

Crash Course in Music Theory for Guitarists

by Andy Drudy

An in-depth knowledge of music theory is essential for any musician. Learning the ropes so-to-speak, will rapidly expand your insight into you own and other peoples music and will assist your song writing considerably. Let us begin.

Step 1: The Chromatic Scale.

The chromatic scale is a scale with 12 pitches each a semitone apart. A semitone represents the distance from any fretted note, to one fret either higher or lower. Let us take a look at the scale.

C C#/D_b D D#/E_b E F F#/G_b G G#/A_b A A#/B_b B

Strictly speaking, a chromatic scale goes up in sharps and down in flats. But that is not significant to this lesson. Note that between each natural note there is a sharp or flat note, with exception of **B & C** and **E & F**. Commit this to memory now!

Step 2: The Major Scale.

As a scale, the chromatic is not in itself that useful. The majority of western music is composed in the major scale. To find the major scale we must apply a filter to the chromatic scale and extract a pattern of notes. We have now to introduce the concept of intervals. An interval is simply the distance between two notes. The intervals we need are as follows.

Semitone = *The smallest possible interval between one note and the next. (Ex: C-C#)*

Tone = *A Tone is equal to 2 semitones.*

The filter we need to apply is a follows...

T-T-S-T-T-T-S

(tone-tone-semitone-tone-tone-tone-semitone)

So, starting on C (for a reason that will become apparent later) we get.

C -tone- D -tone- E -semitone- F -tone- G -tone- A -tone- B -semitone- C

This is the key of C major. As you can see the scale is made up entirely natural notes. There are no sharps or flats. This is only true for the key of C. There are 12 keys, one for each step of the chromatic scale. Lets look at the key of G.

G -tone- A -tone- B -semitone- C -tone- D -tone- E -tone- F# -semitone- G

In the key of G we have only one sharp which is F#. Why F#, why do we not call it a G_b? Well, if it was G_b, there would be two G's and no F!

We can create a major scale off of all 12 steps of a chromatic scale. Each scale will have its own key signature. Some are sharp keys and some flat keys. Let us take a look at the key of **F**.

F –tone- **G** –tone- **A** –semitone- **B_b** –tone- **C** –tone- **D** –tone- **E** –semitone- **F**

We have a **B** flat in this scale. It must be a **B** flat as we already have an **A** as our third so we cannot call it **A#**. So the key of **F** has one flat in it. Each of the twelve major scales will have a unique key signature with a different number of either sharps or flats.

Step 3: Intervals

If you play a major scale, we now have a device that is at least musical sounding. Before we can go any further we have to introduce some more terms of reference. We must define some more intervals. In this case, the intervals between the different notes of a major scale. Using the notes of a **C** major scale, the interval names are as follows

C-C (<i>First note and itself</i>)	Unison
C-D	Major 2 nd
C-E	Major 3 rd
C-F	Perfect 4 th
C-G	Perfect 5 th
C-A	Major 6 th
C-B	Major 7 th
C-C	Octave

Knowledge of intervals is extremely important. Not only should you know their names, you should also know how they sound. We are infact giving names to sounds. To memorise these sounds we should use tunes that you are already familiar with. Common examples are the first two notes of the following tunes.

Unison	The Same Note!	
Major 2 nd	Happy Birthday	
Major 3 rd	Oh When the Saints Go Marchin In	
Perfect 4 th	Wedding March	
Perfect 5 th	Twinkle, Twinkle Little Star	
Major 6 th	My Way (And now...)	
Major 7 th	Somewhereover the Rainbow (1 st & 3 rd notes)	
Octave	Somewhere over the Rainbow	

You should immediately commit this to memory! No hesitation please. Music is a language in the same way as is French or German. We all recognise the letter "a" with which we associate a sound. We should know what these intervals are and instinctively know how they sound. This is the core language of music.

