

# Learning the Fretboard Using the **CAGED** System

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## 1 Overview

Learning all the notes on the guitar fretboard is a challenge. Equally challenging is the task of learning the relative notes such as 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> of every major key. Over time, these two tasks typically combine in a back-and-forth manner.

In my experience, we do not learn the fretboard as a contiguous whole; rather, we familiarize ourselves with sections of it. We then link sections together over time to mentally form the entire fretboard. The same is true of music theory. We quickly learn that the 5<sup>th</sup> in C major is G and the 5<sup>th</sup> in G major is D, but it takes longer to learn that the 5<sup>th</sup> in F# is C# even though this is only 1/2 step down from G.

Basically, the more you become aware of the notes on the fretboard, the more quickly you recognize the relationships among the notes in chords. Likewise, the information you glean about chord relationships helps you learn the positions on the fretboard.

## 2 Review: Voices in All Major Chords

The chart below lists the voices (tones/notes) in every major chord.

A true major chord will consist of at least one 1<sup>st</sup> (root), one 3<sup>rd</sup> (third) and one 5<sup>th</sup> (fifth) note; no different notes are allowed. Any other notes will be duplicates of these notes, usually in another octave. This is called “doubling”.

Root Note	First	Third	Fifth	Minor Third
A	A	C#/Db	E	C
A#/Bb	A#/Bb	D	F	C#/Db
B	B	D#/Eb	F#/Gb	D
C	C	E	G	D#/Eb
C#/Db	C#/Db	F	G#/Ab	E
D	D	F#/Gb	A	F
D#/Eb	D#/Eb	G	A#/Bb	F#/Gb
E	E	G#/Ab	B	G
F	F	A	C	G#/Ab
F#/Gb	F#/Gb	A#/Bb	C#/Db	A
G	G	B	D	A#/Bb
G#/Ab	G#/Ab	C	D#/Eb	B
A	A	C#/Db	E	C
A#/Bb	A#/Bb	D	F	C#/Db
B	B	D#/Eb	F#/Gb	D
C	C	E	G	D#/Eb
C#/Db	C#/Db	F	G#/Ab	E
D	D	F#/Gb	A	F
D#/Eb	D#/Eb	G	A#/Bb	F#/Gb
E	E	G#/Ab	B	G
F	F	A	C	G#/Ab
F#/Gb	F#/Gb	A#/Bb	C#/Db	A
G	G	B	D	A#/Bb
G#/Ab	G#/Ab	C	D#/Eb	B

The last column (“Minor Third”) lists the flatted 3<sup>rd</sup> tone used in place of the standard 3<sup>rd</sup> to make a minor chord.

### 3 The "CAGED" System

There are only a few basic chord "shapes" for major chords available on the guitar in the open position (i.e., unbarred). **Only four truly distinct open structures exist for major chords on the guitar:** the 'E' shape, the 'A' shape, the 'C' shape and the 'D' shape. The 'G' shape is really a version of the 'A' shape, as we'll see.

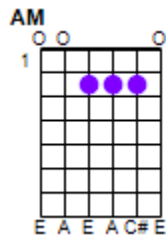
These shapes are organized under the acronym "**CAGED**", which is built from the tonic/root note letter of each primary shape.

**In each chord shape, there are three adjacent strings containing the chord's 1<sup>st</sup> (root), 3<sup>rd</sup> and 5<sup>th</sup> notes. These occur in this order for all these shapes: the lowest of the three is the 5<sup>th</sup>, the middle tone is the root (1<sup>st</sup> or tonic) and the highest is the major 3<sup>rd</sup>.** I refer to this as the "core" of the chord.

