Hertz (Hz).

Some instruments have very big ranges. Piano is the prime example of that – on a full size piano keyboard there are 88 keys, which means there are 88 different pitches that can be produced, which is as many as 7 octaves. An octave, if you remember, is just the distance between one note and that same note repeated in the next higher or lower register.



**Figure 2.1.** An octave with the middle C is called the Middle octave – it's the 4<sup>th</sup> octave on a full size piano

If you look at the figure above you can see that the distance between  $C_3$  and  $C_4$  is exactly one octave; same with  $F_2 - F_3$ ,  $D_6 - D_7$ , etc. The distance between  $C_1$  and  $C_3$  would be 2 octaves,  $G_4$  and  $G_7$  3 octaves, etc.

Throughout history there have been many attempts to standardize the musical pitch. The most common modern music standard today sets the A above middle C at exactly 440 Hz. This is called “*pitch standard*”, or

“*international standard pitch*”, or “*concert pitch*”. This A4 serves as the reference note, with other notes being set relative to it.

## 2.2. The Role of Clefs and the Most Common Types

The use of clefs is closely related to this. What a clef does is name a **particular note** on the staff—a **G**, an **F**, or a **C**—and by virtue of its placement on the staff vertically it places that note (and so all of the other notes as well) at a particular place on the staff lines. There are 3 main types of clefs with their distinct shapes used in modern music notation:

1. G-clef

2. C-clef

3. F-clef



*Figure 2.2.1. Three main clef shapes*

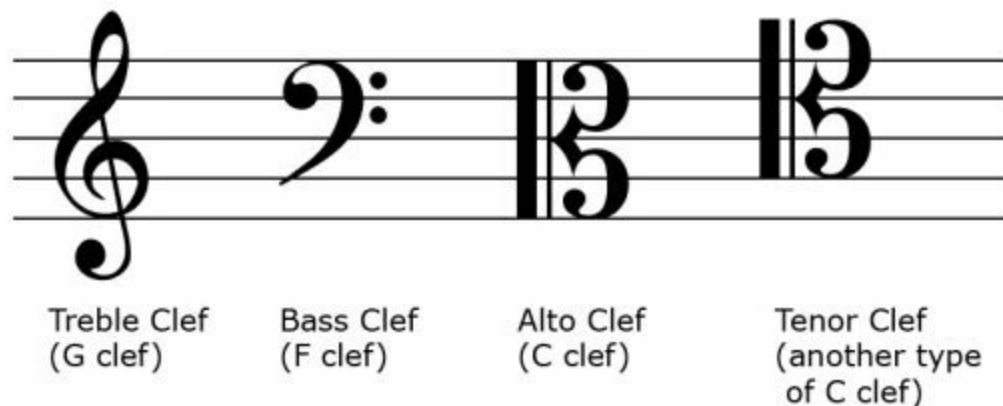
These are the main shapes of clefs, but they can be applied in different ways – which is done by slightly changing their position on the staff. These 3 clefs therefore have different sub-types, positioned differently on the staff.

The most common clefs you can find are the **treble clef** and the **bass clef**. Treble clef is the type of G clefs (like a sub-type), while bass clef is the type



of F clefs. These two clefs taken together (on two staves) make up what is known as the **grand staff**, which is used for piano and harp music (and sometimes for guitar music in the classical tradition).

Beyond the treble and bass clefs, which are the most common forms of the G-clef and F-clef respectively, there are the **alto and tenor clefs**, which are each forms of the C-clef.



*Figure 2.2.2. Notice the different placement of the Alto and Tenor clefs*

Though the four most common clefs are treble, bass, alto, and tenor, it is possible to place the G-clef, the F-clef, or the C-clef in other places on the staff to denote different clefs (such as, for instance, the French clef, which was a variation on the treble clef that was designed in the 17<sup>th</sup> Century for use with violins).



*Figure 2.2.3. Notice the difference in placement between French Violin Clef and Treble clef*

**To summarize so far:** Clefs determine the note value of each line of the staff on which they are placed (you'll understand soon how). There is more than one clef, and more than one way to place each clef. The shape and the placement of a clef, along with the type of clef that it is, orients the staff lines and tells the performer which notes go where. Although the notes of the staff always occur in order (ascending sequentially up the lines and spaces), they begin with different notes and in different octaves at different points on that staff, as determined by the clef.

Unless altered by the key signature the notes that any clef determines on the staff will always be the natural notes (C, D, E, F, G, A, B; the notes without sharps or flats), in the key of C Major/A minor (the only keys without sharps/flats – or accidentals as they are called). In other words, clefs themselves don't change the key – key signature does that – clefs simply set the range for the staff in terms of frequencies.

## 2.3. The Treble Clef

The treble clef is the most common clef, and it is – as we have said – a version of the G-clef. The G clef is drawn so that the curl of the clef wraps around the  $G_4$  note. The ‘4’ next to G tells us the register range of that note, which allows us to find this exact note (with the same pitch) in the correct octave on our instrument. In the case of the treble clef,  $G_4$  occurs on the second line from the bottom.



***Figure 2.3.** Treble clef wraps around the  $G_4$  note on the 2<sup>nd</sup> line from bottom to top. Any notes on this line will be G. French clef on the other hand wraps around the  $G_4$  on the 1<sup>st</sup> line from the bottom.*

The notes of the treble clef lines, from bottom to top, are:

$E_4$ ,  $G_4$ ,  $B_4$ ,  $D_5$ , and  $F_5$

And the notes of the spaces between those lines, from bottom to top, are:

$F_4$ ,  $A_4$ ,  $C_5$ ,  $E_5$

## 2.4. The Bass Clef

The second most common clef is the bass clef. It is an F-clef, since it is drawn so that the two dots are on either side of the  $F_3$  note. In the case of the bass clef, this means that the F occurs on the second line from the top.



*Figure 2.4. Notice how two dots stand on both sides of the  $F_3$  note.*

The notes of the bass clef lines are, from bottom to top:

$G_2, B_2, D_3, F_3, A_3$

The notes of the spaces between those lines, from bottom to top, are:

$A_2, C_3, E_3, G_3$

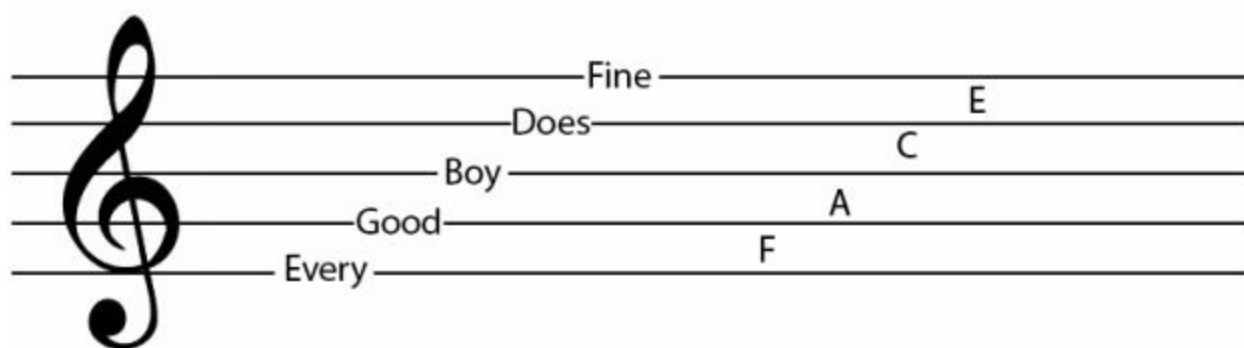
So for the bass clef we have (bottom to top):

$G_2, A_2, B_2, C_3, D_3, E_3, F_3, G_3, A_3$

## 2.5. Remembering the Notes

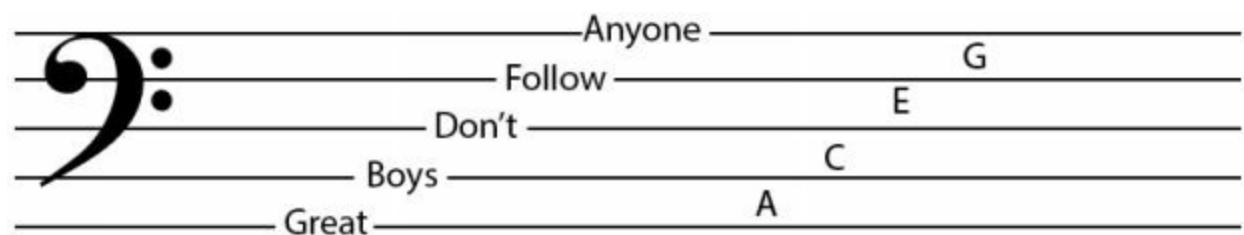
It's important to remember the sets of notes for both treble and bass clef since they are the most used clefs that can cover many instruments.

