

MUSIC THEORY FOR GUITAR PLAYERS

in plain English

An in-depth guide to scales, chords and the fretboard

By **BOBBY KITTLEBERGER**

GUITAR CHALK

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Introduction

I believe there are two misconceptions about music theory that ought to be dispelled. First, that music theory is inherently difficult and unlearnable for the “average joe” who just wants to pick up a guitar and play.

Music theory isn't a burdensome nuisance that aspiring guitarists need to put up with.

Rather, it's a helpful structure that provides clarity and a greater chance of success, not just with the guitar, but in music as a whole.

The second misconception, is that music theory is not necessary to learn.

While it might be true that you can skirt by on little or no theory and still be a strong fretboardist, you will never truly know and understand *why* you're playing what you're playing without a firm knowledge of music theory. I would argue that theory is fundamental to the guitar, even critical.

Yet, I'm not here to tell you that you must read sheet music, understand the full breadth of what it means to “compose,” or be capable of acing formal music theory courses.

If that were the goal, I myself would be woefully inadequate to write this book.

Because I'm not a theory "guru" or a classically trained musician.
And the good news is that *you don't have to be either.*

The goal is not to be a master of music theory, but instead to learn the basic tenets of theory that *directly* apply to the guitar.

And what's even better news, is that we can learn those tenants fairly quickly using plain English that's easy to understand and to put into practice. By the time you're done with this book you'll know theory and, more importantly, you'll know music.

Further, you'll be in a position to apply it to the guitar. As a pleasant side effect, the fretboard will make more sense to you as a helpful grid, instead of a confusing challenge.

I sincerely hope you enjoy the process.

Robert "Bobby" Kittleberger

SECTION I:

WHY MUSIC THEORY MATTERS

I don't know anything about music theory at all. Zero. - Amos Lee

Guitar players, and many guitar teachers, are quick to dismiss music theory.

Their reasons will vary. Some believe it isn't necessary or helpful. Others find it too difficult or not as relevant to the guitar as it might be to other instruments, like the piano.

Even many of music's most renowned contributors have commonly minimized the discipline of learning theory or "music as a whole."

Take the king of rock and roll himself, Elvis Presley:

I don't know anything about music. In my line, you don't have to.
- Elvis Presley

Frank Zappa offers a far more unfavorable view of what it means to compose:

A composer is a guy who goes around forcing his will on unsuspecting air molecules, often with the assistance of

unsuspecting musicians. - Frank Zappa

While this is certainly not the view of *all* musicians, there's an oddly pervasive sentiment that music theory is stifling and obstructive; that it's antithetical to musical freedom and creative expression.

This sentiment often causes aspiring guitarists to avoid music theory all together. Because, in the world of the arts, what seems rigid and academic will always lose ground to what is said to be freeform and unbounded.

Thus the music world at large, and it's lean towards free, artistic expression, has in many instances, been prone to minimize music theory and downplay the value of musical structures. This has contributed to the idea that music theory isn't necessary outside of formal education.

Even if you get into the realm of classical composition.

Claude Debussy, a renowned French composer, put it this way:

There is no theory. You have only to listen. Pleasure is the law. I love music passionately. And because I love it, I try to free it from the barren traditions that stifle it. It is a free art gushing forth, an open air art, boundless as the elements, the wind, the sky, the sea.

It must never be shut in and become an academic art.

Debussy obviously had a love-hate relationship with music theory.

While one could empathize with the sentiment of what Debussy is saying, it's difficult to agree with, or accept the implications of, this view of music for a couple of reasons.

First, there certainly *is* theory. In fact, music means nothing to us without it.

Second, music theory and “barren traditions” are not one in the same. Traditions, in and of themselves can be good or bad. They are fluid, highly subjective trends that depend on one's culture, skill level and stylistic leanings.

Boiling theory down to simple tradition and equating the two is intellectually simplistic and a bit irresponsible.

While music is certainly free and expressive, it is most optimally expressed within the structural confines of music theory.

Theory supersedes tradition and has input into *every* type and style of music, regardless of how creative (or uninspired) it might be.

Throwing off the academic aspects of music does both the teacher and the student a disservice. While music is certainly free and

expressive, it is most *optimally* expressed within the structural confines of music theory.

In other words, music is **variety within structure**, which Debussy, if he were more aware of his own analogy, would know that the elements are as well. The sea, the sky and the wind are extremely varied, yet they exist and function within a well-established scientific structure and creative order.

