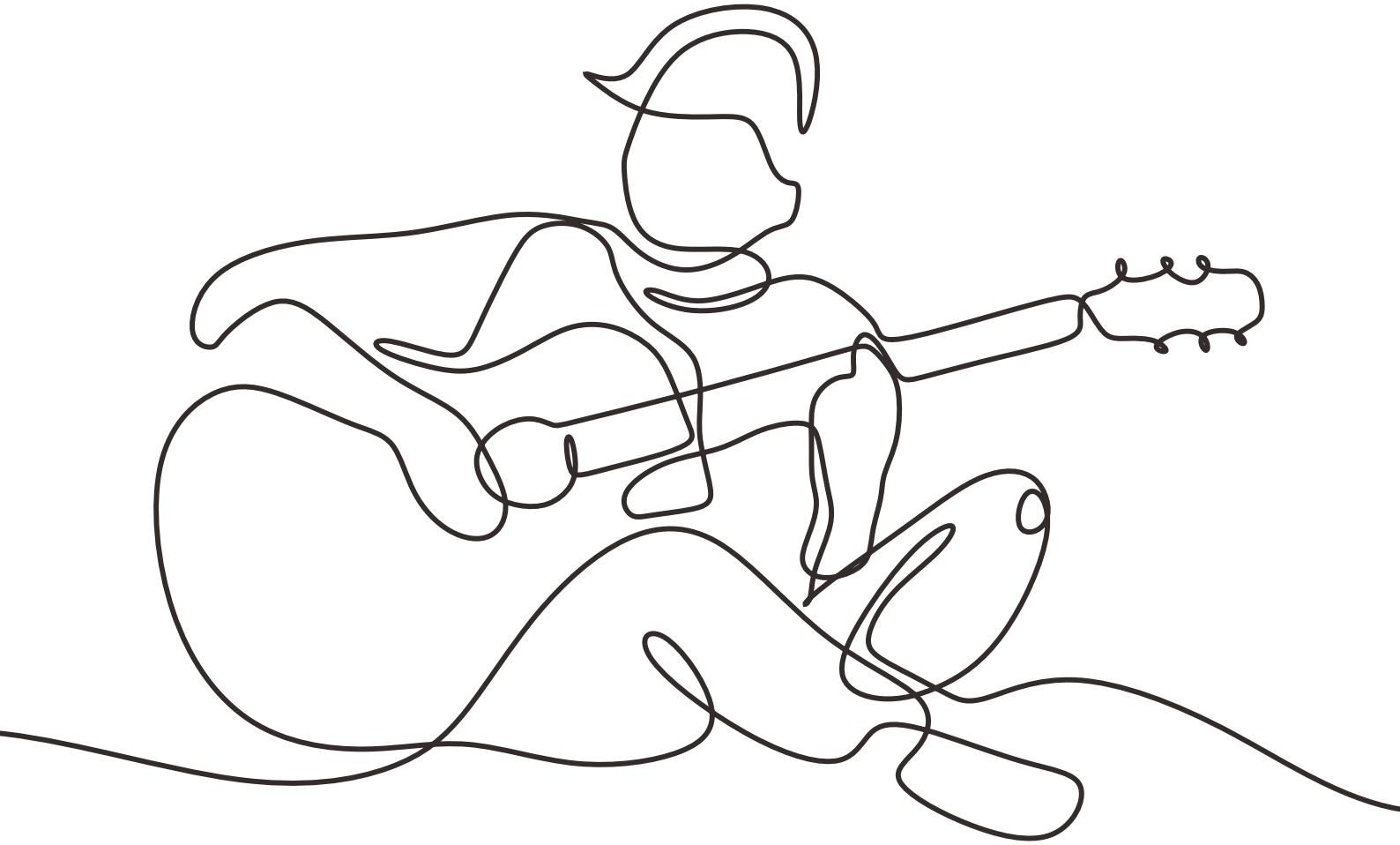
# Guitar Theory
## Quick Start Guide



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Welcome to the AcousticGuitarist.com's "Guitar Theory - Quick Start Guide," an introductory guide to unravelling the mysteries of music theory as it applies to the guitar.