The notes that spaces represent in the case of the treble clef are easy to remember because they spell the word: FACE. For lines you can use mnemonics, for example:



*Figure 2.5.1.*

In the case of the bass clef the notes that are on the spaces spell: ACEG (All Cows Eat Grass). You can use something like this:



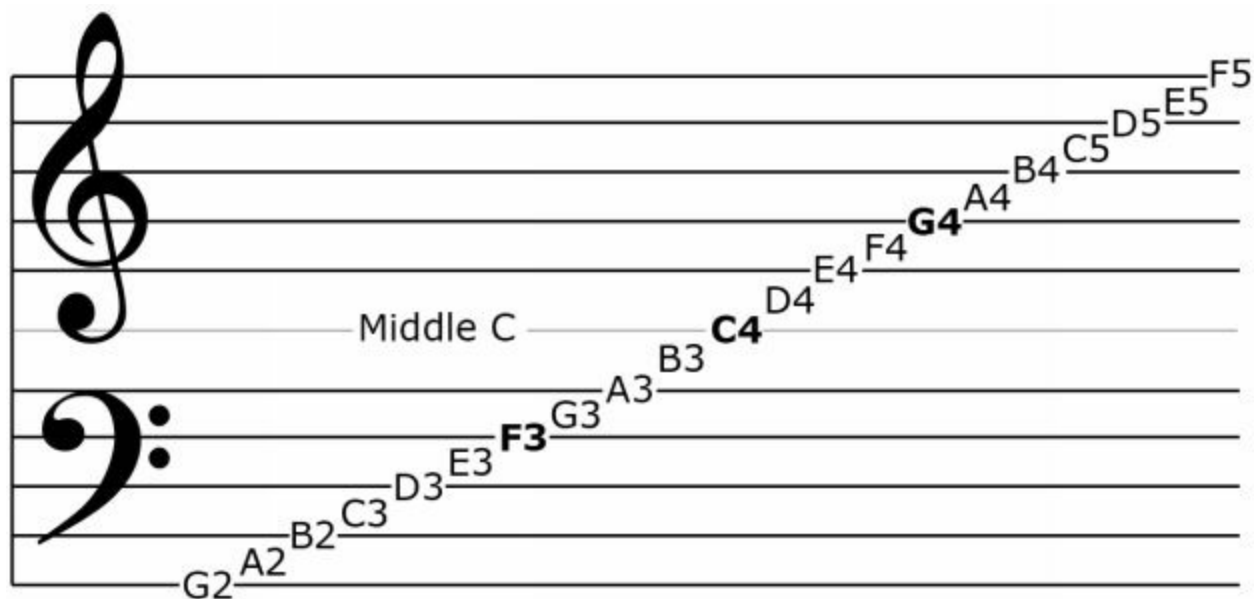
*Figure 2.5.2. Great Boys Don't Follow Anyone for lines, and All Cows Eat Grass for spaces*

You can also try to create your own mnemonics. In any case it is important to memorize these notes.

## 2.6. The Grand Stave

As we have said before, treble and bass clef together form the grand stave (also known as the grand staff), which can be commonly found on music sheets. The goal of a grand stave use is to minimize the use of ledger lines and make the written music more easily readable.

The grand stave covers a wide range of note pitches and it is useful for instruments such as pianos. Instead of 5 we now have 10 staff lines plus the invisible line (normally not shown). The invisible line represents the middle C note (C<sub>4</sub>) and it connects bass and treble clefs. To demonstrate this visually check out the figure below.



**Figure 2.6.** Note that on the spaces around middle C there are two more notes connecting the bass and treble clefs: B<sub>3</sub> and D<sub>4</sub>. When playing piano the bottom staff is usually played with the left hand and top staff is usually played with the right hand.

The modern staff has only five lines and even with the use of ledger lines the number of pitches that can be represented on the staff is not nearly enough to cover all instruments or what an entire orchestra can produce. Likewise, if we use only clef it would be difficult to write music for all instruments and

voices. That's why the use of 3 different clefs (along with their sub-types) for various instruments and voices allows everything to be comfortably on the staff with the minimum use of ledger lines.

## 2.7. Octave Transposition

In order to explain this concept here's an example. Guitar in standard tuning has the following open string notes (from thickest to thinnest):

$E_2, A_2, D_3, G_3, B_3, E_4$ .

Bass guitar in standard tuning has the same first four notes only one octave lower:

$E_1, A_1, D_2, G_2$ .

On master piano one can go even lower. The clefs that are used to notate these instruments are usually treble and bass clefs, but in order for us to reach and notate these lower octave ranges we can use either:

1. More than five ledger lines to extend the staff until we reach the desired pitches (this is not common practice and it's generally avoided).
2. A modified treble or bass clef with written numeral '8' below or above it.

This numeral 8 (sometimes called "*octave marker*") when written below the clef indicates that the pitches on the staff should sound an octave below their default value; and when it's written right above the clef it indicates that the pitches on the staff should sound an octave above their original pitch value.





***Figure 2.7. Treble and bass clefs with octave markers***

F-clef can also be notated with an octave marker below or above the clef, but both of these are extremely rare. Usually vocal and instrument performers whose ranges lie below the bass clef simply memorize the number of ledger lines for each note through common use. If on the other spectrum a note is significantly higher than the range of a bass clef, the composer will simply write it in treble clef.

It should be said that performers will normally know the right octave range to use even without the octave markers. However, lately as musical notation software started to become popular the use of octave-marked clefs has increased. This is because in any score-writing software the proper use of clef octave marker ensures that the music files (most commonly MIDI files) produce tones in their correct octaves.

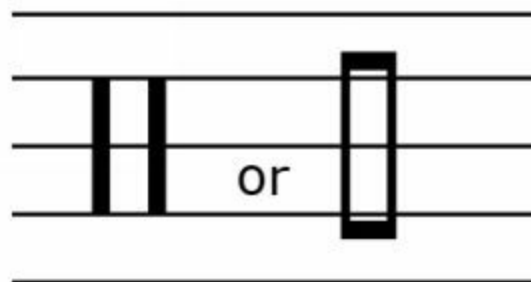
## 2.8. Other Clefs

In addition to the treble and bass clefs, it is possible to orient the G- and F-clefs in different ways to name different notes on the staff. This occurs, for instance, in the contrabass clef, a variation on the F-clef, and in the French clef, a variation on the G-clef. There is also the C-clef and its variations, which is so named because it is centered on the C<sub>4</sub> note (middle C). This is used to create the alto and tenor clefs, among others.

Generally speaking, G-clefs are used for higher parts, C-clefs for middle parts and the F-clefs for low parts.

### 2.8.1. Percussion Clef

Percussion clef is different from other clefs. The lines do not represent notes, but timbres. In other words, a particular line stands for the snare, and another one stands for the high hat, etc. Sometimes only one staff line is used to write rhythmic values of the notes; it is not necessary to use all five lines of the staff. The “notes” written on the staff are completely rhythmic, not having any harmonic or melodic value -- they are just there to show time (when you clap your hands or hit what drum/percussion instrument).

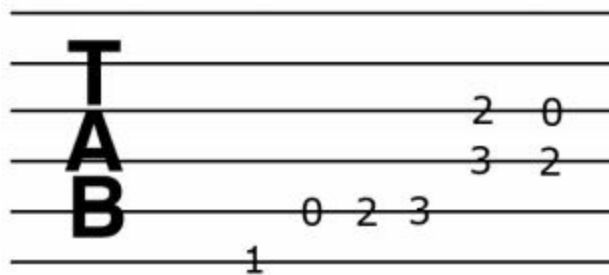


*Figure 2.8.1. Percussion clef symbols*

### 2.8.2. Tablature

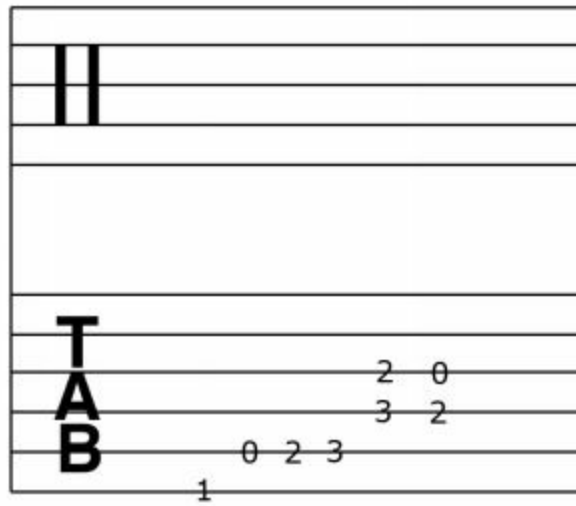
This is not a clef but a very much simplified alternative to the traditional notation system, used for all stringed (and fretted) instruments, most commonly guitars. It is used as a reference and to write down quickly and easily what is being played.

In Tablature (Tab for short) the number of the “staff” lines simply refers to the number of strings on a stringed instrument. If an instrument has 6 strings, there will be 6 lines on the staff, if there are 4 strings, tab will have 4 lines. Notes that should be played are represented by numbers written on the tab and those numbers correspond to a particular fret on the instrument. Sometimes other ‘technique symbols’ are written as well, such as hammer ons (H), pull offs (P), up slides (/), down slides (\), etc.



*Figure 2.8.2. Tab example for 6-string guitar*

Tablature is one-dimensional in a sense that it doesn't give much information as to how a piece should be performed, and it cannot replace the traditional notation system. But nonetheless it is a useful memorization tool for remembering what notes to play where. Tablature works great when used in conjunction with the percussion clef in the form of a grand stave. Each number/note that is written on a Tab now has its rhythm value added, which adds another dimension to it.