Furthermore, the structure that music theory provides is *far larger* than the expanse of our own creativity, which is often severely limited by style, preference and abilities.

In other words, theory provides the foundation for your ideas to naturally flow. Thus, the most powerful argument for needing to know music theory is that it provides governing borders that *supports* our creativity. They are one another's strongest allies.

I would also add that there is a lot of music theory that guitar players don't need to know, simply because it is not directly applicable to our instrument.

Many lanes of music theory are vast, complex and even mathematical. Therefore it's not necessary (or even productive) that we be experts in all of these facets. In this book, I'll show you what portions of theory are worthy of your attention and most relevant to your instrument of choice - the guitar.

This will benefit you primarily in three ways:

1. It will help you put **words (definitions) and correct terminology** behind simple musical concepts and structures.
2. It will allow you to **more effectively converse and collaborate with musicians** who are formally educated in music.
3. It will help you **understand music as a whole**, as opposed to guitar as a single entity.

One of the primary goals of our musicianship, and our guitar playing, should be the third item in this list. We need to understand *music*, not just our guitar. If we glean a comprehensive understanding of music and composition, then what happens on the fretboard will make more sense to us.

To help you get there, I'll start with the simplest building blocks and work upward.

SECTION II:

WHAT IS A NOTE?

After one has played a vast quantity of notes and more notes, it is simplicity that emerges as the crowning reward of art. - Frederic Chopin

The first question we need to answer is a simple one:

What is a note?

Further, how do we make sense of those notes when we're looking at *just* our fretboard, without theory books or instructional material to lean on, in the moment?

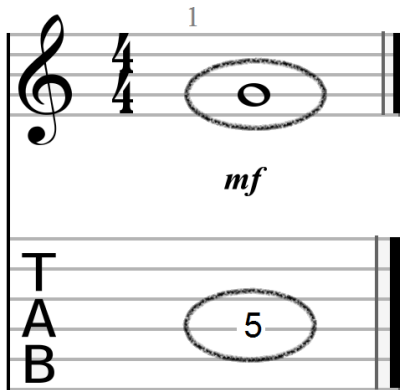
Understanding notes - music's most elementary building block - is the first step towards understanding the theory that underscores the fretboard. If we can comprehend what's happening when we're playing one note, we can build our knowledge base out from there.

This will help us understand theoretical concepts in **proper order**. Notes beget intervals, intervals beget tetrachords, tetrachords beget the major scale and so on.

As you step through each item in proper order, the fretboard will begin to make sense to you and you'll start to see the pieces connect.

Definition of a Note:

According to Jean-Jacques Nattiez, a well-known professor of Musicology at the University of Montreal, notes can be thought of the “atoms” of the music world, providing the foundation for all musical analysis and discretization.



A note displayed, both as tablature and standard notation.

Aside from being an audible sound, a note has primarily two properties; **pitch** and **duration**.

TWO PROPERTIES OF A NOTE



Duration, the easier of the two concepts, simply refers to the length of time that a note is audible or “held.”

This is the length of time that a guitar string is vibrating and creating a wave frequency. When the vibration stops, the note has ended, and we have completed the duration of the pitch.

What is Pitch?

Defining pitch is a more ambiguous and difficult venture.

Anssi Klapuri, in *Signal Processing Methods for Music Transcription*, penned this definition:

*Pitch is a perceptual attribute which allows the **ordering of sounds on a frequency-related scale** extending from low to high.*

While the science involved is complex, the practical implications are rather simple: Musical pitch, indicated by the first seven letters of the alphabet, allows us to order sounds based on **how high or low** they might be.

Thus, a musical scale (more on these later) will run from low to high, where each note has a letter value used to indicate pitch, going from A to G:

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

This ordering of notes is what ultimately creates melody, which is simply a sequence of variable pitches strung together. In other words, a series of pitches gives us scales which provide a grid for melodic creativity.

Notes beget scales which beget melody

On the fretboard, this happens when you play a grouping of notes together in a linear line, one after another:

Take the following score and tab sheet, for example:

The image shows a musical score and a guitar tab for an ascending scale. The score is written in 4/4 time, starting with a treble clef and a *mf* dynamic marking. The notes are: G4 (fret 5), A4 (fret 7), B4 (fret 9), C5 (fret 10), D5 (fret 12), E5 (fret 14), F5 (fret 16), and G5 (fret 17). The notes are grouped into two measures: the first measure contains G, A, B, and C, and the second measure contains D, E, F, and G. The guitar tab below the score shows the fret numbers for each note: 5, 7, 9, 10, 12, 14, 16, and 17.

