

## Music Theory

In order to fully understand music, it is important to know how to properly read and write music. Learning music theory will give you the background information you need, allowing you to properly apply this information to your practical playing.

### Clefs

First of all, you need to know which clef your music is in. In general, higher pitched instruments will use the **treble clef**, and lower pitched instruments will use the **bass clef**.

This is what a **treble clef** looks like:



This is what a **bass clef** looks like:



Here is a list of common instruments and which clef they use:

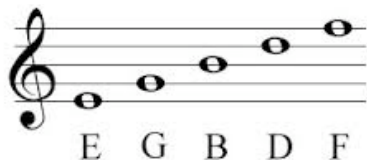
<b>Instrument</b>	<b>Clef</b>
Flute	Treble
Clarinet	Treble
Alto Sax	Treble
Trumpet	Treble
Trombone	Bass
Piano	Treble and Bass
Guitar	Treble

### Reading Notes on a Staff

Music is written on a **staff**. This is a collection of 5 horizontal lines. Notes are placed on a line or a space to represent a note name that is to be played.

### Treble Clef

Here are the note names on the **treble clef staff**:

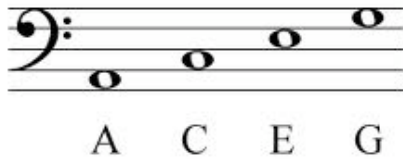
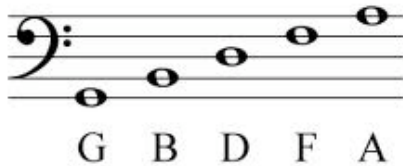


As you work from the bottom to the top, the **lines** are **E, G, B, D, F**. An easy way to remember this is **Every Good Boy Deserves Fudge**.

As you work from the bottom to the top, the **spaces** are **F, A, C, E**. An easy way to remember this is it spells **FACE**.

### Bass Clef

Here are the note names on the **bass clef staff**:



As you work from the bottom to the top, the **lines** are **G, B, D, F, A**. An easy way to remember this is **Good Boys Deserve Fudge Always**.

As you work from the bottom to the top, the **spaces** are **A, C, E, G**. An easy way to remember this is **All Cows Eat Grass**.

### Note Names

Note names follow a similar pattern to the alphabet. Every time you move one place higher on the staff, the next note will be the next letter in the alphabet. Note names start at **A** and end at **G**. After G, the pattern restarts again at **A**.

Notes can be placed **above** or **below** the lines of the staff. In order to find the names of these notes, just continue working your way forward or backwards through the alphabet.

There are 12 different notes in North American music. After this, the pattern begins again. The distance between 2 notes that are right next to one another is called a **half step**. The distance between 2 notes have one note in between them is called a **whole step** or a **whole tone**.

A note that is a half step higher than another can be described as **sharp (#)**. A note that is a half step lower than another can be described as **flat (b)**.

Sometimes the same note can have 2 different names. This is called an **enharmonic**.

Here is a chart to show you the names of all 12 notes.


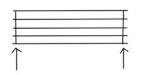




Note
C
C#/Db
D
D#/Eb
E
F
F#/Gb
G
G#/Ab
A
A#/Bb
B







### Timing

Music is also written to include **timing**. This ensures notes are played exactly when the composer intended them to be played.

### Symbols Relating to Timing

There are symbols in music that directly relate to the timing of the music to be played. Here is a chart showing many common symbols you will encounter.

Symbol	Explanation
	Time Signature – The top number represents how many beats are in a measure; the bottom number represents what the duration of each beat is.
	Measure – The vertical lines show where the measure begins and ends
	Quarter Note – This note's duration is one fourth of the measure. The note is filled in and has a <b>stem</b> .
	Half Note – This note's duration is one half of the measure. The note is <b>not filled in</b> and has a stem.
	Whole Note – This note's duration is the entire measure. The note is <b>not filled in</b> and <b>does not</b> have a stem.
	Eighth Note – This note's duration is one eighth of the measure. The note is filled in, has a stem, and has a tail.





	Sixteenth Note – This note’s duration is one sixteenth of the measure. The note is filled in, has a stem, and has a double tail on it.
	Quarter Rest – This rest’s duration is one fourth of the measure.
	Half Rest – This rest’s duration is one half of the measure. It looks like a <b>hat</b> .
	Whole Rest – This rest’s duration is the entire measure. It looks a bit like a <b>hole in the ground</b> .
	Eighth Rest – This rest’s duration is one eighth of the measure. It has one tail, like the eighth note.
	Sixteenth Rest – This rest’s duration is one sixteenth of the measure. It has 2 tails, like the sixteenth note.

