

# A Little Chord Theory

By Dan Sissors from [danlovesguitars.com](http://danlovesguitars.com) © 2010



I've just completed a multi-part series on how to figure out the fingering of a chord you don't know. The [first article](#) in the series presumed you already understood some basic chord theory. But many of you haven't gotten that far in your music or guitar education. So, I'm going to provide some of the basics for you. If you want more detailed explanations of the theory, check out some of the sources I've listed at the end of the article. This is going to be as basic and simple as I can make it – if you're a serious music student you'll discover how simplistic I've made this.

**The Chromatic Scale.** There are 12 notes in the chromatic scale. Of course you know that!

#	1	2	3	4	5	6	7	8	9	10	11	12
Notes	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb	G	G# Ab

**Major Scales.** There are seven notes on a major scale before we reach the next higher octave. I'm going to illustrate with the major scale for three keys below.

#	1 = key	2	3	4	5	6	7
Notes	C	D	E	F	G	A	B
	G	A	B	C	D	E	F#
	A	B	C#	D	E	F#	G#

The top row represents the scale degrees. Chords are built up from the scale degrees for a key. We can define a formula for a chord from the scale degrees and thus determine the notes for any chord where the root note of the chord is taken from the key of the same name. (Note that I'm skipping intervals and complex names here – music theory books or sites will have more information).

## Basic Chord Formulas.

A major chord is made from three notes (major triad). The notes are from the major scale, numbered as above and are: 1 (root or key), 3 and 5. A C major chord would then be the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> notes in a C major scale or C, E and G. We can look at the table and see that a G major chord is G, B and D while an A major chord contains the notes A, C# and E.

So far, pretty easy. But if I start giving you the formula for other basic chords, the above table is going to be inadequate. That's because many chords include other notes from the chromatic scale that aren't shown on the 7 note major scale I've shown you.

Here's a revised table showing the rest of the notes and how they fit in with the numbering system where only the major scale notes are given numbers.

Degree	1		2	m3	3	4		5		6	b7	7
	C	C# Db	D	D# Eb	E	F	F# Gb	G	G# Ab	A	A# Bb	B
	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb
Notes	A	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb	G# Ab

Now we can build some basic chords. A minor chord lowers the 3<sup>rd</sup> a half step so the formula for a minor chord can be written as 1, b3, 5.

A seventh chord, for example a C7 has the formula of 1, 3, 5, b7. Not what you expected? The chord C7 implies that the seventh is flatted, i.e., b7 (the dominant seventh – one of those names I am trying to avoid using for the basic introduction to chord theory). The formula 1, 3, 5, 7 which you might have guessed as proper formula is actually the formula for a major seventh chord.

A minor seventh is made from the 1, b3 (minor), 5, b7 scale notes.

Here's the formulas for some basic chords using C as an example for the name:

Chord Name	Formula	Notes (C as root)
C	1 3 5	C E G
C7	1 3 5 b7	C E G Bb
Cm	1 b3 5	C Eb G
Cm7	1 b3 5 b7	C Eb G Bb
Cmaj7	1 3 5 7	C E G B
C6	1 3 5 6	C E G A
Cm6	1 b3 5 6	C Eb G A

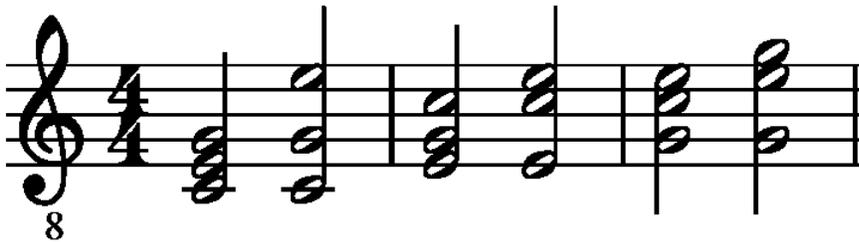
## Inversions

The notes in a chord have a natural sequence to them. You know the names of the notes in a chord, it is natural to arrange them alphabetically. Musically, we want to arrange them chromatically, starting with the root. What if we play the notes in a different order? We will have to move some notes to a different octave to do that. If we rearrange the notes, is it the same chord? Yes. It is a chord inversion which just means we've rearranged the notes.