An ascending melody, where the pitch is getting higher as it advances up the fretboard.

The pitch gets higher as you ascend up the fretboard toward the 17th

fret. If you play through the pattern backwards (descending), you'll hear the melody start high and end low on the fifth fret.

This is how the guitar is set up. The higher you go on the fretboard, the higher the pitch of the note you're playing and vice versa.

The fretboard is unique in that you can have the exact same pitch at multiple points. This is not true with keys on the piano.

For example, take a look at the following tab:

The image shows a musical staff in 4/4 time with a treble clef. The first note is a half note on the first line (E4), marked with a '1' above it. The second note is a half note on the second space (E5), marked with an 'mf' below it. Below the staff is a guitar tab with three lines labeled 'T', 'A', and 'B'. The 'T' line is empty. The 'A' line has a '7' under it. The 'B' line has a '2' under it. A double bar line is at the end of both staves.

Two E notes of the exact same pitch.

Both are the exact same E note.

Notice how the two notes on the notation (above the tab lines) are identical.

There are a number of instances on the fretboard where you can have the exact same pitch at different fretboard positions.

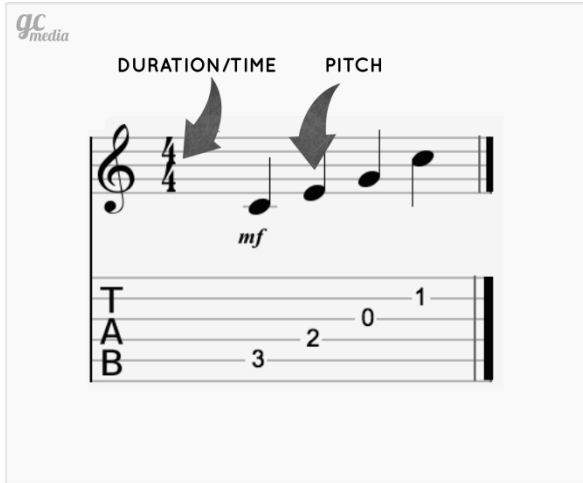
In a fretboard context, pitch is easily understood and applied in a linear line on each individual string, where some of the notes on those strings will coincide and thus “cross paths.”

Notes in Sheet Music and Tablature

In standard notation or “sheet music,” both properties of a note - pitch and duration - are discernable.

You can see in the diagram below where the time signature and notes are displayed. The type of note used (quarter, eighth, sixteenth, etc.) is also used to indicate timing.

Time signatures and note types work in conjunction to allow musicians to keep time simply by sight reading (more on timing and note duration later).



The diagram shows a musical staff in 4/4 time with a treble clef. The first measure contains four quarter notes: G4, A4, B4, and C5. The second measure contains four eighth notes: G4, A4, B4, and C5. The dynamic marking *mf* is placed below the first note. Two arrows point to the first note: one labeled 'DURATION/TIME' pointing to the stem, and one labeled 'PITCH' pointing to the note head. Below the staff is a guitar tablature for the bass string (labeled 'B') with fret numbers 3, 2, 0, and 1 corresponding to the notes above.

IDENTIFYING NOTES IN NOTATION

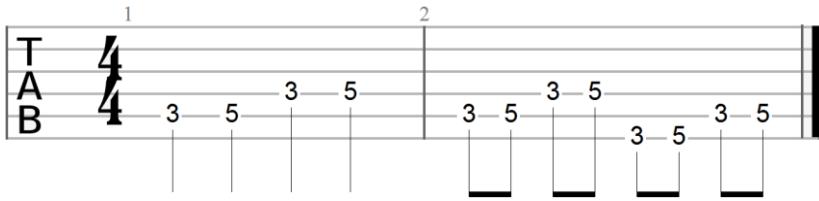
Both the pitch and duration of each note can be measured in sheet music.

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However, in tablature (“tabs” for short) a note’s pitch is displayed by the corresponding location on the fretboard via a fret number, often without any way to account for duration. This doesn’t mean tablature isn’t usable, but it does mean you have to be able to figure out the timing of each note intuitively.

In some cases, particularly when you’re dealing with notation software, guitar tabs will be displayed in measures accompanied with lines that indicate the note’s duration.