Step 4: Chords

A major scale in itself will not help us write a hit song. For this we have to introduce harmony. (Playing more than one note at the same time). In doing this we create chords. To build a C major chord, we simple take the 1st (root), 3rd, and 5th notes from a major scale as follows.

1st 2nd 3rd 4th 5th 6th 7th
C D E F G A B

1st 3rd 5th
C E G

This is a **major** chord. A chord is major if the interval between the 1st and 3rd is two tones. To create a **minor** chord we must flatten the 3rd. So the interval between the 1st and 3rd is a tone and a semitone. Therefore the notes in C minor are...

1st \flat 3rd 5th
C E \flat G

The difference in sound between major and minor is quite explicit. People perceive major as “happy” and minor as “sad”.

Step 5: Harmonizing a Major Scale

So far we have a major scale and one chord. Interesting but not immensely useful. We need more chords. To achieve this we are going to build a chord off of every step of a major scale.

Step	Root	Third	Fifth	Name
I	C	E	G	C Major
II	D	F	A	D minor
III	E	G	B	E minor
IV	F	A	C	F Major
V	G	B	D	G Major
VI	A	C	E	A minor
VII	B	D	F	B Diminished

Ok, what is going on here. Well, Step 1 is the C major chord that we have already discovered. On Step 2, we start with the second note of the major scale, and build a chord, that is to say, go up a third and then another third. So we get

D F A

So what is this chord. Is it major or minor. Well we look at the interval from the root to the third and discover that this interval is a tone and a semitone, which determines that the chord is minor. So therefore this chord is D minor. (We should also check that

the 5th is a perfect 5th by counting 3 tones and a semitone. A fifth is called perfect because with one exception, this is nearly always the case).

We continue this process for every step of the major scale. Step 7 is unusual as this is a diminished chord which contains a flat 3rd and a flat 5th. All the other steps are either major or minor.

Not only do we now have a scale in notes, but we also have a scale in chords. All these chords are in the key of C major. They must be because we have only used notes from a C major scale.

We now have a series of chords and a major scale. More than enough to write a million hit songs. Try playing chords from this scale in almost a random fashion and you will find that it is almost impossible to play something bad! This is the beginnings of the songwriting process.

Step 6: Natural Minor

Every major scale has an associated *relative* minor scale or *natural* minor. In the key of C, the relative minor scale is A minor. The relative minor scale always starts on the sixth step of the major scale. The notes in that scale are the same as if you rewrote the major scale starting on the sixth note. For example.

C major = C, D, E, F, G, A, B

A Natural Minor = A, B, C, D, E, F, G

We can refer to A minor as being in the key of C. Lets have a look at a different key

F major = F, G, A, Bb, C, D, E

D natural minor = D, E, F, G, A, Bb, C

It is important to be aware of what notes are in a natural minor, in respect of their intervals. So if we look at an A natural minor scale, lets examine the intervals within the scale.

A	B	C	D	E	F	G
Unison	Major 2 nd	Minor 3 rd	Perfect 4 th	Perfect 5 th	Minor 6 th	Minor 7 th

Step 7: Non-diatonic notes

We have seen that a major scale is made up as follows.

