

MUSIC THEORY CHEAT SHEET



FOR METAL GUITARISTS

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INTRO

“Do I need to learn music theory as a Metal/Rock guitarist?”

This is by far one of the most common questions I get asked by guitar students (all throughout the entirety of my 15+ years of teaching).

My definitive answer to this question is “no... but it sure makes life easier!”

You really don't need to spend much time with music theory to become a decent guitarist, but if you're interested in gaining a deeper understanding of how music works then I absolutely can't stress how essential it is.

Delving into the world of music theory not only improved my playing, but also my songwriting, ear training and improvisation!

The purpose of this book is to give you a tl;dr explanation of essential music theory concepts that you can not only use for reference, but also as a springboard for more in-depth study if you so wish.

Thanks for reading - I hope this book serves you well!

TERMS

In this section you'll find a list of terms that are integral to understanding the rest of the content in this book. You're most likely familiar with the majority of them but I'd recommend having a quick skim through, just in case!

SEMITONE

The distance between 2 adjacent frets on the guitar (or 2 adjacent keys on the piano) i.e. from E to F.

TONE

The equivalent of 2 semitones i.e. from E to F#.

OCTAVE

The distance of 12 sequential notes. An octave up/down means 12 notes up/down i.e. going from an E note to the next E note up or down.

ROOT

The “home” note of a scale i.e. the root of the E Minor scale is E.

SHARP

Higher in pitch by 1 semitone, notated with a ‘#’. To “sharpen” a note means to raise it by 1 semitone i.e. from E to F.

FLAT

Lower in pitch by 1 semitone, notated with a ‘b’. To “flatten” a note means to lower it by 1 semitone i.e. from E to Eb.

MELODY

A succession of pitches in rhythm that the listener remembers as a single entity. It can be the tune the vocals sing in a chorus, a line the guitar plays during a solo, a synth loop in the background - absolutely anything that resembles a melodic musical statement.

HARMONY

The combination of simultaneous notes coming together to create a greater sound.

DEGREE

The position of a particular note in a scale relative to the root note. For example, the note G is the 5th degree of the C Major scale (C-D-E-F-G-A-B) and the note D is the 7th degree of the E Minor scale (E-F#-G-A-B-C-D).

ARPEGGIO

The notes of a chord played in succession (as opposed to in unison or allowed to let-ring), either ascending or descending.

BAR/MEASURE

Segments of music that comprise a song. The amount of notes contained within a bar is dependent on the time signature.

TEMPO

The “speed” at which music is played at, measured in BPM (Beats Per Minute). The higher the BPM, the faster the music.

MODULATION

The action of changing key within a song.

DIATONIC

To play diatonically means that you play perfectly in the current key without any chromatic alterations.

CHROMATIC

The opposite of diatonic. Playing chromatically means that you don't adhere to the current key, and make use of outside notes/chords.

PASSING TONE

A chromatic note that's played to transition from 1 diatonic note to another.

INTERVALS

A fundamental part of scales and chords, an interval is the distance between 2 notes and consists of 2 descriptors: the type (minor, major, perfect, flat or sharp) and the numerical value (unison, 2nd, 3rd, 4th, 5th, 6th, 7th or octave).

Training your ability to recognize intervals will vastly improve the speed at which you can learn songs by ear and help translate the music you hear in your head onto your instrument.

Here's a list of all intervals you're likely to encounter...

Interval	Distance Up	Example
Unison	0	E-E
Minor 2nd	1 semitone	E-F
Major 2nd	1 tone	E-F#
Minor 3rd	1.5 tones	E-G
Major 3rd	2 tones	E-G#
Perfect 4th	2.5 tones	E-A

#4th *	3 tones	E-A#
b5th *	3 tones	E-Bb
Perfect 5th	3.5 tones	E-B
#5th *	4 tones	E-B#
Minor 6th *	4 tones	E-C
Major 6th	4.5 tones	E-C#
Minor 7th	5 tones	E-D
Major 7th	5.5 tones	E-D#
Octave	6 tones	E-E