Starting from the open position and switching to the barred versions, the structure of each "core" is preserved as you move up the neck. The reason they look different is due to the way the guitar is tuned. **If every string were tuned in 4ths, every "core" would always look like the E shape.**

### 4 The E and A "Cores"

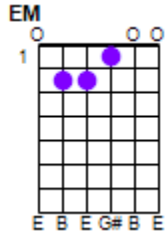
For example, here is the standard, open A major chord:



From left to right (low note to high note), the three fingered positions are E, A and C#, which are, in order, the 5<sup>th</sup>, 1<sup>st</sup> and 3<sup>rd</sup> of the A chord. **This is true for all "cores".**

*(In the above and following diagrams, "core" notes are colored while non-core notes are black.)*

Similarly, here is E Major:



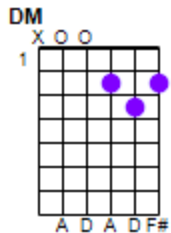
In this E major chord, the three fingered notes are B, E and G#. From left to right (low note to high note), these are again the 5<sup>th</sup>, 1<sup>st</sup> and 3<sup>rd</sup> of the E major chord.

The reason these shapes differ is that the 2nd or B string on the guitar is tuned to a major 3<sup>rd</sup> against its predecessor, the 3<sup>rd</sup> or G string, whereas all other pairs are tuned in 4ths.

In music theory, the distance from the 5<sup>th</sup> in a key up to the tonic or 1<sup>st</sup> is a 4<sup>th</sup> interval, or 5 frets. The distance from the 1<sup>st</sup> to the 3<sup>rd</sup> is a major 3<sup>rd</sup> interval, or 4 frets. Hence, the E chord has two fingers on the second fret and one finger on the first fret.

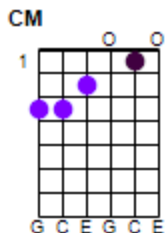
## 5 The Other "Cores"

The D core looks like this:



As before, the reason why this pattern appears different from the E and A patterns is due to the tuning variation of the guitar.

The C core looks like this:

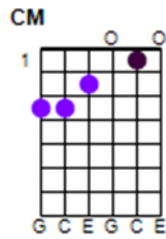


Note that the fingering pattern of the three low notes is exactly the same as the core of an E chord. The notes are G (6<sup>th</sup> string), C (5<sup>th</sup> string) and E (4<sup>th</sup> string).

Also, please note that the top three strings, from left to right are G, C and E, just like the three lower strings. The next section explains how these notes form part of a D core.

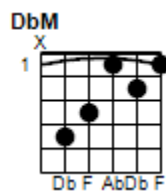
## 6 Relationship Between the C and D “Cores”

At first glance, the C and D cores appear quite distinct. In reality, they are related. Again, here is a C major chord:



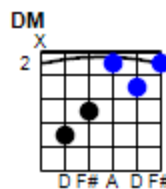
The three low voices are the 5<sup>th</sup>, 1<sup>st</sup> and 3<sup>rd</sup> in the key of C. As stated above, the higher three notes have exactly that same pattern.

Now we will move up one fret and add a barre:



This chord is a Db major chord. This form doesn't finger the lowest note of the C core, which would be Ab on the fourth fret of the 6<sup>th</sup> string. This is because we don't have enough fingers to play every note.

Let's move up one more fret to D major:

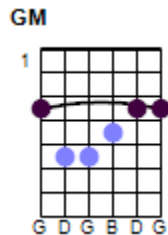


This chord is shaped just like the previous Db, just one fret higher. The important point is that the first three high strings are now playing A, D and F#, just like in a standard D chord.

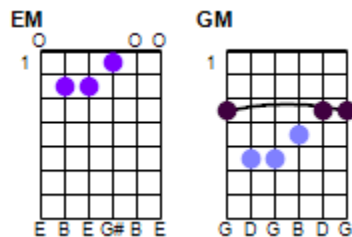
The colored dots form the familiar D shape. This shows that the C shape has the D shape embedded in it.

## 7 Barred Cores

Here is a standard G barre chord:



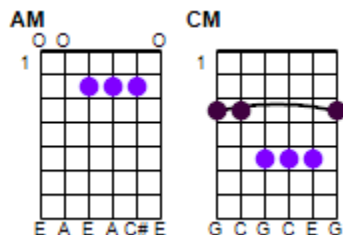
The colored notes form the E core. Let's compare this chord to its antecedent, E major.