Root, Major 2nd, Major 3rd, Perfect 4th, Perfect 5th, Major 6th, Major 7th

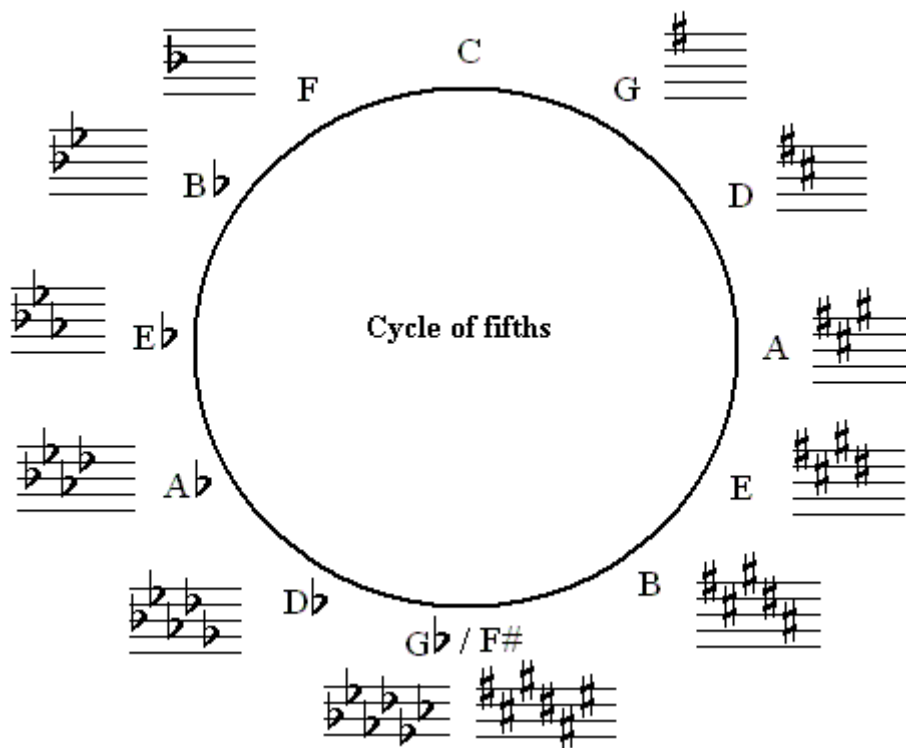
We also need names to describe all the other notes in the chromatic scale because these notes will crop up all the time in chords and scales. Try to imagine on a piano keyboard, a C major scale. The scale is made up of all the white notes. We need to give names now to the black notes. They are as follows.

In the far right column we can see how each interval is mapped onto the key of C. So we can now use a term such as “A minor seventh above C is B \flat ” or “An augmented fourth above C is F \sharp ”.

1	Root	C
2	Minor 2 nd	D \flat
3	Major 2 nd	D
4	Minor 3 rd	E \flat
5	Major 3 rd	E
6	Perfect 4 th	F
7	Augmented 4 th /Diminished 5 th	F \sharp /G \flat
8	Perfect 5 th	G
9	Augmented 5 th /Minor 6 th	G \sharp /A \flat
10	Major 6 th	A
11	Minor 7 th	B \flat
12	Major 7 th	B

Step 8: The Cycle Of Fifths

We can create a major scale off of all 12 steps of a chromatic scale. Each scale will have its own key signature. That is to say a different (and unique) number of sharps or flats. There is however a relationship between all twelve keys. This relationship manifests itself in the *Cycle of Fifths*. The cycle starts in the key of C. This is because it has no sharps or flats. The next step is to go up an interval of a fifth to G, in fact we will do this for each step of the cycle. The key of G has one sharp, F \sharp (notice how the sharp we add is a semi-tone below the key). Next go up a fifth again from G to D, which has two sharps F \sharp and C \sharp . Then we continue up a fifth again to A. The whole cycle looks as follows.



After the key of F#, which may be written as G flat, (because each has the same number of accidentals), all the keys become *flat* keys, with a decreasing number of flats until you arrive back at C. It is easier to go anticlockwise, and think of the flat keys in terms of a *cycle of fourths*. For example, starting from C, go up a fourth to F, which has one flat (notice how the flat we add is a fourth above the key), then go up a fourth from F to B flat, which has two flats, and so on.

Step 9: Sevenths

Let us extend our chords to include another third above the fifth. Let us add a *seventh* to each chord. Our chord table now looks like this.

Root	3 rd	5 th	7 th	Chord
C	E	G	B	C major 7 th
D	F	A	C	D minor 7 th
E	G	B	D	E minor 7 th
F	A	C	E	F major 7 th
G	B	D	F	G dominant 7 th (G7 th)
A	C	E	G	D minor 7 th
B	D	F	A	B half diminished

There are a few things to look at here. A major seventh is a seventh taken from the normal major scale (an interval of five tones and a semitone). A minor seventh is a *flattened* major seventh (an interval of five tones).