### Time Signatures

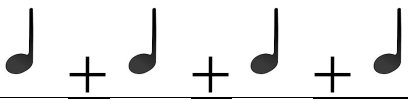


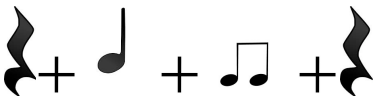


Each song has a **time signature**. This tells the player what kind of timing the song will have. Common time signatures include **4/4**, **3/4**, and **6/8**.

A time signature has a number on top and a number on the bottom, much like a fraction. The number on top represents **the number of beats** the song will have per measure. The number on the bottom represents **the time duration of each beat**. For example, music written with a 4/4 time signature will have 4 beats per bar with the duration of each beat at one quarter note.

Here is a chart to help you with common time signatures:

<b>Time Signature</b>	<b>Explanation</b>
	Four beats per measure; each beat is a quarter note
	Three beats per measure; each beat is a quarter note
	Six beats per measure; each beat is an eighth note
	Twelve beats per measure; each beat is an eighth note

There is a bit of math involved with timing. For example, if a piece of music is in 4/4 time, each bar must have enough notes and rests to add up to 4 quarter notes. Here is a chart containing some examples:

4/4 Time	
Notes and Rests	Sum (Must equal 4/4)
	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 4/4$
	$\frac{1}{4} + \frac{1}{4} + \frac{1}{2} =$ $\frac{1}{4} + \frac{1}{4} + \frac{2}{4} = 4/4$
	$\frac{1}{4} + \frac{1}{4} + \frac{1}{2} =$ $\frac{1}{4} + \frac{1}{4} + \frac{2}{4} = 4/4$
	$\frac{1}{4} + \frac{1}{4} + \frac{1}{8} + \frac{1}{8} + \frac{1}{4} =$ $\frac{2}{8} + \frac{2}{8} + \frac{1}{8} + \frac{1}{8} + \frac{2}{8} = 8/8$ $= 4/4$
	$4/4 = 4/4$
	$\frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{8} + \frac{1}{8} +$ $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{4} =$ $\frac{4}{16} + \frac{2}{8} + \frac{4}{8} + \frac{1}{4} =$ $\frac{1}{4} + \frac{1}{4} + \frac{2}{4} + \frac{1}{4} = 4/4$





### Dotted Notes

Putting a dot after a note will increase its duration by another half. For example, if you put a dot after a half note, you have a note that is 2 beats long, plus another 1 beat (half of 2).

### Dotted Half Note

2 beats (duration of a half note)  
+1 beat (half of 2 beats)  
= 3 beats


Here is a chart to help show you how many beats some dotted notes and rests have.

Note	Number of Beats
	Dotted half note - three beats
	Dotted quarter note - one and a half beats
	Dotted half rest – three beats
	Dotted quarter rest – one and a half beats


### Key Signatures

Because there are 12 different notes in music, there can be 12 possible major keys a song could be in. At the beginning of a piece of music there is a **key signature** that tells you which notes will be sharp (#) or flat (b) all the way through the piece unless otherwise stated.

If within a key signature a note is labeled as sharp or flat, this means that note will be sharp or flat always, regardless of whether it is an octave higher or lower than the one labeled.

If a note is marked within a piece of music with a sharp, flat, or natural sign, this sign applies to this note through the entire bar unless otherwise labeled (e.g. If a “C” is labeled as “C#”, the note is sharp until the end of the measure unless a natural sign  is put beside it.

Here are some symbols related to key signature:

Symbol	Explanation
#	Sharp Sign - The note this symbol is next to will be one half step higher than usual.
b	Flat Sign – The note this symbol is next to will be one half step <b>lower</b> than usual.
	Natural Sign – This means a note that was labeled sharp or flat is now to be played normally (not sharp or flat).

### Key Signatures With Sharps

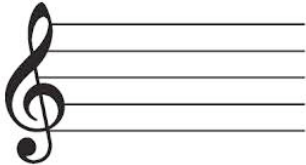
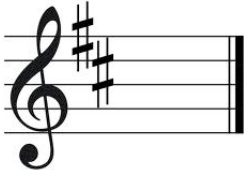
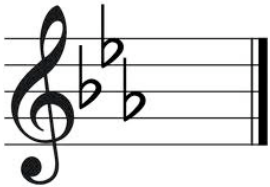
When a key signature is composed of sharps, there is a way to know which key you are in. Look at all of the sharps. Go to the one furthest to the right, then go one half step up. That will be what key you are in. For example, if the key signature has 2 sharps (F# and C#), go to the sharp furthest to the right (C#) and move this note one half step up (D). This piece will be in the key of D Major.


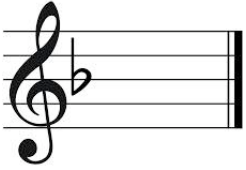




### Key Signatures With Flats

When a key signature is composed of flats, there is a way to know which key you are in. Look at all of the flats. Go to the one furthest to the right, then look at the one that is one before the last one on the right. That will be what key you are in. For example, if the key signature has 3 flats (Bb, Eb, and Ab), go to the flat furthest to the right (Ab) and move to the one before it (Eb). This piece will be in the key of Eb Major.