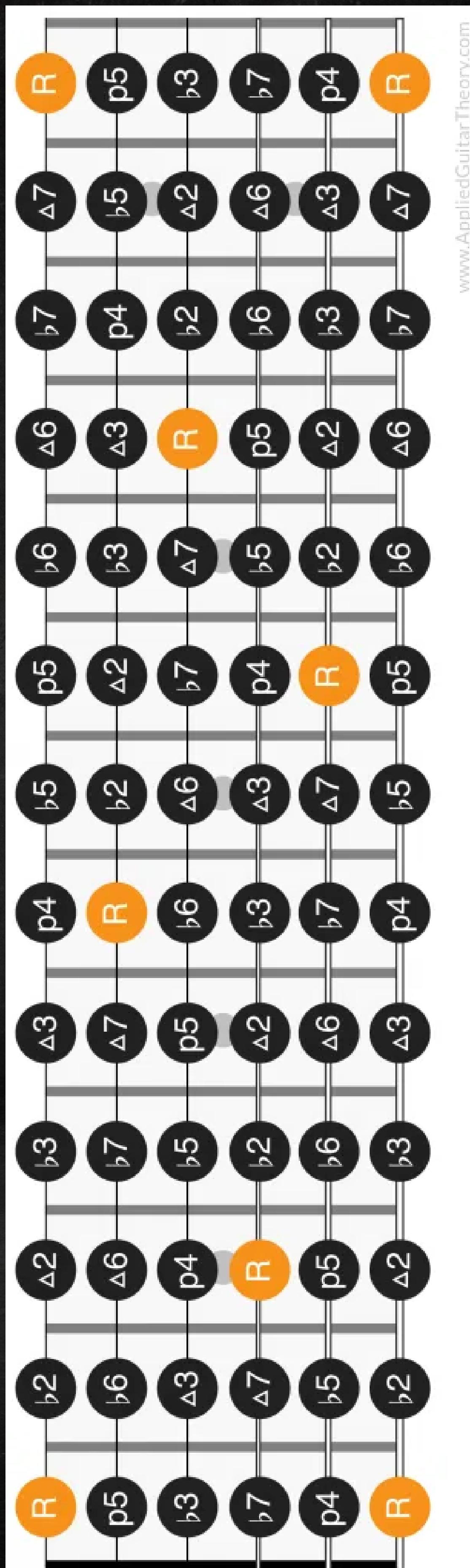
* You may have noticed that the distance between the #4th/b5th and #5th/Minor 6th intervals are the same. What gives?!

In isolation these intervals are exactly the same and it doesn't matter which name you use; it only matters in context.

A #4th interval denotes a Lydian chord, whereas a b5th interval denotes a diminished chord. Similarly, a #5th interval denotes an augmented chord, whereas a minor 6th interval denotes a minor chord.

INTERVALS REFERENCE DIAGRAM

R = Root b = Minor Triangle = Major P = Perfect



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SCALES

Scales are the tonal basis of pretty much all music. Whether you're riffing, soloing or strumming chords; you're interacting with scales somehow. Therefore it's super important you understand how they work!

At its most basic definition, a scale is essentially just an ordered sequence of notes separated by predefined intervals. The type and order of these intervals is what determines which scale you're dealing with.

It's obviously not feasible (or productive) to learn every single scale in existence, and as a Metal player you really only need to learn 3 essential scales to make decent progress with your playing. These are the minor scale, major scale and minor pentatonic scale.

There are loads of other cool scales and modes to learn later down the line, but the majority of them are just slight variations on the above - so learning these 3 is already doing half the work!

Let's take a look at them...

MAJOR SCALE

The major scale isn't used too often in Metal music (largely due to its bright and "happy" sound) but it's still important that you know it as it's an integral piece of the music theory puzzle.

It's constructed with the following series of intervals in the following order...

tone>tone>semitone>tone>
tone>tone>semitone

Thus, if we wanted to construct an E major scale we would apply the above series of intervals starting from the note E...

E>F#>G#>A>B>C#>D#>E

Super important note! When constructing a regular 7 note scale it's essential that you include every letter once i.e. you can't have both C and C# in a scale, it must be C and Db.

MINOR SCALE

The minor scale is the bread and butter of Metal music and is by far the most used scale in the genre; so it's absolutely essential you're familiar with it!

It's constructed with the following series of intervals in the following order...

tone>semitone>tone>tone>
semitone>tone>tone

(You may have noticed that it's exactly the same as the major one, but starting from the 6th position instead!)

Thus, if we wanted to construct an E minor scale we would apply the above series of intervals starting from the note E...

E>F#>G>A>B>C>D>E

MINOR PENTATONIC SCALE

The minor pentatonic scale is nearly always the first scale that electric guitarists learn; mainly because it's incredibly simple to finger and easy to get decent results out of.