In the world of guitar, understanding theory can often seem like a daunting task, but it is the key that unlocks limitless creative possibilities. Whether you're picking up the guitar for the first time or seeking to deepen your musical understanding, this guide provides a roadmap for mastering the fundamental concepts that underpin music theory.

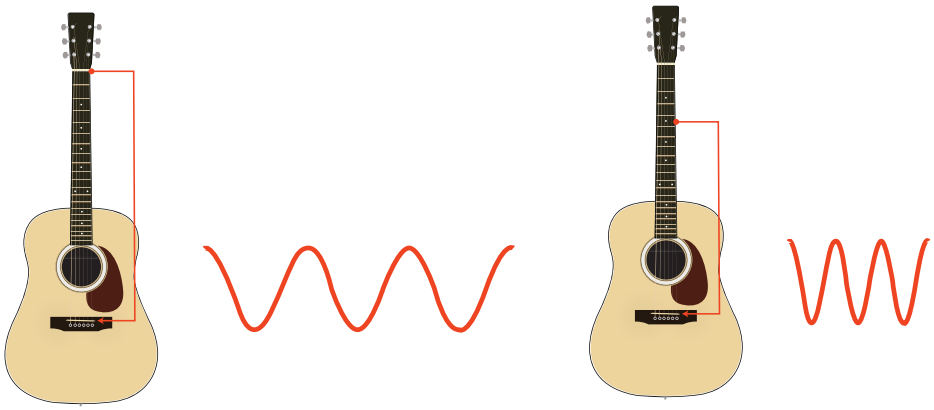
By the time you reach the final pages, you'll not only have a solid grasp of the foundational aspects of music theory but also a newfound appreciation for the language of music that will undoubtedly enhance your playing journey.

## Sound is Vibration

When something vibrates (e.g. guitar strings, vocal cords) pressure waves are formed known as sound waves. Soundwaves displace surrounding air particles, setting off a wave-like series of vibrations that are detected and amplified by the inner workings of the ear before being perceived as sound by the brain.

Sound can vary in pitch (based on the frequency of vibrations), volume (based on the amplitude (height) of the soundwave), and timbre (related to the interplay of different frequencies). It is timbre that distinguishes different musical instruments or voices, even when they produce the same pitch or volume.

## Frequency and Pitch



In music, the frequency of a sound wave is measured in Hertz (Hz), which indicates how many completed vibrations occur in one second.

Each note on a musical instrument corresponds to a specific frequency. For instance, a high E string on a guitar vibrates at a frequency of approximately 329.63 Hz, which means it completes 329.63 cycles of vibration in one second.

When you press your finger down on the fifth fret of the high E string, you are shortening the length of the vibrating section of the string. This reduction in length causes the string to vibrate more rapidly, completing more cycles per second. As a result, the frequency of the string increases to 440 Hz when you fret the fifth fret.

This higher frequency translates to a higher pitch, which is why the note at the fifth fret (A) sounds higher than the open high E string.

While dogs, for example, can hear much higher frequencies, humans can hear between 20Hz and 20,000Hz (20Khz).

# Notes

Notes represent pitches that musicians use to create melodies and harmonies. In western music, there are seven natural notes named A, B, C, D, E, F, and G, which correspond to specific frequencies.

## Accidentals

Accidentals, flats (b) and sharps (#), are alterations to natural notes. A sharp raises a note by a half step (1 semitone), making it sound slightly higher in pitch, while a flat lowers a note by a half step, making it slightly lower in pitch.

Accidentals occur between all notes, except B and C and E and F.

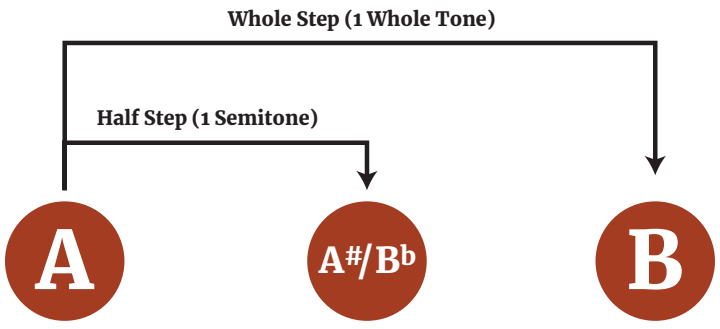

Sharps and flats are of the same frequency when ocurring between the same note letter names, in other words they are enharmonically equivalent.