*Figure 2.8.3. Common way to write down transcribed music on guitar*

### **3. TIME FOR SIGNATURES**

Time and key signatures are some of the most important things on a staff. They occur to the immediate right of the clef, and they tell the instrumentalist much of the information they will need to know before beginning to play or learn the piece they are reading. Once mastered, reading a signature is like noticing the color of the paper that a poem is printed on—it affects you without you even knowing it. The aim is not to pause over the signatures and consider them, but to see them and immediately know the information they are presenting you with (information that you will need as you begin reading the notes written on the staff). In general, the key signature tells you about the key of the song, which identifies the way in which the seven notes represented by the staff lines and spaces are altered in each octave, while the time signature tells you how many of what kind of note can fit into each bar (thus telling you how to “count” or “tap” the pulse of the music).

## 3.1. Time Signatures

Time signatures are expressed as simple ratios—4/4 being the most common one. The top number always tells you how many notes fit into a bar, while the bottom number always tells you which kind of notes you are talking about (which kind of notes are counted or pulsed according to the top number). The bottom number then has to represent some musical note.

There will be more on note durations later, but for now we can say that they occur in divisions of two: whole notes, half notes, quarter notes, eighth notes, sixteenth notes, and so on. The bottom number in the time signature's ratio represents one of these notes—it can be a 2 (half note), a 4 (quarter note), an 8 (eighth note), and so on. It is not possible for the bottom number to be any numbers other than ones that represent actual note durations (you won't see a 7 in that position in the time signature).

The top number in the time signature's ratio instructs us as to how many of the notes identified by the bottom number will fit into a bar. 3/4 time, for instance, tells us that there are three quarter notes in each bar. That means that the pulse of the song is in quarter notes (rather than, for instance, in eighth notes), and it means that there are 3 such pulses in each bar—1, 2, 3...1, 2, 3... (3/4 is a common waltz time). The top number can in theory be any number, since all it is doing is telling you how many notes to fit into a bar.

Taken together with the tempo of a song, the time signature tells you exactly how long a bar is. If the tempo is 120, then that means that there are 120 quarter notes in each minute, which means a quarter note takes half of a second. If the time signature then is 6/8, that means there are six eighth notes in each bar, and since an eighth note is half as long as a quarter note (and thus at 120 bpm it takes a quarter of a second), a bar will consist of six quarter-second pulses, or one and a half seconds.

## 3.2. Key Signatures

The key signature is written to the right of the clef and to the left of the time signature. It is one of the most important components of a staff, and it is the first thing that many practiced sightreaders look at. The job of the key signature is to tell the performer what key the song is written in. What that means, however, is that its job is to modify the lines of the staff (and the spaces in between) so that the seven notes indicated on the staff match the seven notes of whatever key the song is in.

For instance: The notes of the staff in treble clef, unmodified, are (from bottom to top) E, F, G, A, B, C, D, E, F. These are the notes of the C major (or A minor) scale. But if the song is written in a different key, for instance F major, then the composer will want the lines of the staff to read: E, F, G, A, B $\flat$ , C, D, E, F. To modify the B to B $\flat$  in every octave on the staff, the composer simply writes the ‘b’ symbol at the appropriate place on the staff after the clef and before the time signature. This indicates the key signature which instantly tells us what key the song is.

Key signatures do not alter the accidentals written on the staff themselves (there will be more on accidentals later, but in general these are the notes on the staff with sharps and flats written next to them). It does not restrain the composition and prevent the composer from writing, for instance, a G $\flat$  in F major. What it does is alter the staff lines themselves, so that if a note is written on the B line in F major it will automatically be a B $\flat$ . The use of key signatures helps to de-clutter the written music from the overuse of sharps and flats.

This makes it much easier to notate a piece in a key other than C (even if that piece bends the rules of the key frequently), and it makes it possible to quickly read the lines of music for the performer (since they less frequently have to think about sharpening or flattening notes, and since it gives them a seven-note reference, a scale in which to place the notes that are written, rather

than having to sort through all 12 tones of the chromatic scale to find each note). The performer gets to use a scale as a guide when reading the sheet, modifying the scale on the fly only when an accidental is present. This is one of the reasons why Major scale (namely C major scale/key) is considered to be the foundation for everything else.

A key signature consists of nothing more than sharps or flats (not both, and usually only as many as seven of them) written in a particular order, on the staff at the beginning of each line (after the clef). There are some rules however that should be followed while doing this which we'll examine soon.

Recognizing the key is an easy matter—one does not have to sort out exactly which notes are being altered, they only have to count how many alterations there are—there is exactly one key for each number of sharps, and one key for each number of flats (usually up to seven). The number of sharps or flats in a given key, as well as the order in which they are notated at the beginning of each line, is determined by the circle of fifths.



### 3.3. The Circle of Fifths

The circle of fifths is a simple tool with a wide range of important uses. At its most basic, it consists of a circle with each note written (beginning at C) so that as the circle is followed **clockwise** the notes ascend by an interval of Perfect Fifth each time. That means that the notes, clockwise, of the circle of fifths are: C, G, D, A, E, B, F#/Gb, C#/Db, G#/Ab, D#/Eb, A#/Bb, F, C.

Before going on it's important to make something clear right away—there is a rule in music theory which says that **there can't be two side by side notes with the same alphabet**. The consequence of this is that when applying the Major scale formula to a key (tone, tone, semitone, tone, tone, tone, semitone) and writing out the scale notes we will get some keys with sharps and some with flats.

For example, F major scale contains the notes: F - **T** - G - **T** - A - **S** - A# - **T** - C - **T** - D - **T** - E - **S** - F.

Now this was intentionally written wrong. You see that A and A#? Because of the rule mentioned above we would have to write Bb, instead of A# (which are the same tone, just written differently).

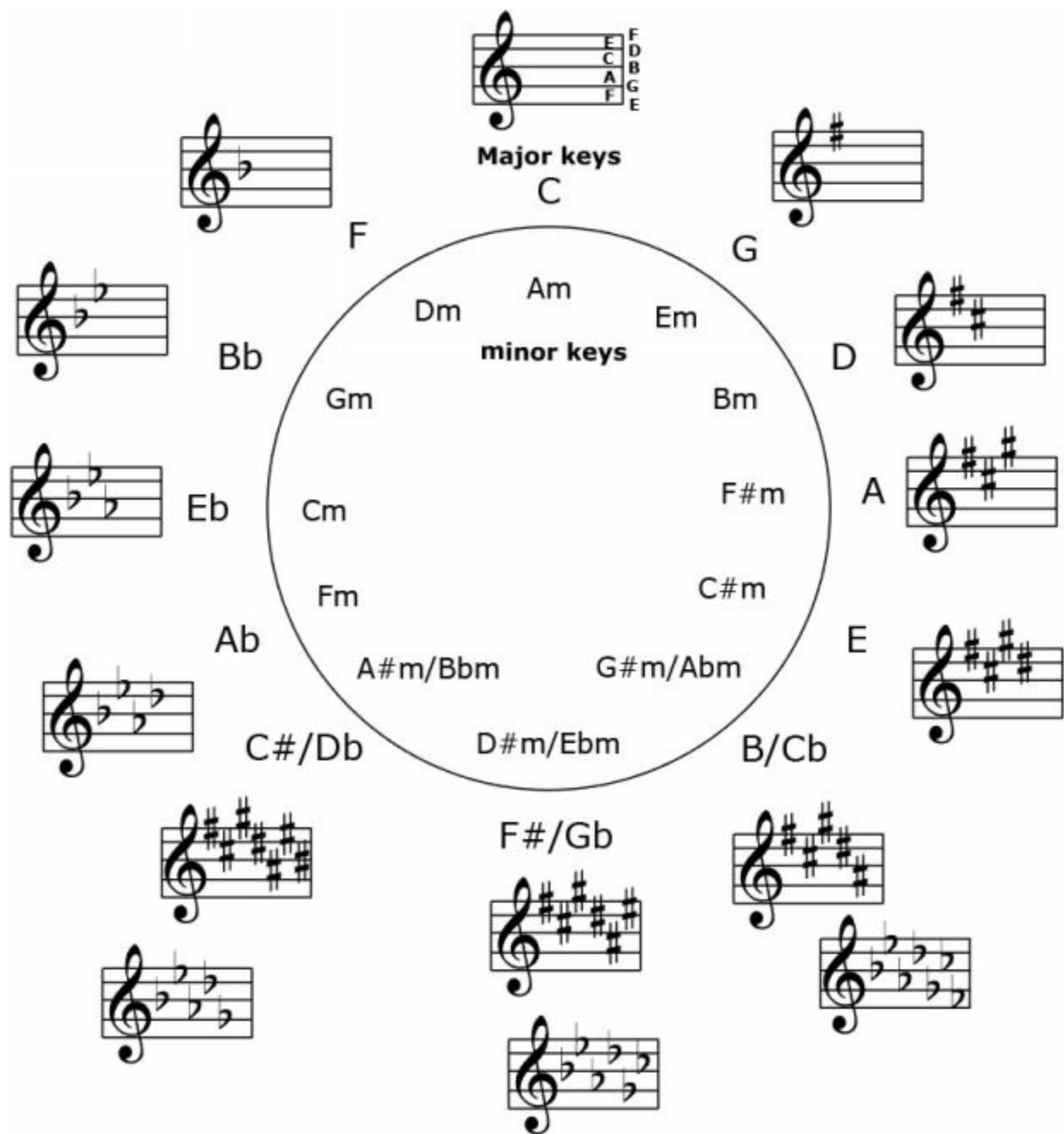
So the F key notes actually look like this: F - **T** - G - **T** - A - **S** - Bb - **T** - C - **T** - D - **T** - E - **S** - F. Because of this F is a flat key; in the same way some keys are either sharp or flat (except for the key of C which doesn't have any).