Consisting of 5 notes (instead of the usual 7 that regular heptatonic scales have), it's essentially just a cut-down version of the minor scale. Instead of playing all 7 notes of the minor scale, you're now only including the root, 3rd, 4th, 5th and 7th degrees.

For example, if we take the E minor scale...

E > F# > G > A > B > C > D > E

And then extract the root, 3rd, 4th, 5th and 7th degrees...

E > G > A > B > D

We now have an E minor pentatonic scale!

Even though it's such a musically-diverse genre, the vast majority of Metal really only uses a handful of scales. Once you have a decent grasp on the major, minor and minor pentatonic scales, here are a couple of additional ones to learn that are very widely used and super useful.

BLUES SCALE

The Blues scale is simply a minor pentatonic scale with an added b5 note. For example, the E Blues scale is...

E > G > A > Bb > B > D

This added b5 note is the quintessential "Blue" note and is what gives it that special Blues-y flavor. You should only ever use this extra note as a passing tone - never linger on it! The note exists to create tension; so hanging on it too much sounds incredibly uncomfortable.

HARMONIC MINOR SCALE

The lynchpin of Classical music, the harmonic minor scale is a minor scale but with a #7th degree. For example, the E harmonic minor scale is...

E > F# > G > A > B > C > D# > E

The harmonic minor scale is very easy to apply and is nearly exclusively used to resolve from the V major chord to the i chord in a minor key.

For example, if you're in the key of E minor and playing over a B major chord then you can use E harmonic minor here. This is because the major 3rd (D#) of the V major chord (B major) is also the #7th (D#) of our home chord (E minor).

But really, in Metal you can also get away with just using it as a straight-up replacement for the minor scale most of the time!

MODES

A mode is basically the same thing as a scale...but slightly different!

A scale is an ordered set of notes with a clearly defined start and end point. But what happens if you mess around with these start and end points?

For example, we know that the notes of the C major scale are...

C > D > E > F > G > A > B > C

But what if played the same scale starting from D instead?

D > E > F > G > A > B > C > D

Is it still the C major scale? Well, yes... but also no!

Even though the notes therein stay exactly the same, making a scale start from a different home note completely changes its context. This is where modes come into play.

There's a lot of confusion and mystique surrounding the modes; largely because most guitarists approach learning them the wrong way.

What people often don't realize about modes is that they're just as much to do with chords as they are to do with scales.

For example, if you play the previous example (D>E>F>G>A>B>C>D) in isolation then it doesn't sound like a fancy, exotic mode - it just sounds exactly the same as the C major scale. But if you play it over a G major chord...woah! It suddenly sounds way cooler.

It's not until you play a mode over the "correct" chords that it suddenly comes to life and sounds like it should. When it comes to modes: context is everything!

I highly recommend following my comprehensive 4 part course on modes in order to fully understand how they work and how to apply them, but in the meantime here's a quick summary of each of the standard modes in order.

IONIAN

The Ionian mode is just another name for the major scale!

DORIAN

The Dorian mode is a minor scale with a #6th degree. For example, the E Dorian mode is...

E > F# > G > A > B > C# > D > E

If you don't wanna think too hard about things you can pretty much just use Dorian as a replacement for the minor pentatonic scale (just think of it as a pentatonic scale with a bonus #6 note).

Or, if you wanna use Dorian "properly", then look out for minor chord progressions that feature a IV major chord. For example, if you're in the key of E minor then Dorian will sound super effective over an A major chord. This is because the major 3rd (C#) of the IV major chord (A major) is also the #6th (C#) of our home chord (E minor).

PHRYGIAN

The Phrygian mode is a minor scale with a b2nd degree. For example, the E Phrygian mode is...

E › F_b › G › A › B › C › D › E

Phrygian is an incredibly common mode in Metal due to the dark-sounding b2nd interval. Basically, whenever you're in a minor key and playing over a riff or rhythm that uses this interval (i.e. moving between E-F power chords like "Symphony Of Destruction") then you're safe to use Phrygian.

LYDIAN

The Lydian mode is a major scale with a #4th degree. For example, the E Lydian mode is...

E > F# > G# > A# > B > C# > D# > E

Made famous by Joe Satriani, the Lydian mode has a very whimsical, almost “magical” kind of sound when used in the right context.

Look out for major chord progressions that feature a II major chord. For example, if you're in the key of E major then Lydian will sound super effective over an F# major chord. This is because the major 3rd (A#) of the II major chord (F# major) is also the #4th (A#) of our home chord (E major).