There are 6 permutations of the notes in a triad, e.g., in a C major chord – if we use each note name only once.

## C Major Inversions (lowest note at bottom of each column)

1	2	3	4	5	6
G	E	G	C	E	C
E	G	C	G	C	E
C	C	E	E	G	G



A chord with 4 notes such as a 7<sup>th</sup>, Maj 7<sup>th</sup> or m7<sup>th</sup> will have 24 different permutations for the notes in the chord.

## Slash Chords

If you've ever seen a chord name written like this, "C/E", you may wonder what that means and what chord you're supposed to play. The "/E" indicates that the lowest note should be "E". The chords in the 2<sup>nd</sup> measure of the above C inversions image could be notated "C/E" and those in the 3<sup>rd</sup> measure as "C/G". The following is a common chord progression using "slash" chord notation to specify the bass notes.

1 = 120

1 2 3 4

D Dmaj7 / C# 2 D6 / B D / A 3

2 2 2 2

3 3 3 3

2 2 2 2

0 4 2 0

## Altered and Extended chords

Other notes in the scale can be altered to build chords. For example, the 5<sup>th</sup> can be flatted (diminished) or raised (augmented). Chord names that include 9<sup>th</sup>s or higher number get the notes from extending the scale and numbering to the next octave. Music theory says that higher chords, such as a 13<sup>th</sup>, include all the odd numbered notes before it. Thus a 13<sup>th</sup> chord should include the 1, 3, 5, b7, 9, 11 and 13<sup>th</sup> notes. That's seven notes and your guitar only has six strings. Practically, the important notes to include are the 3<sup>rd</sup>, b7<sup>th</sup> and the named extended note – so the 13<sup>th</sup> in this example.

Chord inversions, and practical considerations of how your fingers stretch and bend, the sequence of notes isn't necessarily going to be linear low to high with regard to scale degree. Here's a translation of extended and altered notes based on previous tables from above.

Degree	1		2	m3	3	4	b5	5	#5	6	b7	7
Extended		b9	9	#9		11				13		
Key of C	C	C# Db	D	D# Eb	E	F	F# Gb	G	G# Ab	A	A# Bb	B
Key of G	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb
Key of A	A	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb	G# Ab

## Chords in a Key

The chords in popular music have a relation to each other. Just as we could relate the individual notes in a key and give them a number 1 to 7, we can refer to the chords in a key based on their root notes and the notes in the major scale of the key. Instead of numbering them with Arabic numbers we use the Roman numbers I to VII.

The three most important chords in a major key are typically I, IV and V. These would be the chords for C, F and G in the key of C. The convention is to use lowercase Roman numerals for minor chords.

Roman	I	ii	iii	IV	V	vi	vii
Name	Tonic	supertonic	mediant	subdominant	dominant	submediant	subtonic
Ex. Key C	C	D	E	F	G	A	B
Harmonized Scale in C	C	Dm	Em	F	G	Am	Bm7b5
	Cmaj7	Dm7	Em7	Fmaj7	G7	Am7	Bm7b5