In any case, moving through the notes by an interval of 5th allows us to organize information about each key:

1) First, each note is understood to represent a major key starting with C, and a relative minor key is placed by each major key: A minor, E minor, B minor,

F<sup>#</sup>/G<sup>b</sup> minor, C<sup>#</sup>/D<sup>b</sup> minor, G<sup>#</sup>/A<sup>b</sup> minor, D<sup>#</sup>/E<sup>b</sup> minor, A<sup>#</sup>/B<sup>b</sup> minor, F<sup>m</sup>, C<sup>m</sup>, G<sup>m</sup>, D<sup>m</sup>, A<sup>m</sup> (in that order, beginning with A<sup>m</sup> being matched to C and following from there).

2) Second, each key is written in terms of how many sharps or flats it has: C has 0 sharps, G has 1 sharp, D has 2 sharps, A has 3 sharps, E has 4 sharps, B has 5 sharps, F<sup>#</sup>/G<sup>b</sup> has 6 sharps or 6 flats (it can be written either way), D<sup>b</sup> has 5 flats, A<sup>b</sup> has 4 flats, E<sup>b</sup> has 3 flats, B<sup>b</sup> has 2 flats, F has 1 flat. In this way, it is easy to see the arrangement of sharps and flats for each key.



**Figure 3.2.1.** The Circle of fifths shown lays out each key with its key signature written next to it. Note that whenever you're moving clockwise on the circle (increasing in pitch) sharps are used, and whenever you're moving counter-clockwise on the circle (decreasing in pitch) flats are used.

As the number of sharps or flats increases, the key with more alterations contains all of the same alterations as the last one, only one new one is added. The order in which the alterations to a staff in a key signature are written is

also determined by the circle of fifths—G has 1 sharp: F#, and so the F line is sharped in the key signature; following that, D is written first with the F sharped and then with the C sharped; following that, A is written first by sharpening the F, then by sharpening the C, and finally by sharpening the G; and so on. The same logic applies to the flat keys and to the minor keys as well.

### 3.4. Rules and Guidelines to Keep in Mind

1) Key signatures with #'s **always** start with F# (# is written on the top F line on the staff in treble clef). This is because when writing in key signatures on the staff we always follow the circle of fifths. As we go through the keys on the circle, one new sharp is added with each new key while the old ones remain at the same position.

2) In the same way key signatures with b's always start with Bb.

3) Key signatures—no matter the clef— **never** use ledger lines. This is the reason why first F# must be written at the top line of the stave and not on the bottom (the only exception is on the tenor clef when using sharps, where F# is placed at the bottom of the stave in order to avoid the use of a ledger line for the second C# note – see Figure 3.2.4.1.).

4) Key signatures are never placed one beneath the other but one after the other. The exact placement of the keys sharps and flats is depicted in the circle of fifths image.

5) The same key signatures are used for Major and minor keys. For example, G has the same key signature as E minor, key signature of Eb is the same as Cm, etc.

6) The notes that the sharps appear in order starting from the key of G are:

**F C G D A E B**

Key of C has 0 sharps or flats.

Key of G has one sharp – F#

Key of D has two sharps – F# C#  
Key of A has three sharps – F# C# G#  
Key of E has four sharps – F# C# G# D#  
Key of B has five sharps – F# C# G# D# A#  
Key of F# has six sharps – F# C# G# D# A# E#  
Key of C# has seven sharps – F# C# G# D# A# E# B#

(Minor keys are exactly the same as their relative Majors)

Note that it is possible to go further, all the way around the circle, and get more keys with more sharps. These keys however require the use of double sharps and that's why they are purely theoretical and not used in practice. The same applies for flats when moving counter-clockwise.

For flat keys, moving counter-clockwise, the order of the notes that the flats appear on is the same as with sharps, **but in reverse**:

**B E A D G C F**

Key of F has one flat – Bb  
Key of Bb has two flats – Bb Eb  
Key of Eb has three flats – Bb Eb Ab  
...

You get the idea. It would be very beneficial to remember this sequence of notes – and the best way to do that is, you've guessed it, with mnemonics. For example:

**Four Crazy Gooses Dodged All Elephants Bravely**

You can create your own if you wish, and if you do make sure to make it funny.

### 3.5. How to Read Key Signatures Quickly

There is a trick to learning which key signature indicates which key:

1) For sharped key signatures, the last sharped note, once sharped, is a half-step (one semitone) below the key center. So when looking at a key signature with sharps and trying to determine what key it is, it is worth remembering this:

**The last #’ed note + S = Key**

For example, the last sharped note of A key is G, and so G# is one half-step lower than the key center, A).

2) For flattened keys, the second to last flatted note, once flattened, is the key center.

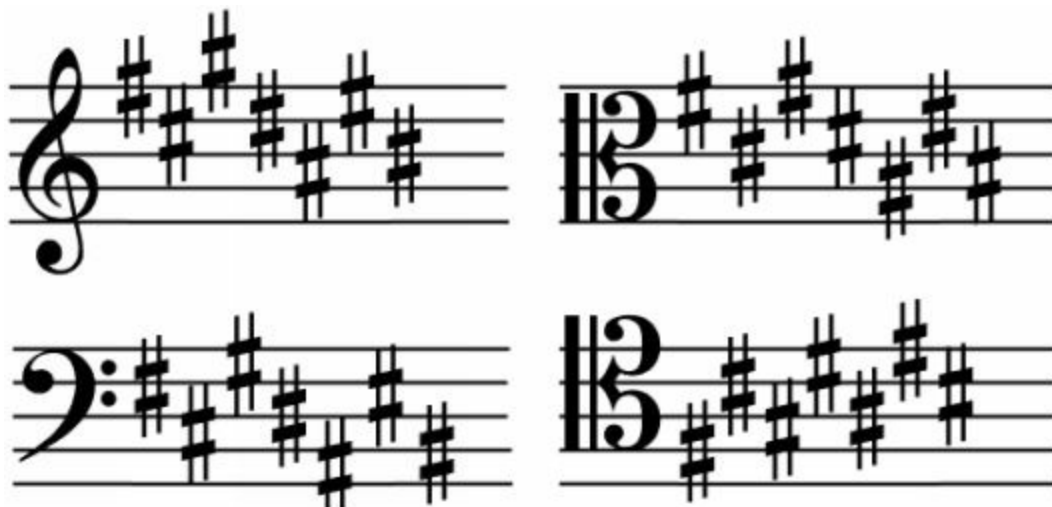
**The 2nd to last b’ed note = Key**

For example, the second to last flattened note of Eb key is Eb (once we flatten default E)—the last being Ab—and so the key center is Eb.

3) That leaves only C major (A minor) and F major (D minor) to be memorized, which is easy—C has no sharps or flats, and F has one flat (same with their minor relatives).

### 3.6. Key Signatures in Four Most Common Clefs (Reference)

Here's a reference for all sharps and flats locations in treble, bass, alto and tenor clefs:



*Figure 3.2.4.1. All 'sharp' locations*



*Figure 3.2.4.2. All 'flat' locations*



## 4. SOLFEGE

The notes of the staff, in any key, are by nature diatonic. They are the notes of some major scale (or of some relative minor scale). Even though the keys change, the relationships between the notes in those keys do not change. For the sake of convenience, musicians and composers have developed a way to represent those relationships quickly and easily. The solfege system is that representational method. It is a linguistic model of the diatonic major scale, with each vowel representing one distinct note in the scale. This is an old system, and it is familiar to most of us from grade school—the vowels of the solfege system (Do, Re, Mi, Fa, Sol, La, Ti, Do) are easily and immediately recognizable, and most all of us have an intuitive understanding of the harmonic relationships between those vowels. This linguistic system is used to teach singing and sightreading by helping people relate the sounds of the major scale to the pitches as they are represented on the page in some diatonic key.

## 4.1. Fixed “Do”

In traditional harmony (in what is commonly known as “classical” music) solfege works in a particular way. “Do” is affixed to C, so that the solfege scale is always the C major scale. In this way, singers and sightreaders memorize the unaltered lines of the staff (the major scale in C) so that they can then alter those notes to achieve any other scale. The notes of solfege are static, and so sight-singers are encouraged to develop something akin to perfect pitch—recognizing that “Do” is always C, “Re” is always D, “Mi” is always E, and so on.

## 4.2. Moveable “Do”

Traditional solfege has its advantages, but musicians in the contemporary non-classical tradition quickly recognized its shortcomings. While traditional solfege makes conceptualizing the notes of the unaltered staff (in C major) easy, and therefore encourages quick sightreading and sight-singing in C (or a relative key), it makes it difficult to “hear” other scales (even other major scales) as easily.