For example, in the following tab you have the time signature (displayed at the beginning in 4/4), and lines indicating quarter notes in the first measure and eighth notes in the second (more on quarter and eighth notes later):



Though in most cases, tablature is display simply using Courier font. If we took the tab from the above diagram, it would look like this:

```

E|-----
B|-----
G|-----
D|-----3--5-----3--5-----
A|--3--5-----3--5-----3--5-----
E|-----3--5-----
    
```

There's no way to discern timing in this format and, in most cases, measures are not indicated either.

While all of this means that guitar tab sheets could be problematic for the committed sight reader, most guitar players are more comfortable with raw tabs than with formal sheet music, simply because tabs are easier to understand and read.

Losing the ability to determine timing is deemed an acceptable casualty.

Naturals and Accidentals

Remember how I started off showing you the seven letters used to

indicate a given pitch?

You may have thought, “If there are only seven letters, how do we get so many frets?”

“Further, what notes do they all represent?”

Having so many frets is possible partly because there are two different kinds of notes:

1. Naturals
2. Accidentals

Natural notes are simply notes that have neither sharps nor flats attached to them. In other words, a natural is an unaltered pitch, thus cancelling any previous sign (sharp or flat).

Accidentals are just the opposite.

Any note with a symbol used to alter (raise or lower) a pitch by one semitone (equal to a jump of one fret - more on these later) would be considered an accidental. In other words, any note with a sharp or flat.

The image displays two musical staves. The top staff is in 4/4 time, featuring a treble clef and a first finger (1) above the first note. The first note is a natural G4 (circled and labeled 'Natural' with an arrow), and the second note is a flat G4 (circled and labeled 'Accidental' with an arrow). The dynamic marking *mf* is placed between the two notes. The bottom staff is a guitar tablature with strings labeled T, A, and B. It shows fret numbers 5 and 6 on the A string.

A natural and accidental displayed in a tab and standard notation.

Together naturals and accidentals make up all the notes of the musical spectrum and all the notes that are represented on the guitar's fretboard.

But what is a sharp and a flat? What do those terms mean?

To understand this in a guitar context let's focus on the fretboard in its entirety.

Fretboard Memorization: Learning the Notes

Take the third fret on the fourth string for example:

A musical score in 4/4 time, treble clef, featuring a single half note on the first line of the staff. The note is marked with a '1' above it and a dynamic marking of *mf* below it. Below the staff is a guitar TAB with the letter 'T' on the first line, 'A' on the second, and 'B' on the third. A horizontal line with the number '3' is drawn across the second and third lines of the TAB, indicating the fretting for the note.

This note is an F; a natural note.

Now, let's look at the note on the fifth fret. It's a G, another natural note.

A musical score in 4/4 time, treble clef, featuring two half notes. The first note is on the first line, marked with a '1' above it and a dynamic marking of *mf* below it. The second note is on the second line. Below the staff is a guitar TAB with the letter 'T' on the first line, 'A' on the second, and 'B' on the third. Horizontal lines with the numbers '3' and '5' are drawn across the second and third lines of the TAB, indicating the fretting for the two notes.

What about the one in the middle at the second fret?

The image shows a musical staff in treble clef with a 4/4 time signature. A first finger fingering '1' is placed above the first note. The notes are G4, F#4, and G4. The dynamic marking 'mf' is below the staff. Below the staff is a guitar TAB with fret numbers 3, 4, and 5, where the number 4 is circled.

That note is an accidental and has *two* values. It's both:

1. An F#
2. And a Gb

The technical term for these two notes is an **enharmonic equivalent**, a concept which does present some complexities.

Namely, it does not mean that they are the *exact* same note. On a guitar fretboard and a piano keyboard they are, but in music theory, they are separated by what's called a **comma**.

In *Grove's Dictionary of Music and Musicians*, a comma is defined this way:

*A comma is **very minute interval of sound**, the difference resulting from the process of tuning up by several steps from one note to another in two different ways.*

The good news is that as a guitar player you don't need to know the gory details of commas and how they actually work, simply because they don't impact your playing beyond fretboard memorization.

What you need to keep in mind is that enharmonic equivalents, like F# and Gb are similar but not *identical* in a theoretical sense.

An understanding of sharps and flats tells us the following about reading the fretboard: If you put the sharp symbol *after* a note, you are indicating that the note is one semitone higher in pitch than the letter that *precedes* the sharp symbol.