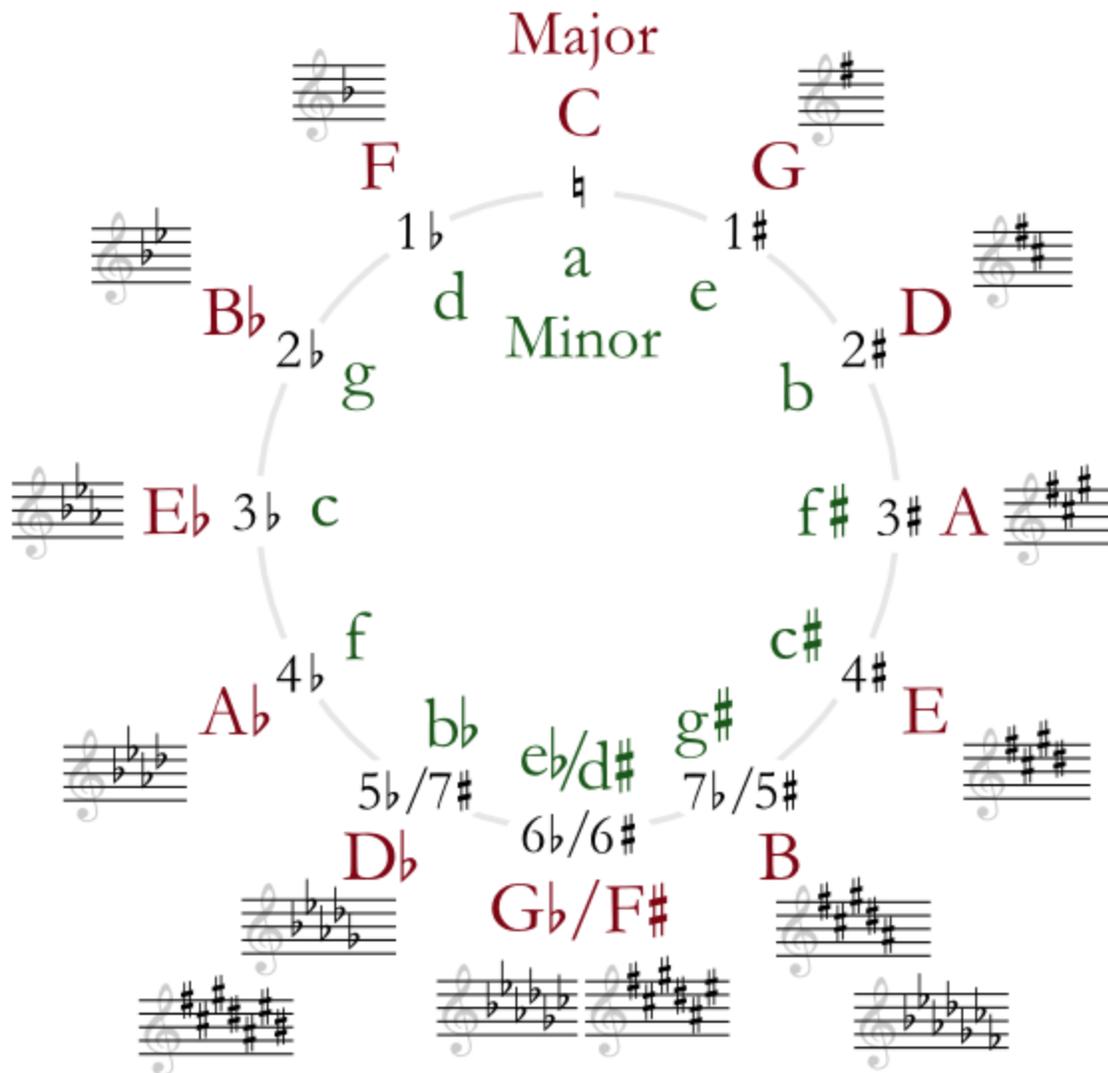
## Circle of Fifths

The circle of fifths is a useful (and fascinating) way to relate keys, chords and scales in music.

Start at C (outer circle, top) and go clockwise around the circle. The key of C has no sharps or flats. Each subsequent key name (C, G, D ...) is the 5<sup>th</sup> of the previous key. Each key has one additional sharp (#) in the key signature until we reach 7 #'s.

Start at C again but go counterclockwise (C, F, B $\flat$ ) and each key is the 4<sup>th</sup> of the previous key and each key has one more flat in the key signature than previous until we reach 7 b's.

The inner circle, lowercase letters are the relative minor of the major key. The key of B minor has two sharps – the same as D major.



## More Information

If you want more information: A good starting point on [Music Theory](#) is found on WikiBooks. The URL is to the contents page for a collection of music theory articles.

[Another music theory site](#) claiming to be by students, for students. This site has a collection of cool [calculators and tools in addition to lessons](#). I liked the interval and chord calculators.