For that reason, the jazz tradition most often uses a solfege system in which “Do” is moveable—whatever the root note of the scale you are using (or the first note of the closest relative major scale), that is “Do.” In this way, thinking of and hearing (and so singing) any scale in any key is a relatively easy matter, and sightreading or sight-singing in any key becomes easy—all you need to sing any major scale, for instance, regardless of how complicated the key signature, is to be provided with a reference “Do.” This encourages not perfect pitch but relative pitch, which is in some cases more important and more useful – since everything in music is, essentially, relative.

## 5. HOW TO READ NOTES

Knowing the parts of the staff—knowing what it is you’re looking at when you’re looking at a sheet of music—is only part of the battle. Learning to read and write music, even if your goal is not absolute fluency, requires more than learning the parts in abstraction. Parts of speech never add up to a language, and written music is a language; you can know all of the basic units, how they work together, and what everything is supposed to be telling you, but until you know how to make a message out of that collection, until you know how to make continuous sense out of discrete parts, you will not have learned the language.

Music is more than rule-governed sounds, and so too is written music more than syntactic units. To understand the language you have to have an ear for the tongue in which it is spoken. In part, that means you have to be a musician—the better you are as a musician, the better your ear is, the more in tune you are with the structures of musical composition, the more thorough your understanding will be and so the easier it will be to translate a written page into something that sounds like the music you are used to hearing and making. Having an ear for the tongue also means learning to immerse yourself in the written language of music, to express it as a sound or an idea without having to translate it. You don’t translate your mother tongue, and neither should you need to translate written music.

Paradoxically, the process of learning how not to translate (by doing lots of translating) is long, and for some of us it is never-ending (particularly if we are coming to written music late in life) but it is possible to be guided and to guide yourself toward a more efficient way of reading the music that you see on the page—there are tricks of the mind, good habits, that will help you to get

from those foreign-looking notes to your hands or vocal chords (or the other way around). You may even begin thinking with the writing itself, in terms of the page and not always of the instrument (directly from the sound to the staff or vice versa). That, at least, is the goal.

## 5.1. Note Values

The most important thing about a sheet of music are the notes written on the staff. The signatures, tempo, clef, and other markings will tell you all the things you need to know before wading into the pool, but swimming is a matter of reading the specific notes—the single-note lines and the chords, the sounds and the rests. This is where the compositional magic happens, and it is where the performer gets all of the information they will need to make beautiful music (so long as they are capable).

There are two components to a written note:

1. Pitch
2. Duration.

The duration is a matter of rhythm, and will be discussed in the section of this book pertaining to timing. Right now, the focus is on how to read what a note is telling us about its pitch. Fundamentally, this is a simple matter. There are, again, two features to consider:

1. The placement of the note on the staff, and
2. Any alterations to the normal course of that placement.

Together, these two things will tell you exactly what pitch to play.

In general, the pitch of a note is determined by where it is vertically on the staff. As we have seen, each place on the staff (on each different clef) has a distinct pitch—if we assume that we are talking about the treble clef in C major, then the lowest line is always  $E_4$ , the middle line is always  $B_4$ , and the space below the top line is always  $F_5$ .

So any note placed on those parts of the staff (or any other parts) will have the corresponding pitch values. A note (that is unaltered) on the bottom line of the treble clef in C will always be E, regardless of how that note looks like and whether that is a whole note, an eighth note, or a sixteenth note. A similar note on the middle line of that same staff will always be a B, and so on. In this way, we know what the pitch value of a note is—whether that note is part of a single-note line (when it is the only note occurring at that vertical slice of the staff) or whether it is part of a chord (when it is joined at the same vertical slice of the staff to other notes).

## 5.2. Sharps, Flats and Naturals (Accidentals)



*Figure 5.2. Note the sharpened note in the first bar and the flattened note in the fourth bar. Note also the presence of chords notated on the staff in the first bar (these will be discussed in the next section).*

Vertical placement is the general rule when it comes to pitch—it tells you what note you are dealing with. But it doesn't always tell you exactly which pitch to play. Sometimes a composer wants to alter one of the tones of the staff. There are seven notes available on the staff, but Western harmony has twelve notes in each octave.

To open up the other five notes, composers alter the first seven by raising them (sharping them) or lowering them (flattening them) by a semitone. There are two ways of doing this. The first way we have already seen—by altering the key signature, a composer or transcriber alters every incidence of a particular note on the staff in every octave. This allows them to write music in a key that isn't C major or one of its relatives. But that isn't always what a composer wants. Sometimes they want to be playing in one key and have a section that uses a scale from another key. Sometimes the key center of the song temporarily moves. Sometimes a transcriber is working on a jazz solo, and they come across a sequence that is derived primarily from the chromatic scale. How can a person write all twelve tones if only seven are available? Changing the key only gives you another seven.

The answer is **accidentals**. Accidentals are naturals, sharps, and flats



written in front of individual notes themselves on the staff. They alter only those notes, individually, for the duration of the bar in which they occur, unless they are cancelled during that bar by another, opposing, accidental. In general, these accidentals are:

1. Naturals (which remove a sharp or a flat, either from the key signature or from an accidental earlier in that bar).



2. Single sharps (which raise the pitch a half step)



3. Single flats (which lower the pitch a half step).



These three accidentals, together with the 12 key signatures, allow a music writer to write any of the available pitches in 12-tone music in any key.

It does not, however, fully cover all of the available alterations. Double sharps and double flats exist, which alter their notes by a full step, and which are used to raise or lower a note that is already raised or lowered in the key signature or by another accidental. This is useful when writing certain chords or scales, since it is sometimes necessary to write a note that functions as, for instance, the D of a scale but is enharmonically equivalent to C or E. This is an uncommon occurrence, but it does happen, particularly in modern composition—both in jazz and classical music.

## 5.3. Reading Single Notes

The hardest thing about reading music, perhaps the hardest thing about learning to think about music in general, is to develop fluency. It is easy enough to memorize the structures: When we talk about harmony, for instance, we are really only talking about a handful of different chords and scales that fit together in a handful of predictable ways. When we talk about sightreading or notating musical concepts, we are similarly only talking about a small number of basic forms—fundamental units, building blocks, the discrete objects that make up the score (signatures, clefs, notes, accidentals, and a few other markers that notate dynamics and inflections).

But music is not made of discrete objects. Music is continuous. It is the art of time—of movement and sequence rather than of simultaneity, of pure continuity rather than discreteness. That makes it hard to go from the relatively small number of objects that can be quickly memorized to the infinitely variable continuity of fluid sounds (and their representations on the page of a score). The hard thing is to be able to think and to read not as though you were dealing with units but as though you were plunging your mind and your body into a stream.

There isn't, unfortunately, any shortcut to gaining that kind of fluency. Not really. But there is a basic procedure when it comes to reading notes on a staff (just as there are procedures for assembling harmonic, melodic, and rhythmic structures on your instrument).

The idea is this:

1. You begin by identifying the key of the song (by looking at the key signature) and that helps you to identify the scale in which the song is being played. You know, just from that, that any notes on the staff that aren't accidentals will be one of the seven notes in the scale you have identified.

2. It is then a matter of orienting your instrument to the staff. You find the root of the scale on your instrument and find that same note on the staff, and then as you read the notes on the staff you move up or down the scale as needed.

That limits what you have to think about to one pattern—the scale that the song is written in—in only a few (or perhaps one) positions on your instrument. It is easy enough to see that if the note on the page is two scale degrees higher than the last one, then you have to play the note on your instrument that is two scale degrees higher than the one you just played.

In time, you will begin to be able to recognize whole sequences at once (rather than seeing each note separately). The other five notes, the ones not contained in that scale, will be indicated by accidentals, and they can be seen as modifications up or down in pitch (by one or two half steps) of one of the notes in the scale you are already playing. In this way, most melodies written in most songs can be played easily.

In the case of those songs with more complex harmony where the key center changes without a new key being notated, there will be a scale used to compose the notes on the staff that doesn't match up with the scale you have identified on your instrument. You can either recognize that new scale (which is one of those things that takes time to learn to do) and adjust your playing momentarily, or you can see each note of the new scale (some of which will be accidentals) as alterations of the scale that you have already identified. This second approach is suited to some jazz songs in which there are multiple but brief new key centers that are different from the key of the song.

## 5.4. Reading Chords

Reading chords on the staff can seem difficult, but the process is nearly identical to reading single note lines. Each note of the chord is represented by a single note tied together with the other notes of the chord vertically. To play the chord, you simply have to play all of the notes that are tied together at the same time. It can seem hard, because you need to read multiple notes at the same time, but in practice it is often much easier than it seems.

The basic approach that most players use is to memorize, beforehand, the basic patterns of rudimentary chords – triads, sevenths, extended chords, inversions, etc. – and then look for those patterns when they see a chord notated on the staff. It is easy to recognize, for instance, a triad, because it is three notes tied together (vertically), each of the notes skipping a space on the staff. In other words, if the triad begins on a line, then the next note in the chord (the 3rd) will be on the next line up and the next note (the 5th) will be on the next line up. If it begins on a space between the staff lines, then the other notes will ascend up or descend down the spaces in the same way.