Ignoring the barre finger, the pattern is the same. The relationship 5<sup>th</sup>-1<sup>st</sup>-3<sup>rd</sup> (low to high) applies to both chords. In E major, the B on the fifth string is the 5<sup>th</sup> in the key of E. In G major, the D on the fifth string is the 5<sup>th</sup> in the key of G.

To put it another way, when you slide the E shape up the fretboard, the root note of the chord is on the fourth string every time.

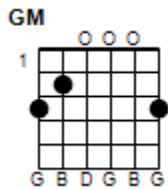
Here is a barred C major compared to A major:



Again, the pattern is the same, and so is the relationship of each of the pattern's notes to their relative positions in their respective keys. In this case, the root note appears on the 3<sup>rd</sup> string.

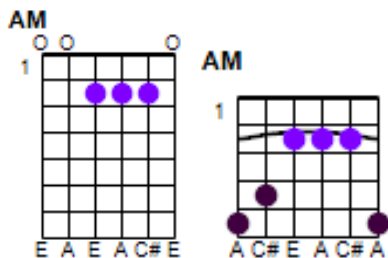
## 8 What about the 'G' Shape?

Here is the most common open position (unbarred) G major chord:



This unbarred G major chord shape can indeed be used barred, but it's not common. Now I'll show you that this shape "contains" the standard A shape.

Here is the basic (open position) A shape placed next to another A chord formed as a G shape barred on the second fret:

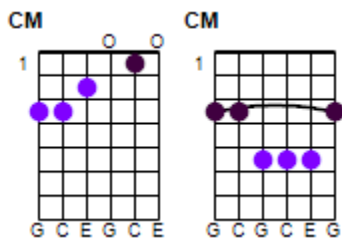


Notice that the core of both chords is the same (colored notes). Hence, I don't usually consider the G shape to be an independently shaped core.

## 9 Why is this Useful?

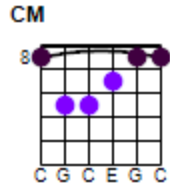
Awareness of these unalterable patterns is very useful because learning the core of a chord means **you can quickly find the actual note names as you move your barre finger up the fretboard.**

Take two different C chords as an example.



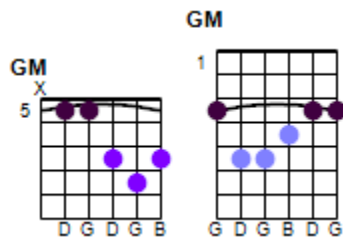
Although they are in different octaves, the core notes above are in the same orders in each chord: G, C, E.

Here is C major using the E shape on the 8<sup>th</sup> fret:



Once again, the core is an E shape and has the same three notes in the same order. Now you know the notes for G, C and E on the 10<sup>th</sup> and 9<sup>th</sup> frets!

Here is G major using the barred D shape on the 5<sup>th</sup> fret alongside another inversion of the same chord using the E shape on the 3<sup>rd</sup> fret:

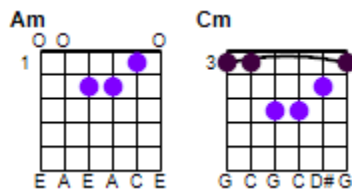


Note that the order and notes of the cores are exactly the same, albeit in different octaves.

## 10 What About Other Chords?

If you know which note in the group is the 3<sup>rd</sup>, you can make a minor chord just by lowering that note by one fret (see the previous table). If you want a 7<sup>th</sup> chord, you can lower the root note by two frets.

For example, here are A minor and C minor:

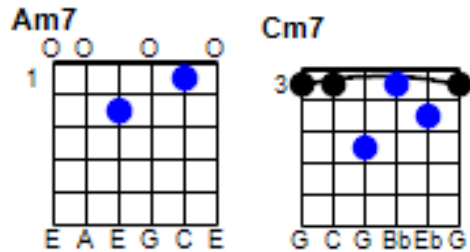


The C or minor 3<sup>rd</sup> note in A minor is one-half step lower than the C# of the major chord; this is what makes it a minor chord. The relationships are therefore (from lowest to highest) 5<sup>th</sup>, 1<sup>st</sup>, flat 3<sup>rd</sup>, or E, A and C.