MIXOLYDIAN

The Mixolydian mode is a major scale with a b7th degree. For example, the E Mixolydian mode is...

E > F# > G# > A > B > C# > D > E

By far the most common usage of Mixolydian is to use it over the top of dominant 7 chords. This is because the b7 in the dominant 7 chord matches the b7 of the Mixolydian mode.

In addition, look out for major chord progressions that feature a VII major chord. For example, if you're in the key of E major then Mixolydian will sound super effective over a D major chord. This is because the root (D) of the VII major chord (D major) is also the b7th (D) of our home chord (E major).

AEOLIAN

The Aeolian mode is just another name for the minor scale!

LOCRIAN

The Locrian mode is a minor scale with a b2nd and b5th degree. For example, the E Locrian mode is...

E › F_b › G › A › B_b › C › D › E

The Locrian mode is the most unstable of all the standard modes as its foundation is the unruly diminished chord. It doesn't really have any practical usages outside of perhaps riff-writing so don't spend too much time with this one.

KEYS

A **key** is the predominant group of notes that form the harmonic foundation of a piece of music. This group of notes are nearly always all from **one particular scale**, and it's this that we derive the key from.

But how do we work out what key a song is in?

Unlike Classical and Jazz music that has formal written notation with key signatures included, Metal musicians often don't have that luxury so it's down to us to work out the key ourselves!

In 99% of cases it's incredibly simple as the vast majority of songs start with the "home" chord - so this is the first place to look.

Go to the first bar of the song and find the "strong" note (this could either be the note the song starts with or that appears most commonly throughout) and then keep playing it over the song.

Even as the chords/riffs change as the song progresses, if you keep playing the home note it should still sound fine; as you'll most likely find that the chords/riffs keep resolving back to your home note.

If your ears aren't so well trained then there's gonna be a lot of trial and error involved with working out keys; but as your listening skills improve I guarantee you'll be able to do it quicker and quicker.

Also, remember that keys can only ever be major or minor! So after you're confident you've found the home note, all that's left to do is confirm whether it's in major or minor (though let's be real, in Metal it's gonna be minor 90% of the time).

A great way to reaffirm your choice is to do a bit of simple improv over the top of the song. For example, if you think the song is in E minor, then try jamming some licks in the key of E minor over the top and see if it sounds right or not.

There will sometimes, however, be cases where it's not entirely obvious what the key is and a bit of assumption is necessary.

A great example is "Sweet Child O' Mine", which could be interpreted as in either D major or G major. This is because even though the home appears to be D major, the main chord progression is D major ➤ C major ➤ G major; which could be seen as either a G major progression or as a Mixolydian progression in D major.

CHORDS

At the most fundamental level a chord is 3 or more pitches played simultaneously. At minimum, these consist of a root, 3rd and 5th (with the notes that these intervals represent being derived from a scale).

For example, to construct a C major chord you simply take the root (C), 3rd (E) and 5th (G) of the C major scale and play them in unison.

C>D>E>F>G>A>B>C

Similarly, to construct an F minor chord you take the root (F), 3rd (Ab) and 5th (C) of the F minor scale and play them in unison.

F>G>Ab>Bb>C>Db>Eb>F

Another name for these fundamental 3 note chords which you may have heard is a “triad”.

So no matter what kind of C major chord you play (open chord, barre chord, whatever), it will always just be a combination of C, E and G notes in various combinations.

Similarly with F minor, it will always just be a combination of F, Ab and C notes in various combinations.

Of course there are many other types of chords besides just major and minor - the possibilities when it comes to chord construction are literally limitless!

Though, as was the case with scales, as a Metal player it's only really necessary to put time into learning the most commonly used ones. Here's a list of all the chords I suggest learning:

Chord	Intervals	Scale	Example
Major	root, 3rd, 5th	Major	E-G#-B
Minor	root, 3rd, 5th	Minor	E-G-B
Diminished	root, 3rd, b5th	Minor	E-G-Bb
Major7	root, 3rd, 5th, 7th	Major	E-G#-B-D#
Minor7	root, 3rd, 5th, 7th	Minor	E-G-B-D
Minor7b5	root, 3rd, b5th, 7th	Minor	E-G-Bb-D
Sus2	root, 2nd, 5th	Major	E-F#-B
Sus4	root, 4th, 5th	Major	E-A-B
Augmented	root, 3rd, #5th	Major	E-G#-C

CHORD EXTENSIONS

You may have seen that chords can sometimes go beyond adding just a 7th, and also add 9s, 11s, 13s etc. These are what we call chord extensions. Although these aren't particularly common in Metal, it's still well worth taking the time to understand them.