### 5.4.1. Chord Symbols

Chord symbols are a way of notating chords that:

- (i) Do not require the chord to be notated on the staff itself, and
- (ii) Allow the player to voice that chord however they would like. These symbols, or “changes,” are often used in jazz, and they are written above the staff, corresponding to the bars or notes during which they are played. There are a few varieties of ways to notate basic chords this way, but here is perhaps the most common:

C Major: CMaj

C Minor: Cm

C Diminished: Cdim

C Augmented: C<sup>+</sup>  
C Dominant Seventh: C7  
C Major Seventh: CMaj7  
C Minor Seventh: Cm7  
C Half Diminished: Cm7b5  
C Diminished Seventh: Cdim7  
C Sixth: C6  
C Ninth: C9  
C Eleventh: C11  
C Thirteenth: C13  
C Altered: Calt

From there, it is possible to combine some symbols or to alter a chord by adding a “#” or “b” followed by the scale degree being altered (like this: CMaj13#5b9).

## **5.5. What is a Lead Sheet?**

When jazz composers write their songs, the intention is not to instruct the performer to play in an exact way. There is the head, which consists of a (usually simple) melody and a set of chords (the “changes”) and then that head forms the basis of the improvisations that take place during the song. To this end, jazz composers, as well as many country and rock musicians, write lead sheets. These consist of a melody, often in a single voice, and a set of changes written above that melody to indicate the way the harmony of the song progresses. The performer is often expected to play a lead sheet, and improvise based on the changes written on the lead sheet, without ever have heard the song, played the song, or even seen the sheet before.

## **6. HOW TO READ RHYTHM**

Reading the notes on a staff is more than merely reading their pitches. One of the hardest things for many people who are learning to read music is to make sense of the rhythmic variation on the page. Music is a temporal art, and as such there is a huge variety of rhythmic patterns that musicians employ. Common notation has a way of notating all of them, or virtually all of them, and it can seem confusing at first. Once you get a handle on the way rhythm is notated, however, and once you build it into your practice of reading the page, it will begin to flow naturally.



## **6.1. Rhythmic Values**

If a sound is reduced to only two relevant properties, then they are pitch and time. The pitch of a note, represented by its placement up and down the staff, has already been discussed. The time of a note is its length, and it is just as important as its frequency. Many musicians know that you can play virtually anything as long as it's got good time.

## 6.2. Note Durations



**Figure 6.2.** Note the whole notes in the first two bars, the half notes in the third bar, the quarter notes in the fourth bar, the eighth notes in the fifth bar, and the sixteenth notes in the sixth bar. Also note the presence of the dotted quarter note at the beginning of the seventh bar, as well as the two sets of triplets in the last bar.

Note durations are represented by the shape of the written note. They occur in simple divisions and are then altered as needed. Here is the way note duration is calculated and represented:

### Double whole note

A double whole note (American name) or *breve* (British name) occupies eight beats, or two full bars in 4/4 time.



Note that there are even longer notes than this, such as *longa* (four bars) and *maxima* (eight bars) notes. These are less common but they do exist, as well as their rest equivalents.

### Whole Notes

A whole note (American name) or *semibreve* (British name) occupies four beats, or a whole measure in 4/4 time.



## Half Notes

A half note (American) or *minim* (British) occupies half of the time of a whole note, or two beats (a half-measure in 4/4 time).



## Quarter Notes

A quarter note (American) or *crochet* (British) occupies half of the time of a half note, or one beat.



## Eighth Notes

An eighth note (American) or *quaver* (British) occupies half of the time of a quarter note, or one-half beat (one-eighth of a 4/4 bar).



Eight notes and any shorter notes can have their flags “tied” or beamed together (as mentioned before). Two grouped eighth notes (equal to one quarter note) look like this:



### **Sixteenth Notes**

A sixteenth note (American) or *semiquaver* (British) occupies half of the time of an eighth note, or one-quarter beat (one-sixteenth of a 4/4 bar).



When four 16<sup>th</sup> notes are grouped:



### **Shorter Notes**

Though not used as frequently, notes with shorter values can be generated in the same way – 32<sup>nd</sup> notes (thirty-second note or demisemiquaver), 64<sup>th</sup> notes (sixty-fourth note or hemidemisemiquaver), 128<sup>th</sup> notes and 256<sup>th</sup> notes. These

notes are mainly used for fast and brief sections in slow musical pieces.



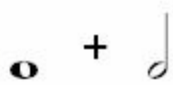


(32<sup>nd</sup> note)

Grouped variation of 32<sup>nd</sup> notes would look exactly the same as the 16<sup>th</sup> notes but with the third horizontal line added on top.

### 6.2.1. Dotted Notes

Dots are used to alter the length of a note. A dotted note (a note with a dot next to it) is equivalent to one and a half times the length of the original note. For instance, a dotted eighth note takes up the same time as one eighth note and one sixteenth note combined.

 . = One and a half bars, or  or 

 . =  or 

 . =  or 

 . =  or 

etc.

### 6.2.2. Triplets

Tuplets are a way of altering the way, temporarily, that a series of notes is counted. The simplest tuplet is a triplet, in which three notes are played during the time it would normally take to play two such notes.

For instance, three quarter note triplets (the most common triplets) take up 2 beats (while normally two quarter notes would take up 2 beats).

3 quarter note triplets = 2 quarter notes

3 eighth note triplets = 1 quarter note

The notes in tuplets are dispersed evenly over the interval in question, effectively creating a temporary polyrhythm.



It is possible to create tuplets other than triplets, such as pentuplets, but these are far less common, due in part to their difficulty and in part to their oddness.

### 6.2.3. Rests



*Figure 6.2.3. Note the rests that have been added to figure 6.2.*

Not everything on a page represents a note that you need to play. In fact, much of music is the notes you don't play. To represent this time, composers use rests. Rests indicate that you should play nothing during a certain time. They are as follows:

### **Whole Note Rests**

Whole note (or semibreve) rests take up the same amount of time as a whole note.



### **Half Note Rests**

Half note (or minim) rests take up the same amount of time as a half note.



### **Quarter Note Rests**

Quarter note rests take up the same amount of time as a quarter note.



### **Eighth Note Rests**

Eighth note rests take up the same amount of time as an eighth note.



### **Sixteenth Note Rests**

Sixteenth note rests take up as much time as a sixteenth note.



### **Shorter Rests**

Like notes, rests can be divided further – 32<sup>nd</sup> note rests, 64<sup>th</sup> note rests, 128<sup>th</sup> note rests, 256<sup>th</sup> note rests. In terms of appearance these rests look exactly like 16<sup>th</sup> note rests but with a new “hook” added (to the two existing ones) each time with every shorter rest.

### **Dotted Rests**

Like notes, rests can be dotted, and the result is the same.

## **6.2.4. Ties and Slurs**

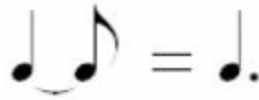
These are two elements that are easy to get mixed up because of their similar musical symbols.

Tie is a rhythmic element of the staff that extends time value of the notes **of**



**the same pitch.** On the staff, it is a curved line connecting two note heads (the line always connects the note heads which sit on the same line or space) within a bar, or across the bar lines.

Ties have a very similar function as dots. For instance:



The choice of whether to use a tie or a dot depends upon the time signature which determines our bar.

For example, if we have 2/8 time signature it means that we can only have two eighth note beats in one bar. In this case we cannot use dotted quarter note (which is equal to the value of three eighth notes) because it would break the rules of the bar (one note that is held for three beats is written in one bar that can have a maximum of two beats – this is not allowed). What we can do however is use a tie and connect the quarter note in the first bar with an eighth note in a new bar across the bar line. This doesn't violate the rules set by the time signature for the bar.



Ties are also often used within a bar to accommodate for the strict and complex rules of note beaming.

Slurs on the other hand are an expressive articulation element of the staff. They indicate that a passage of music should be played smoothly or legato (more is said in the Dynamics and Articulation section). Their symbol looks the same as that of ties; the difference is that the slur's curved line can connect

any two notes positioned anywhere vertically on the staff, within a bar or across even several bars. The line is generally placed below the notes if the stem is positioned upwards or over the notes if the stem is positioned downwards. Any note that is covered by the slur line is meant to be played smoothly, uninterrupted, legato style.

Ties and slurs can be combined, in which case the slurs are written under the phrase, beneath (or above) the ties.

## **6.3. Beat Counting**

Beat counting is how musicians feel the pulse of the music. It is both a matter of counting to the correct tempo and of counting the number of beats in a bar (which means knowing and understanding the time signature of the piece). Once you can count the beats of each measure, it is much easier to play and read in time correctly.

## 6.4. Building Blocks of Rhythm - Make Complex Rhythms Easy to Read

It is possible to mix different note values and combine several rhythmic elements we've talked about (dots, ties, rests, etc.), to produce a wide array of rhythmic patterns. It is just a simple matter of arranging the fundamental rhythmic pieces into blocks and mixing them together.

Here are the most common ways you can subdivide a beat and create those rhythmic blocks in the most common 4/4 time. You may recognize these figures often on the staff. Since the beat is usually represented by a quarter note, it will be used to derive other blocks.

### (I) Basic subdivision of the beat in 2's and 4's (shown in one bar in 4/4 time)

#### 1) Quarter notes



Read (or counted) as: ***one, two, three, four...***

When practicing reading these try to tap your foot and/or clap your hands along with the beat to really feel the pattern.

#### 2) Eighth notes (subdividing quarter notes into two)



Read as: **one** and, **two** and, **three** and, **four** and...