For example, G# and Ab sound identical even though they have different names. Musicians use these different names to write music in different ways, depending on the harmonic context.

# Intervals

An interval in music refers to the distance between two notes. Intervals are important as they provide a way to describe the relationship between notes.

For example, the interval between two adjacent notes (e.g. A - A#) is one semitone (also referred to as a half step). The interval between A and B for example, is referred to as a whole tone, or whole step, because there is a note between A and B (A#/Bb).



Intervals are measured by encompassing both the distance in terms of letter names (like A, B, C) and the number of semitones (half steps) between the notes.

For example, the interval between A and C# is equal to 4 semitones, which is referred to as a major third interval (see below), while the interval between A and C is a minor third.

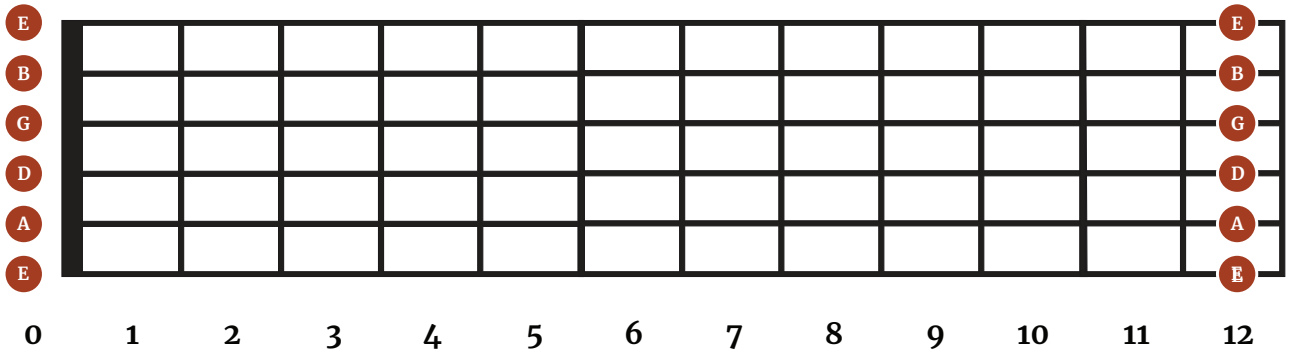
Both are thirds as the interval spans 3 letter names (A, B, and C) but the number of semitones defines the interval's quality e.g. perfect, major, minor, augmented, or diminished.

| Distance Between Frets/Notes | Interval |
|---|---|
| 0 | Unison (P1) |
| 1 | Minor 2nd (m2) |
| 2 | Major 2nd (M2) |
| 3 | Minor Third (m3) |
| 4 | Major 3rd (M3) |
| 5 | Perfect 4th (P4) |
| 6 | Augmented 4th/Diminished 5th (A4/D5) |
| 7 | Perfect 5th (P5) |
| 8 | Minor 6th (m6) |
| 9 | Major 6th (M6) |
| 10 | Minor 7th (m7) |
| 11 | Major 7th (M7) |
| 12 | Perfect Octave (P8) |

Intervals have characteristic sounds because they result from the specific relationships between the frequencies of two notes. These relationships create unique patterns of tension and consonance, giving each interval its emotional quality and musical flavor.

For example, perfect fifths sound stable and harmonious due to their simple frequency ratio, while minor seconds sound dissonant and tense because of their close, clashing frequencies. These qualities influence how intervals are used and perceived in music.

# Octaves




An octave is an interval that spans the distance between two notes with the same letter name, either higher or lower, while encompassing a doubling or halving of their frequencies. For example, middle C, or C4 has a frequency of 261.626Hz. C5 in the next highest octave is exactly double at 523.251Hz.

* C4 in music refers to a specific pitch: the note "C" in the fourth octave.