The Cm chord shows that the same role relation persists regardless of barre position. The notes become G, C and Eb.



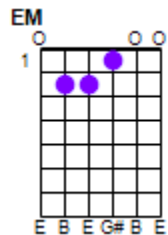
Here's another example: the minor 7<sup>th</sup> chord. Again, I'm using the A shape.



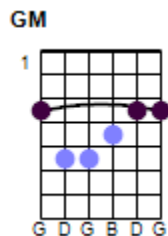
In this configuration, the lowest note of the "core" is still the 5<sup>th</sup>, which is E in the chord Am7 and G in the chord Cm7. The middle note of the "core" would usually be the root, but here it's lowered two frets to make the chord a 7<sup>th</sup>. The highest note of the "core" (on the 2<sup>nd</sup> string) is the minor 3<sup>rd</sup>, which is C in the Am7 and Eb in the Cm7.

## 11 Other Voices in Barred Chords

Take a close look at the fundamental (open) E chord.

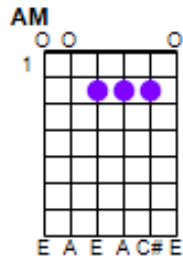


We've talked about the location of the root (1<sup>st</sup>), 3<sup>rd</sup> and 5<sup>th</sup> notes inside the "core". Notice that the root note (E) also appears on the 1<sup>st</sup> and 6<sup>th</sup> strings. Here's a barred G using the E shape:

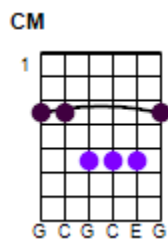


Note that the barre finger on the 3<sup>rd</sup> fret plays the same role as guitar's "nut" does above the 1<sup>st</sup> fret. So, the 1<sup>st</sup> and 6<sup>th</sup> strings are the root note, G. The 5<sup>th</sup> note is also present (doubled) on the 2<sup>nd</sup> string.

Here is another example using the A shape:



This is the standard A chord. The root note (A, 3<sup>rd</sup> string) is inside the “core”, as usual, along with the 3<sup>rd</sup> (C#, 2<sup>nd</sup> string) and 5<sup>th</sup> (E, 4<sup>th</sup> string). For this shape, the root note also appears on the 5<sup>th</sup> string, and the 5<sup>th</sup> note appears on both the 1<sup>st</sup> and 6<sup>th</sup> strings. These are called “doublings”.



This version of the C chord uses the barred A shape. Notice that the root note is again on the 5<sup>th</sup> string, and the 5<sup>th</sup> note appears on the 1<sup>st</sup> and 6<sup>th</sup> strings.

If you keep these relationships in mind while playing both open and barred chords, you’ll find that you can easily learn large portions of the fretboard without any additional memorization.

## 12 Summary

The idea presented here is that of “cross-familiarization”.

- By recognizing the cores of chords, you can learn the roles of the notes in a chord, such as 1<sup>st</sup>, 5<sup>th</sup>, 3<sup>rd</sup> and others.
- By recognizing the role of a note in its chord you can learn the exact note you’re playing on the fretboard while you finger the chord.

In other words, when you’re playing a barre chord you can find the **CAGED** core triad and quickly learn what note you’re playing on the fretboard. You can also use the other note relationships to discover fretboard notes outside the “core”.

Although this document only addresses a common part of standard chords, this simple idea can go a long way towards revealing both the fretboard and chord-key relationships. This idea could be extended to other parts of standard chords and to

non-major chords, but it is usually the case that by the time someone has mastered the basic relationships of the major chords in all 12 keys that person also knows the entire fretboard.

The goal of all this is for the performer to have all these relationships "in memory" and no longer think in terms of the physical fingering of certain chord.