### 3) Sixteenth notes (subdividing eight notes in two, or quarter notes into four)



Read as: ***one** e and a, **two** e and a, **three** e and a, **four** e and a...*

### 4) Mixing 8<sup>th</sup> notes and 16<sup>th</sup> to fill out one beat – 3 ways:

a) 8<sup>th</sup> and two 16<sup>th</sup>'s



Read as (parenthesis are skipped): ***one** (e) and a, **two** (e) and a, **three** (e) and a, **four** (e) and a...*

b) Two 16<sup>th</sup>'s and an 8<sup>th</sup>



Read as: **one** *e and (a)*, **two** *e and (a)*, **three** *e and (a)*, **four** *e and (a)*...

c) 16<sup>th</sup>, 8<sup>th</sup> and a 16<sup>th</sup>



Read as: **one** *e (and) a*, **two** *e (and) a*, **three** *e (and) a*, **four** *e (and) a*...

## 5) Mixing dotted 8<sup>th</sup> and 16<sup>th</sup> notes – 2 ways:

a) Dotted 8<sup>th</sup> (75% of the beat) and a 16<sup>th</sup> (25% of the beat)



Read as: **one** *(e) (and) a*, **two** *(e) (and) a*, **three** *(e) (and) a*, **four** *(e) (and) a*...

b) 16<sup>th</sup> and a dotted 8<sup>th</sup>



Read as: **one** *e (and) (a)*, **two** *e (and) (a)*, **three** *e (and) (a)*, **four** *e (and) (a)*...

(II) **Subdividing in 3's – Triplets** (spacing out three eighth notes evenly in one beat, 4/4 time, one bar)



Read as: ***one** trip let, **two** trip let, **three** trip let, **four** trip let...*

Or in another way: ***one** e a, **two** e a, **three** e a, **four** e a...*

These were the basic rhythm figures that can be combined in one or more bars to create different rhythmic phrases (strumming patterns on guitar for instance). So far we haven't even touched on the syncopated rhythms. With the use of syncopation (skipping or missing the beats and playing in-between them) these basic rhythms can be expanded into a staggering array of new syncopated rhythms. This is done simply by incorporating different rests into the rhythmic figures shown so far.

## 6.5. Tempo

Understanding the tempo of a song is of paramount importance when you are learning to sightread the song's time. The first thing to do is to use the notated tempo to find the speed of the song – if it is written in number form (110 bpm for instance) then it is simply a matter of calculating that tempo; if it is written descriptively (“up-swing”; “largo”) then you need to do some interpretive work. In either case, the point is to find the speed of the song and get it into your head. After that, finding the pulse is a matter of letting that tempo move you, move your body, move your hands or your voice.



## **6.6. Clapping the Beat**

If you can count the time of a song, then it is often times good to practice clapping that beat. This introduces not only your bodily movement into the song's time, but also the presence of strong and weak beats. You can clap harder for strong beats and softer for weak beats. For instance, if the song is in 6/8, you may want to clap: strong, weak, weak, strong, weak, weak. If you do this while counting the beats in your head ("one, two, three, four, five, six, one, ...") and if you do so at the correct tempo, then you will make it much easier to feel and read the song's time correctly.

## 6.7. Polyrhythm

Polyrhythms have already been mentioned in the context of tuplets. A polyrhythm occurs when two or more distinct rhythms are present at the same time – when one voice plays in 4/4 while another plays in 6/8 for instance. Often times this is notated by having one voice play a particular tuplet. Playing and hearing polyrhythms can be quite difficult, but it can be practiced by learning tap your hands to different polyrhythmic patterns – three taps with one hand in the same amount of time as four taps with the other hand, for instance (this is called “3 on 4”). If you begin slowly you will start to notice rhythmic patterns within the polyrhythm, and it will be easier to perform and easier to hear.

Here is an example of a polyrhythm:



*Figure 6.7. Polyrhythm example, both staves are played simultaneously.*

In this polyrhythmic example there are two distinct rhythms. There are eight notes in 4/4 on the top staff, and eight note triplets on the bottom staff, 12/8 time (could also be 4 eight note triplets in 4/4). Combining these two rhythms and playing them together at the same time produces what is known as polyrhythm.

For every four top notes, we can count:

1 2 3 4

And if we make them each the first note of a triplet we get:

**1** e a **2** e a **3** e a **4** e a

So the top notes are played on 1, 2, 3, and 4 (can be tapped with your right hand). The bottom notes then fall on every other beat of the triplets:

**1** e a **2** e a **3** e a **4** e a (tap with your left hand)

Bottom notes are in bold. Play these together and you will get a polyrhythm.

This is called “six on four” or “six over four” or “six against four”.

It is essentially the same as more common 3 (eight note triplets) against two (eight notes), but in this “six over four” example the duration of the bar is two times longer.

One way to see it is to just call it a syncopated triplet rhythm. But I am using it to illustrate the way two time signatures can work together. Polyrhythms are more obvious when they are, for instance, 3 on 4 or 5 on 4, but these are much harder to think about and hear since they can't be subdivided evenly (they are truly two completely different rhythms happening at the same time).

## 6.8. Polymeter

A polymeter is similar to a polyrhythm in that it amounts to two distinct rhythmic figures occurring at one time. But in this case, rather than two different rhythms (two different time signatures, if you want to think of it that way) occurring simultaneously and taking up the same amount of time, now there are two meters – two different amounts of time taken up – being played at the same time so that the pulse of one is identical to the pulse of the other.

In other words, there may be a four note series (think: 4/4) at 120 bpm that repeats after those four notes while a five note series (think: 5/4) also at 120 bpm sounds. The five note series also repeats when it finishes, which means that the five note series begins again a full beat after the four note series begins again. These distinct meters, while rhythmically the same, will cycle at different rates. This is sometimes not notated in any particular way – there is simply one series of notes that repeats at odd intervals across some number of bars, while the other series repeats evenly.

Here's an example:



*Figure 6.8. Polymeter example*

The idea here is that the top note line repeats every 4 notes (every bar) whereas the bottom one repeats every six notes (every one and a half bars). One way to think about this is to see it as two different meters -- one 4/4 and

one 6/4 -- happening at the same time.

Advanced rhythm concepts such as these will be a subject of a separate book; for now it is enough that you are aware of them and have an idea of what they are.

## 7. DYNAMICS AND ARTICULATION



**Figure 7.** Note the marks above, below, and within the notes. These indicate how a note is to be played.

In addition to pitch and to time, music works two important ways. There is not only the way a note functions harmonically (or melodically) and the way that it functions rhythmically, there is also the way that note is expressed, the way that sound is made. This occurs most basically along two axes: the volume of that tone and the attack and release of that tone's sound wave.

The first of these – volume – is understood in terms of what musicians call “dynamics”, and the second – attack and release – is understood in terms of the sound's “articulation” or “phrasing”.

Dynamics refers to the volume of a sound, and articulation refers to the physical process by which it is made, which results in various kinds of attack and release curves in the sound's wave.

## 7.1. Dynamics

The dynamics of a piece of music changes as that piece progresses. The piece gets louder and it gets softer, and this creates a sense of movement and drama. This is the case with all music. Each performance of a piece will have a different dynamic structure, but in order to maintain some level of control over the performer's dynamic range, composers notate dynamics. The way they do that is by placing cursive letters above or below the staff that represent phrases that instruct the performer.

“*p*,” for instance, stands for “piano,” and it instructs the performer to play quietly. “*pp*” instructs them to play quieter still, “*ppp*,” even quieter, etc.

“*f*” stands for “forte,” and it instructs the performer to play somewhat loud (“*ff*” means to play louder, “*fff*” means even louder, etc.).

“*mp*” and “*mf*” tell the player to play moderately quietly or moderately loud.

## 7.2. Articulation

Composers also notate the articulation of a note or series of notes. This tells the performer how to physically create the tone – how to produce its attack and release. The basic articulations are: legato, tenuto, and staccato.

**Legato notes**, indicated by a curved line (*slur*) that connects notes to one another, should be played without pauses between the notes. The notes should have soft attacks and the releases of the tones should bleed into the attacks of the tones after them. The overall effect is smooth and flowing.

**Tenuto notes**, indicated by a straight horizontal line placed above or below the note, should sound slightly longer than notated. This adds girth and drama to a particular section of music.

**Staccato notes**, indicated by dots above or below the notes, should be played quickly and with force. Staccato notes are in some ways the opposite of legato notes. A series of staccato notes, especially when played fast, should recall the sound of a machine gun – each note is quite distinct from the last and each attack is hard and sudden.



## 7.3. Techniques

Every instrument has a distinct technical set. What that means is that for each instrument, there is a range of techniques available to the performer that is distinct for that instrument. A violinist can pluck the strings with their fingers and it will be different than a guitarist doing the same thing. A guitarist can play a false harmonic, something that isn't possible on a saxophone. A pianist can utilize his or her floor pedals. And so on.

In addition to these standard techniques, there is a range of extended techniques for each instrument. A saxophone player can extend his range upwards, he can howl, he can overblow. A guitarist can mute the strings with her left hand, she can scratch the strings with her pick. All of these techniques, standard and extended, are capable of being notated by a composer. The set of symbols that represents these techniques is different for each instrument, and can vary from composer to composer, but in general they are placed above the staff or above or below the notes on the staff to indicate to the performer how they are meant to play a given sequence.