You may be thinking "how exactly can you add an 11th to a chord when a scale only consists of 8 notes?" Great question!

Because these concepts originated on piano, chord extensions have the convention of adding in the extra notes an octave up. So a 9th is actually a 2nd, an 11th is actually a 4th and a 13th is actually a 6th (just subtract 7 from the extension to find the actual note).

It's also worth noting that chord extensions must contain the 7th interval, otherwise it's just simply an "add chord" instead (i.e. Cadd9 as opposed to C9).

CHORD INVERSIONS

A chord inversion is when you play a chord without the root as the bass (bottom) note.

There are 2 types of inversions: 1st inversion and 2nd inversion.

1st inversion is when you play a chord with the 3rd as the bass note, and 2nd inversion is when you play a chord with the 5th as the bass note.

C major root position = C-E-G

C major 1st inversion = E-G-C

C major 2nd inversion = G-C-E

Chord inversions are super useful for moving between different chord shapes efficiently, without having to dance around the fretboard using only root positions. Another name for this action of moving between chord shapes efficiently is called voice leading.

CHORD PROGRESSIONS

A chord progression is a series of chords played in succession, usually based in a particular key.

Even though you may not necessarily associate them with Metal, chord progressions are the backbone of Western music and it's absolutely essential you understand how they function in order to master guitar.

What a lot of guitarists don't realize is that chords aren't their own entities; they're actually made up of notes from a scale! All of the chords from any given key are comprised of notes from the scale of this key.

For example, all of the chords in the key of E minor are exclusively made up of notes from the E minor scale.

But how exactly are you meant to know what these chords are?

The answer is a pretty neat system called chord-scales. I go in-depth on chord-scales in my modes course, but I'll give a quick summary here.

Essentially, there's a very simple formula you can use to work out the chords of any given scale; 1 for major keys and 1 for minor keys.

For major keys...

Major > Minor > Minor > Major >
Major > Minor > Diminished

For minor keys...

Minor - Diminished - Major - Minor -
Minor - Major - Major

(You may notice that the minor keys formula is the same as the major keys formula, just starting from the 6th position instead!)

For example, if you apply this formula to the C major scale (C>D>E>F>G>A>B>C) then you get the following result...

C Major>D Minor>E Minor>F Major>
G Major>A Minor>B Diminished

Similarly, if you apply the formula to the E minor scale (E>F#>G>A>B>C>D) then you get the following result...

E Minor>F# Diminished>G Major>>A Minor>
B Minor>C Major>D Major

So now we have the knowledge to work out the chords for any key and can start making some chord progressions!

ROMAN NUMERAL NOTATION

You may have noticed that chord progressions are often notated with Roman numerals i.e. “I-IV-V progression in the key of C Major”.

In case you were wondering what exactly these numerals refer to - it's in fact these chord-scales!

Each numeral refers to the scale degree of the key in question i.e. II = 2nd degree and vi = 6th degree. In this system, major chords are notated with upper-case numerals and minor chords are notated with lower-case numerals (and diminished chords are followed by a °).

So let's take our chords of the C major scale that we worked out earlier and apply some chord progressions to it...

C Major > D Minor > E Minor > F Major >
G Major > A Minor > B Diminished

Progression In Numerals	Progression In Chords
I > IV > V	C Major > F Major > G Major
ii > V > I	D Minor > G Major > C Major
V > vi > vii°	G Major > A Minor > B Diminished

And now the same again for the chords of the E minor scale that we also worked out earlier...

E Minor ➤ F# Diminished ➤ G Major ➤ A Minor ➤
B Minor ➤ C Major ➤ D Major

Progression In Numerals	Progression In Chords
i ➤ iv ➤ v	E Minor ➤ A Minor ➤ B Minor
III ➤ VI ➤ i	G Major ➤ C Major ➤ E Minor
ii° ➤ VII ➤ VI	F# Diminished ➤ D Major ➤ C Major

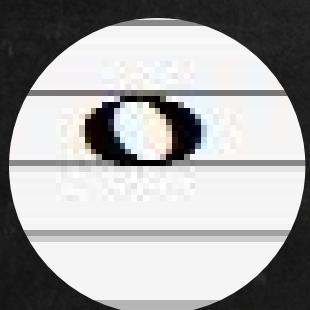
Please also note that you're of course free to use any chords in any key and don't have to rigidly stick to these methods; this is just for if you want to play perfectly diatonically and stay within the standards of functional music theory.