If the key signature only has one flat (Bb), the key will be F Major.

Here are some of the more common key signatures and what key they represent.

<b>Key Signature</b>	<b>Key</b>
	C Major – No sharps or flats
	D Major – 2 sharps
	Eb Major – 3 flats

	E Major – 4 sharps
	F Major – 1 flat
	G Major – 1 sharp
	A Flat Major – 4 flats
	A Major – 3 sharps
	Bb Major – 2 flats

This is the order of sharps: F, C, G, D, A, E, B. It can be remembered by:  
**F**ather **C**harles **G**oes **D**own **A**nd **E**nds **B**attle.

This is the order of flats: B, E, A, D, G, C, F. It can be remembered by:  
**B**attle **E**nds **A**nd **D**own **G**oes **C**harles' **F**ather.



## Major Scales

A **scale** is a pattern of notes ascending or descending to the next **octave**. An **octave** is an interval of 12 semi-tones (or half steps) where one note is the same as the other, only higher or lower pitched.

A **Major Scale** consists of 8 notes. The eighth note will be one octave higher than the first note. Here is how to construct a major scale.

1. Start at your first note (C)
2. Move 1 full step up (D)
3. Move 1 full step up (E)
4. Move 1 half step up (F)
5. Move 1 full step up (G)
6. Move 1 full step up (A)
7. Move 1 full step up (B)
8. Move 1 half step up (C)

Here is a chart to help you figure out the notes for all 12 major scales:

		Major Scales											
		C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B
<i>Start</i>	<b>1</b>	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B
<i>1 step</i>	<b>2</b>	D	D#/Eb	E	F	F#	G	G#/Ab	A	A#/Bb	B	C	C#
<i>1 step</i>	<b>3</b>	E	F	F#	G	G#	A	A#/Bb	B	C	C#	D	D#
$\frac{1}{2}$ <i>step</i>	<b>4</b>	F	F#/Gb	G	G#/Ab	A	Bb	B	C	C#/Db	D	D#/Eb	E
<i>1 step</i>	<b>5</b>	G	G#/Ab	A	A#/Bb	B	C	C#/Db	D	D#/Eb	E	F	F#
<i>1 step</i>	<b>6</b>	A	A#/Bb	B	C	C#	D	D#/Eb	E	F	F#	G	G#
<i>1 step</i>	<b>7</b>	B	C	C#	D	D#	E	F	F#	G	G#	A	A#
$\frac{1}{2}$ <i>step</i>	<b>8</b>	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B

## Arpeggios

An **arpeggio** is a group of notes played one after the other moving up and/or down. Here is an example of a pattern used for an arpeggio, where the number represents which note of the scale to play:

1, 3, 5, 8, 7, 5, 4, 2, 1

Here is a chart to show you this arpeggio pattern in each key:

<b>Arpeggio Pattern</b>												
	<b>C</b>	<b>C#/Db</b>	<b>D</b>	<b>D#/Eb</b>	<b>E</b>	<b>F</b>	<b>F#/Gb</b>	<b>G</b>	<b>G#/Ab</b>	<b>A</b>	<b>A#/Bb</b>	<b>B</b>
<b>1</b>	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B
<b>3</b>	E	F	F#	G	G#	A	A#/Bb	B	C	C#	D	D#
<b>5</b>	G	G#/Ab	A	A#/Bb	B	C	C#/Db	D	D#/Eb	E	F	F#
<b>8</b>	C	C#/Db	D	Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B
<b>7</b>	B	C	C#	D	D#	E	F	F#	G	G#	A	A#
<b>5</b>	G	G#/Ab	A	A#/Bb	B	C	C#/Db	D	D#/Eb	E	F	F#
<b>4</b>	F	F#/Gb	G	G#/Ab	A	Bb	B	C	C#/Db	D	D#/Eb	E
<b>2</b>	D	D#/Eb	E	F	F#	G	G#/Ab	A	A#/Bb	B	C	C#
<b>1</b>	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	A#/Bb	B

### Thirds

Thirds is a pattern to help you become more adept at navigating up and down a major scale. It also sounds impressive.

The pattern for playing thirds is as follows, where the numbers represent the note of the major scale to be played:

1, 3, 2, 4, 3, 5, 4, 6, 5, 7, 6, 8, 7, 9, 8  
8, 6, 7, 5, 6, 4, 5, 3, 4, 2, 3, 1, 2, 7, 1

The 9 near the end of the first row represents the same note as 2, but an octave higher. The 7 near the end of the 2<sup>nd</sup> row represents the 7<sup>th</sup> note, but an octave lower.

Here is a chart to help you play the thirds pattern for each key:

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