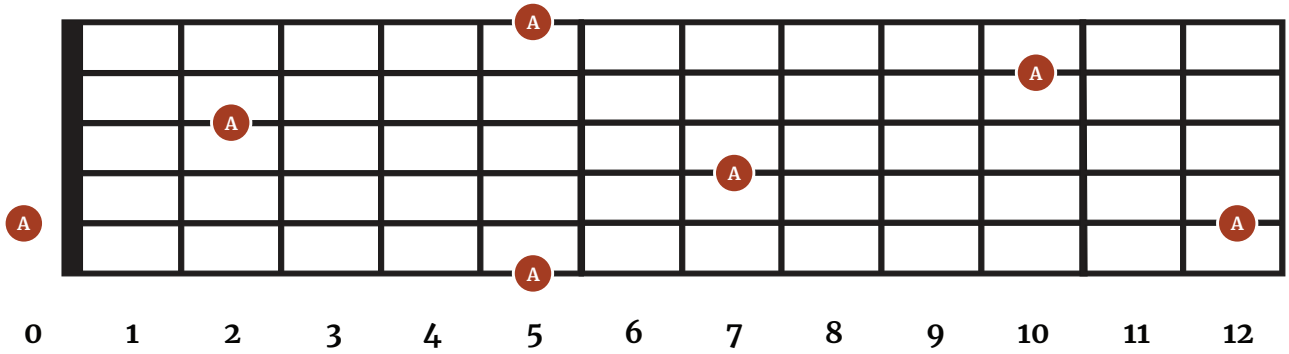
When you play an open string on your guitar and then play the same string at the 12th fret, your brain recognizes it as the same note, just an octave higher.

# 12 Tone Equal Temperament

Within the frequency range of human hearing (20Hz - 20,000Hz) there are 10 octaves, and within each octave 12 pitches. This is known as 12 tone equal temperament (12 TET for short), and is how western music essentially works.

Alternative musical systems around the world have simply broken down the octave into a different number of frequencies. For example Indian classical music employs 22 unique frequencies, offering a different perspective on musical intervals and tonality.

In simple terms all of this means, there are only 12 notes in western music. On the guitar, this means notes are repeated, either in unison e.g. of the same pitch, or in higher and lower octaves, as the diagram below demonstrates.



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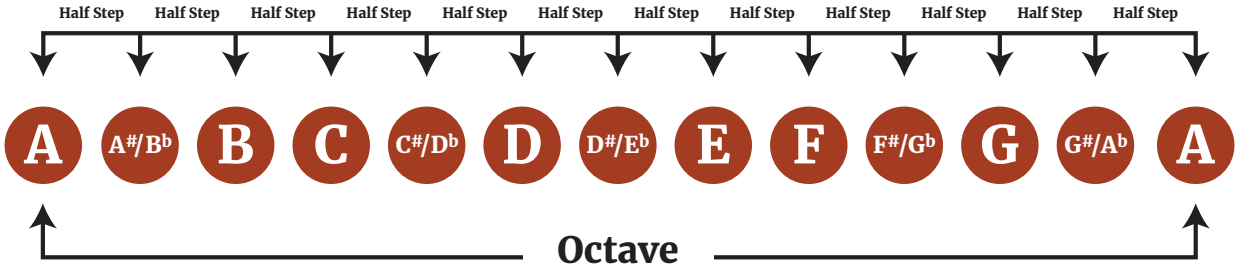
## The Chromatic Scale



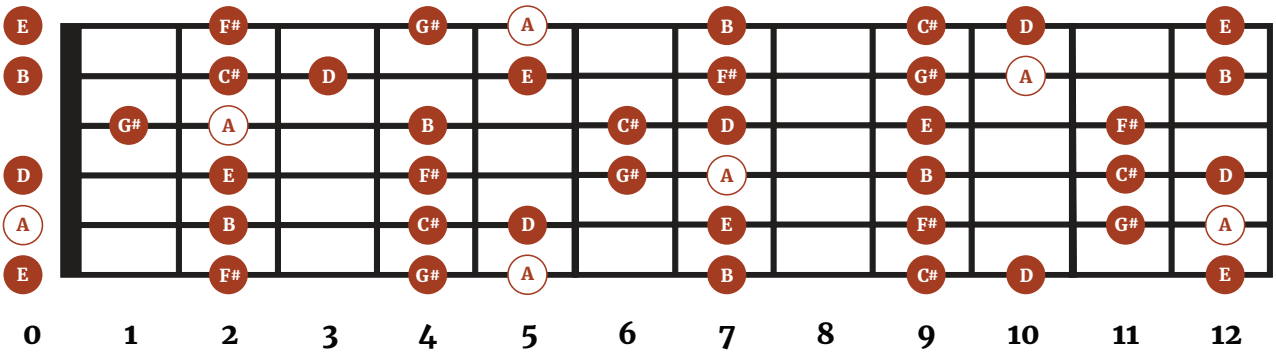

The chromatic scale is a musical scale that includes all twelve unique pitches within an octave including natural notes, and accidentals. The chromatic scale provides a complete representation of all possible pitches in Western music.