RHYTHM

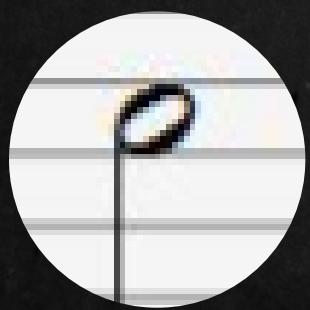
Rhythm is an often-overlooked aspect of music theory that guitarists don't seem to spend anywhere near enough time on.

While it's by no means necessary to become a rhythmic expert, it's still essential that you have a decent understanding of the fundamentals, such as; note values, note value modifiers and time signatures.

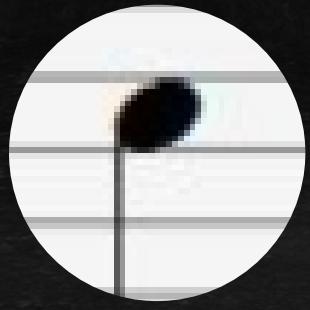
NOTE VALUES



Whole note (4 beats)



Half note (2 beats)



Quarter note (1 beat)



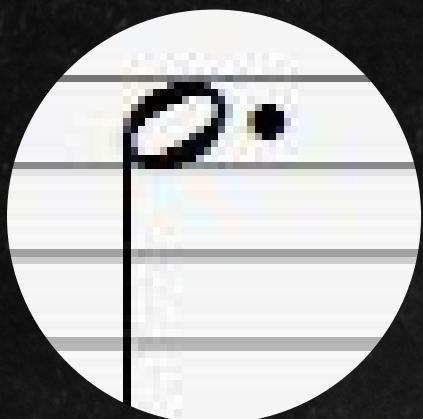
Eighth note ($\frac{1}{2}$ a beat)



Sixteenth note ($\frac{1}{4}$ of a beat)

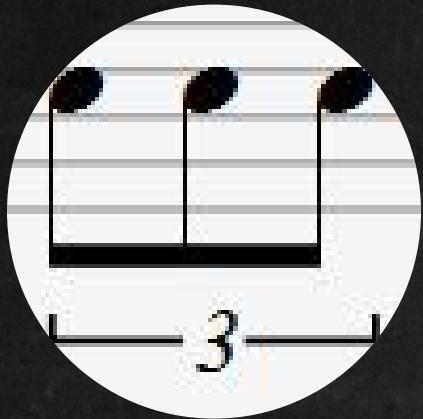
NOTE VALUE MODIFIERS

Dotted notes



Adds 50% of the dotted note's value i.e. a dotted half note is worth 3 beats instead of 2 beats.

Triplets



Gives 3 notes the equivalent value of 2 notes i.e. 3 eighth note triplets are equivalent to 2 eighth notes.

Tied notes



Joins the value of the tied notes together so they're played as if they were just 1 note.

TIME SIGNATURES

The time signature of a song is what dictates its rhythmic structure and ensures that all musicians are playing in sync (hopefully!).

The signature itself is divided into 2 numbers - an upper number and a lower number.

The upper number indicates the number of beats in each measure, while the lower number defines the note value that equals one beat.

For example, the most common signature in music, 4/4, tells us that there are 4 beats in each bar and each beat equals a single quarter note.

The number of different time signatures you encounter depends on the type of music you play, but let's take a quick look at some of the most common ones...

$3/4$ Every bar = 3 quarter notes

$4/4$ Every bar = 4 quarter notes

$5/4$ Every bar = 5 quarter notes

$6/8$ Every bar = 6 eighth notes

$7/8$ Every bar = 7 eighth notes

$9/8$ Every bar = 9 eighth notes

Some of you may be thinking what the difference is between $3/4$ and $6/8$ - surely they're just the same, no?

Even though they do technically take up the same amount of musical real estate, the key difference is feel.

$3/4$ is counted more rigidly, whereas $6/8$ is subdivided into 2 groups of 3 eighth notes.

As examples, the “Game Of Thrones” theme is in $3/4$ and “Nothing Else Matters” is in $6/8$.