# CONCLUSION

Few things can make a good musician shudder more than learning something they don't yet know. And for many musicians – beginning and advanced alike – sightreading is one of those things. Many of us know how important it is to be able to make sense of a written piece of music, but for those who are uninitiated it can be a daunting task. The truth is that it is not always easy – there is no shortcut to being fluent in the language of the staff – but that doesn't mean that it has to be terribly hard either.

This book has outlined the fundamentals; it has, hopefully, started you on your path. Use it as a guide and as a reference. It cannot do the work for you, however, and reading through it cannot all by itself guarantee you success. What you need is time and effort. You need to put in the energy. Practice these things, make them part of your life, and it will pay dividends. Return to this guide to brush up on the fundamentals. Seek out new resources to teach you more advanced concepts. Learn to apply all of the theory you have learned or are learning to the written page. Learn to write music. Practice sightreading your favorite songs. In any case, put in the time. It is worth it.

Lastly, if you got some value after reading this book it would greatly appreciated if you could spend a minute and leave a review (good or bad) on Amazon. Thank you!

Following this conclusion, there is a collection of exercises designed to help you internalize some of the things this book has discussed. It is highly recommended that you work through those exercises. But do not stop there. Return to them, rework them. Design your own. Always learn, always grow. Inspiration is born of effort.

# APPENDIX A – HOW TO PRACTICE

Before the main text of this book is closed, let me offer some words of advice on practice. Practice is not distinct from performance. Practice is not what you do before you play, before you compose. Practice is already a kind of playing. It is already improvising. It is already performing. It is already composing. To practice well means to practice with joy and lightness, just as you would aim to perform or record. If you can practice that way, then not only will learning to sightread be more fun, it will work better. You will be more likely to put in the kind of time you need to put in if you are truly, deeply enjoying yourself (and if you see yourself as making music and not merely getting ready to make music). Build sightreading practice into your daily musical routine, just as you would build in playing scales. Don't try to do it all at once – that way lies frustration – simply spend time, each day, even if it is five or ten minutes, learning to understand the written word of sound.

There are three things to remember when you're beginning a practice routine:

(i) Go slow

(ii) Practice in small chunks

(iii) Take breaks.

(i) Ought to be obvious, but it is too often hard to employ. The point is not to go quickly. The point is not to race to reading something long and fast and difficult. The point is to immerse yourself in music, however simple, and benefit from that immersion. If you do that, and if you do it right, then you will feel yourself becoming a better musician very quickly, even in ways you didn't expect at the beginning. If you rush, however, then you will inevitably be practicing bad habits, and you will be doing yourself a disservice. You will be

frustrated, the joy will disappear, and you will neither progress as a sightreader nor as a musician on the whole.

**(ii)** Is equally as important. By practicing in small chunks of time – 10 to 30 minutes a day – you are building it into your life in a manageable way. It will then become a part of your musicianship, right from the beginning, which will encourage growth immediately. If you take on too much at a time, then you will once again feel the burden of frustration, and you will stop making progress.

**(iii)** is not always obvious, but it is important nonetheless. Taking breaks is a great way to increase your short-term productivity. It releases tension, allows you to regroup, and lets you always come at what you're doing fresh. If you are practicing something for a long time (and 30 minutes is a long time) then you should be taking at least one break. Even if you are only going to practice for 20 minutes a day, then it may benefit you to split it up – 10 minutes at the beginning of your practice and 10 minutes at the end. A good split might have you identifying some manageable thing to work on for that day, running through it a few times (allowing it to feel difficult) and then taking a break, playing as you normally would, returning to your sightreading practice again at the end. You will likely find that what was difficult an hour ago no longer seems as hard.

If you practice the right way – calmly, patiently, correctly, and with joy – then you will begin to feel the benefit of that practice virtually immediately. It will be easier to think about and talk about music. It will be easier to learn songs. It will all seem a little clearer. Eventually, you will be able to sightread fluently.

# APPENDIX B - EXERCISES

These exercises are written for C instruments (instruments tuned to concert pitch) on a treble clef. If your instrument requires another clef, such as bass clef, and/or is tuned to something other than C, then you will need to transpose the exercises. Transposition will be discussed shortly.

## 1. Naming the notes

The first step toward gaining confidence sightreading is to have deep familiarity with the notes of the staff. It isn't enough to simply know the notes, you have to be able to recognize them in the context of melodic and harmonic structures quickly. While it will be necessary to recognize entire structures at once (such as chords and scale parts), that will come with time as you practice reading. What you can work on right now is learning the staff completely so that you can effortlessly identify notes. This first exercise is all about gaining that effortlessness.

What you will be doing is identifying, naming, and writing down the notes in some melodic sequence (including all of the notes of any chord and that chord's name). For each of the scores included at the end of this exercises chapter, move one by one through the notes and write down their names on a piece of paper.

Once you have done that, you can begin to play those notes on your instrument. Moving one by one, play each note that you have named and written on your instrument.

This exercise will help you to gain fluency and will connect your mind to

the page directly. Playing the notes on your instrument will begin the process of connecting your instrument right to the written music.

## 2. Transposing

If your instrument is tuned to something other than C, or if you need to read music in a clef other than treble clef, then you will need to transpose any standard treble clef sheets. Even if this is not the case, transposition is a great way to get a handle on key signatures. In this exercise, you will be transposing music into different keys and clefs. This will help you to orient yourself to the way different keys interact, and will help you to see the same musical structure written in different places on a staff.

For each of the included exercises, you will first transpose the music from treble clef into bass clef. You will need a blank staff, which can be found here: <https://www.blanksheetmusic.net>. Begin by writing the clef symbol (paying careful attention to where it rests on the staff) and the signatures. Then, for each note of the piece written in treble clef, find the corresponding note on the bass clef. Write the piece on bass clef.

Once you have written the piece in bass clef, you will go back to the original sheet (in C) and transpose it to Bb. Bb is what Tenor and Soprano saxes are written in. To do this, you need to understand the way instrument tuning works. If an instrument is in C (also known as concert pitch) then a C on the piano is a C on that instrument.

If the instrument is in Bb, however, then a concert C (on the piano) is a Bb on that instrument. That means that a C on that instrument is actually a concert D. So every concert note needs to be shifted down by one full step.

To do this, identify the key of the piece you are transposing and write the new key signature, which will be a full step down. Now take each note and

write it a step down as well. That will be a fully transcribed version of the piece.

### **3. Clapping**

Once you have practiced familiarizing yourself with the harmonic and melodic structure of a piece, time is next. The best way to immerse yourself into musical time is to clap your hands to the pulse and time signature of a piece of music. For each of the pieces included, note the time signature.

Begin slowly, and try to clap or tap your hands to the rhythmic values of each note – clapping where there is a note and not clapping where there is a rest. Be sure to be accurate. If you have to, refer to the section of this book on rhythmic value and double check yourself. Once you have a handle on the feel of the song, increase the speed until you are clapping at the correct tempo.

### **4. Sightreading**

Now it is time for the real work. To take what you have practiced and put it all together, it is time to sightread pieces of music. In this exercise, you will start slow and build to playing pieces at full speed. For each piece included here, move slowly through the piece and play each note or chord separately. Be sure to be accurate, even if it means moving very slowly. If you make a mistake, it is ok, simply start over. Take breaks when you need to.

You will want to begin by playing each of the notes, taking into account their rhythmic values, as slowly as you can while maintaining some kind of pulse. Once you can do that accurately, it is time to increase the speed. Work up to playing each piece at the notated tempo. Once you have done that, you will be reading a sheet of music!

## Exercise Scores

### Exercise 1:



Exercise 1 is a musical score in 4/4 time, marked with a tempo of 80 (♩ = 80). The score consists of three staves. The first staff contains measures 1 through 12, featuring a sequence of eighth and quarter notes. The second staff, starting at measure 13, continues the sequence with eighth and quarter notes. The third staff, starting at measure 22, is empty, indicating the end of the exercise.

### Exercise 2:



Exercise 2 is a musical score in 4/4 time, marked with a tempo of 100 (♩ = 100). The score consists of three staves. The first staff contains measures 1 through 11, featuring a sequence of eighth and quarter notes. The second staff, starting at measure 12, continues the sequence with eighth and quarter notes. The third staff, starting at measure 21, is empty, indicating the end of the exercise.

### Exercise 3:



♩ = 120

10

19

This musical score is for Exercise 3, measures 1 through 18. It is written in 4/4 time with a tempo of 120 beats per minute. The key signature has one flat (B-flat). The melody is in the right hand, and the accompaniment is in the left hand. The score is divided into three systems. The first system contains measures 1-8, the second system contains measures 9-16, and the third system contains measures 17-18. The piece ends with a double bar line at the end of measure 18.

### Exercise 4:

♩ = 120

9

17

24

This musical score is for Exercise 4, measures 1 through 23. It is written in 4/4 time with a tempo of 120 beats per minute. The key signature has one flat (B-flat). The melody is in the right hand, and the accompaniment is in the left hand. The score is divided into four systems. The first system contains measures 1-8, the second system contains measures 9-16, the third system contains measures 17-22, and the fourth system contains measure 23. The piece ends with a double bar line at the end of measure 23.

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