The fifth chord or **G** dominant seventh, commonly written **G7**, has a major third and a flattened seventh. The second chord D minor seventh has both a flattened 3rd (minor) and a flattened 7th. Interval descriptions for all the main chord types are as follows.

Chord	I	III	V	VII
X Major 7 th	Root	Major 3 rd	Perfect 5 th	Major 7 th
X Minor 7 th	Root	Minor 3 rd	Perfect 5 th	Minor 7 th
X 7 th	Root	Major 3 rd	Perfect 5 th	Minor 7 th
X Min 7 th ♭5	Root	Minor 3 rd	Flattened 5 th	Minor 7 th
X Dim	Root	Minor 3 rd	Flattened 5 th	Double Flat 7 th

Note that there are two different types of diminished chord. **X Min 7th ♭5** is also known as half diminished. A fully diminished chord has a *double flattened 7th*.

Step 10: Chord Movement

Lets look at a property of a G7th chord. If you play the 5th and 7th together (B and F) you can hear that this is quite an unpleasant sound. This is called a tritone (an interval of three tones). Most people musicians or otherwise can hear this. Unconsciously, your mind says “Yuk, that sounds horrible, lets move on!”. The chord you want to move onto in the root chord or the C. (We must be in the key of C as every chord scale has

only one dominant 7th chord which is the 5th step). So a G7th always wants to resolve to a C major (the root chord). Play this and see if you agree. Whenever you see a G7th chord in a song, the chances are the next chord will always be a C. Though rules are there to be broken!

As a general rule **ALL** chords want to move down a fifth. Lets see what that sound like. Lets keep to the key of **C** but start on **A** minor (the relative minor). In a **C** major chord scale, the chord down a fifth from **A** minor is **D** minor. The chord down a fifth from **D** minor is **G7th**. We then go to **Cma7**. Keep this process going till we get back to **A** minor again. What we get is this.

Am - Dm - G7th - Cma7 - Fma7 - Bm7th b5 - Em - Am

I am going to substitute E7th for Em.

Am - Dm - G7th - Cma7 - Fma7 - Bm7th b5 - E7th - Am

Play this chord progression and see if you recognise it. “Fly me to the moon”, “I will survive”, and “Parisian walkways” all use this chord sequence. That is because to our ears it makes perfect sence.

Exercises

1. The chromatic scale. Complete the following table, each time starting on the given note.

1	2	3	4	5	6	7	8	9	10	11	12	13
C	C#/D \flat	D	D#/E \flat									
E												
B												
G												

2. Fill out the following table for all the different keys.

Root	T	T	s	T	T	T	s
C	D	E	F	G	A	B	C
G	A	B	C	D	E	F#	G
D							
A							
E							
B							
F#							
F	G	A	B \flat	C	D	E	F
B \flat							
E \flat							
A \flat							
D \flat							
Root	Major 2nd	Major 3rd	Perfect 4th	Perfect 5th	Major 6th	Major 7th	Octave

3. Fill out the following table by harmonizing an A major scale into four part chords.

Root	3 rd	5 th	7 th	Chord
A	C#	E	G#	A major 7th
B	D	F#		
C#	E			
D				
E				
F#				
G#				

4. Fill out the blanks in the following table.

I	II	III	IV	V	VI	VII
C Major	D Minor	E Minor	F Major	G Major	A minor	B Diminished
G Major						
A ^b major						
F Major						
E Major						
B Major						

5. Name the notes in the following chords.

Chord	Root	3 rd	5 th	7 th
Gma7				
G7				
Gmin7				
Fmaj7				
D7				
Emin7				
A7				

6. Name the notes in the following Natural Minor scales.

Natural Minor	1	2	3	4	5	6	7
E	E						
G	G						
F	F						
D ^b	D ^b						

For answer sheet visit www.andydrudy.com/studies.htm