For example:

The following tab gives us a natural C note:

The image shows two staves. The top staff is a treble clef with a 4/4 time signature. A single note is written on the first line (F4), marked with a '1' above it and 'mf' below it. The bottom staff is a guitar tab with the letters 'T', 'A', and 'B' on the first three lines. The number '8' is written on the eighth fret line and is circled. Below the tab, the text 'C note' is written.

If we move up one semitone (to the ninth fret) we get a C#:

The image shows a musical staff in 4/4 time with a treble clef. The first measure contains two notes: a C4 (open string) and a C#4 (first fret). The dynamic marking *mf* is placed below the notes. A finger number '1' is written above the first note. Below the staff is a guitar fretboard diagram with strings labeled T, A, and B. The 8th and 9th frets are circled, with the text 'C and C#' centered below them.

At this spot on the fretboard, C# and Db are enharmonic equivalents, though not technically the exact same note. Thus we call this note C# and not Db.

Flats are exactly the opposite. A flatted note indicates that the pitch it represents is one semitone **lower** than the letter that precedes it. Therefore a Bb is one fret beneath wherever the B occurs on the fretboard.

The image shows a musical staff in 4/4 time with a treble clef. The first measure contains two notes: a B4 (second fret) and a Bb4 (third fret). The dynamic marking *mf* is placed below the notes. A finger number '1' is written above the first note. Below the staff is a guitar fretboard diagram with strings labeled T, A, and B. The 9th and 8th frets are circled, with the text 'B and Bb' centered below them.

Taken together, natural notes, flats and sharps give us all notes that exist on a guitar's fretboard. This is how we have a 12 to 24 fret system, where notes don't repeat themselves on any one string until

the 12th fret.

We can further explore (and memorize) the fretboard notes by looking at this concept in the context of chromatic scales.

Chromatic Scales and Sequences

The proper definition of a chromatic scale is the following:

A scale (usually with 12 pitches) where each pitch (note) falls one semitone after the other.

Helen Cooper, in *The Basic Guide to How to Read Music*, defines chromatic scales this way:

*A chromatic scale may start on any note and then ascend or descend through **twelve consecutive half steps** until the tonic, one octave above or below, is reached.*

As Cooper points out (and as I mentioned previously), these pitches can be arranged in either an ascending or descending pattern.

Ascending Chromatic Scale in the key of E

mf

T									
A					6	7	8	9	10
B	7	8	9	10					

Descending Chromatic Scale in the key of E

mf

T
A
B

9 8 7 6 10 9 8 7 6 10 9 8

Chromatic scales can also be referred to as equal-tempered scales, since each semitone is equally spaced.

In the example above you can see that our scale begins at the scale's root, while the E note at the seventh fret, on the fifth string. It then ends at an E note, on the ninth fret and third string, which is one octave higher.

The formal chromatic sequence would usually include every note except the final octave. Adding it simply resolves to the root of the scale.

We can also think of a chromatic scale as the first 12 notes from the first to the 12th fret in a straight line, which is easier to visualize:

Ascending Chromatic Scale on the Sixth String (E to E)

1 2 3

mf

T
A
B

1 2 3 4 5 6 7 8 9 10 11 12

Ascending Chromatic Scale on the Fifth String (A to A)

1 2 3

mf

T
A
B

1 2 3 4 5 6 7 8 9 10 11 12

Musically, the latter tab is no different than the one that precedes it, aside from the fact that it is an octave lower.

This is how we begin to memorize the fretboard, by identifying each note on a given string from the first fret all the way up to the 12th fret, at which point the pattern simply repeats itself.

Let's start by memorizing the fretboard notes for the sixth string.

Memorizing the 6th String Fretboard Notes

You should start the memorization process on the sixth string for a couple of reasons:

First, it's an open E, while the first string (the thinnest) is also an open E. Learning one means you've learned both and you've knocked out one third of the strings that need to be memorized.

Second, it gives you a reference point for root notes that we'll use to memorize the rest of the fretboard. If you don't know what a root note is, we'll get to it shortly.

To begin, let's simply write the sixth string notes out in order going from the first fret to the 12th:

The image shows a musical score for the sixth string of a guitar. The top staff is in treble clef, 4/4 time, and contains a chromatic scale of eighth notes: F, F#, G, Ab, A, Bb, B, C, C#, D, Eb, E. The first measure (frets 1-4) is marked with *mf*. The bottom staff is a guitar TAB with fret numbers 1-12 and corresponding note names: F, F#, G, Ab, A, Bb, B, C, C#, D, Eb, E.

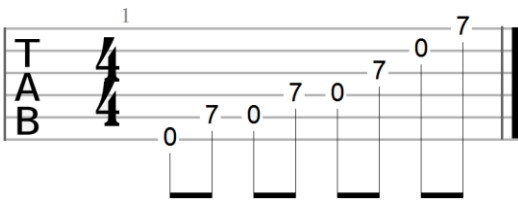
Remember, the open note of this string is E, so you're going from the low E note to the high E note. This is the same thing that we saw in the chromatic scale examples, meaning you have two notes that are separated by one octave.

On the fretboard, octaves are always separated by 12 frets (semitones). You can find octaves by learning a couple easy cheats.

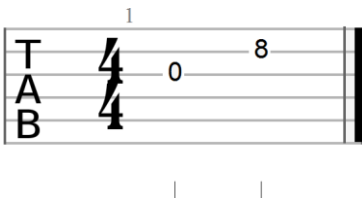
Try this:

1. The open note and the note at the 12th fret on each string are always each other's octave, therefore the same note.
2. The open notes for the sixth, fifth, fourth and second strings have an octave on the following string located at the seventh fret:

For example:



The third string finds its octave on the eighth fret, per the following tab:



This is just because of the way standard tuning is structured.

So, octaves are the same note; one is just 12 semitones higher than the other.

The fifth string (the low A) would be handled the same way as the sixth string. Simply begin with an open A and work your way up in the same order:

The image shows a musical staff in 4/4 time with a treble clef. The notes are: B \flat (fret 1), B (fret 2), C (fret 3), C \sharp (fret 4) in the first measure; D (fret 5), E \flat (fret 6), E (fret 7), F (fret 8) in the second measure; and F \sharp (fret 9), G (fret 10), A \flat (fret 11), A (fret 12) in the third measure. A dynamic marking of *mf* is placed under the first note. Below the staff is a fretboard diagram with fret numbers 1 through 12. A box below the fret numbers contains the following note names: B \flat , B, C, C \sharp , D, E \flat , E, F, F \sharp , G, A \flat , A.

Repeat this process for the fourth, third and second strings.

Using Dyads to Make Memorization Easier

Most people find it's easy to learn the notes of the sixth and fifth strings.

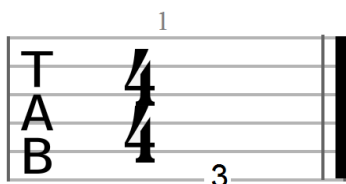
But, at the same time, folks have trouble making the push to learn the rest of the strings, the fourth, third and second (remember, the high and low E strings are the same, so knowing the sixth string means you know the first).

However, by using the sixth and fifth strings as reference points, we can utilize dyads to “cheat” and find notes on both the fourth and third strings, leaving only the second string (open B) to memorize.

How does it work?

To use this technique, we need the root of the dyad to fall on either the sixth or fifth string. Let's pick a note on the sixth string that we know.

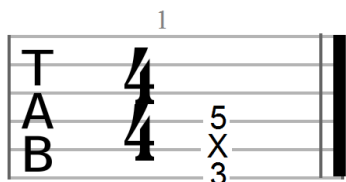
In this case, our note is a G located on the sixth string at the third fret:



Now, if we move up the fretboard two semitones and two strings higher (to the fourth string) we can identify the root note on the fourth string as an octave of the note on the sixth.

In other words, they're both the same.

These two G notes are displayed in the following diagram.



Let's try one more example:

Begin with a root note on the sixth string. Let's say, at the fifth fret.

This note is an A.

If we know that much, we can use a common dyad (more on these later) to find the corresponding note on the fourth string.

Simply move two frets up on the sixth string:

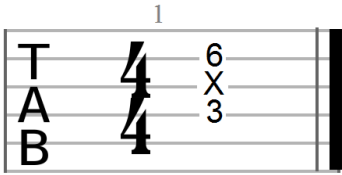


Then move to the fourth string on that same fret.

That note, now on the seventh fret, is also an A and the octave of the note we started on at the fifth fret and sixth string.

This same tactic can be applied to the third string via the notes on the fifth string moving three frets up instead of two. Once again, this is to account for the structure of standard tuning.

Here's your octave:



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