## Musical Keys

Keys serve as foundational frameworks that shape the tonal identity of musical compositions and are built around a specific note called the tonic. The tonic is the central point of reference for the key.

For example, if determining the notes within the key of A, we would begin on the tonic note of A, and then using a step pattern of whole (whole tones) and half notes (semitones) from the chromatic scale we can define the remaining notes of the key e.g. A (tonic) - B - C# - D - E - F# and G#.

We'll discuss the step patterns used shortly, but for now it's important to understand that once a key is established, it influences the selection of chords and melodies used in a composition. Below is an example of the guitar's fretboard showing all of the the notes in the key of A.




* You may hear the terms 'root' and 'tonic' used interchangeably in the context of music. 'Root' is correct when discussing harmony e.g. chords, while tonic is correct when referring to melody and/or scales, however, while not technically correct they are both often used when discussing harmony or melody.

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## Scales

**In music, a scale is a structured sequence of notes that ascend or descend in a specific pattern of intervals. Scales provide a structured framework for organizing and understanding musical notes and their relationships**

**We can build scales by referring to patterns of whole and help step intervals. The arrangement of intervals between the notes determine the scales unique sound and character.**

**Scales serve as the raw material for musical expression, offering a palette of tones that musicians use to craft melodies and harmonies. Below are the step patterns used for the most common scales.**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Major Scale** | | | | | | |
| Whole | Whole | Half | Whole | Whole | Whole | Half |
| **Natural Minor Scale** | | | | | | |
| Whole | Half | Whole | Whole | Half | Whole | Whole |
| **Melodic Minor Scale** | | | | | | |
| Whole | Half | Whole | Whole | Whole | Whole | Half |
| **Harmonic Minor Scale** | | | | | | |
| Whole | Half | Whole | Whole | Half | Whole + Half | Half |
| **Minor Pentatonic** | | | | | | |
| Whole + Half | Whole | Whole | Whole + Half | Whole | | |
| **Minor Blues Scale** | | | | | | |
| Whole + Half | Whole | Half | Half | Whole + Half | Whole | |

A A#/Bb B C C#/Db D D#/Eb E F F#/Gb G G#/Ab A

**Using the chromatic scale as a reference, pick a tonic note to first define the key, and then try constructing a few scales yourself using the step patterns from the table above. For example, if starting on C and using the natural minor scale step pattern of Whole, Half, Whole, Whole, Half, Whole, Whole we get the notes: C, D, E, F, G, A, and B.**

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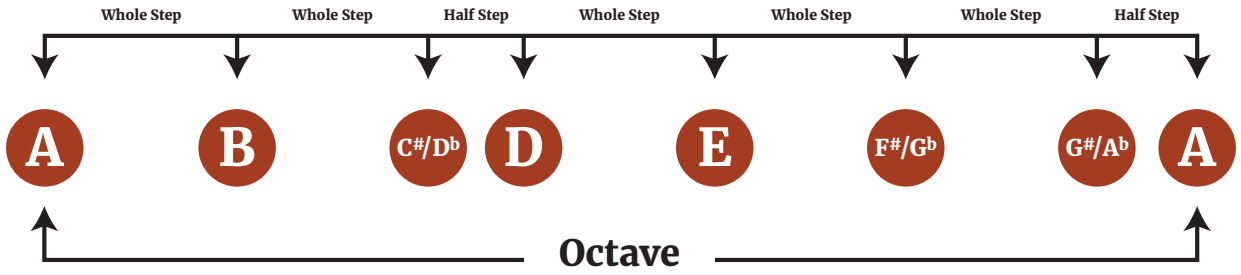
## The Major Scale

The major scale is derived from the chromatic scale by using the step-pattern of:
**whole - whole - half - whole - whole - whole - half**



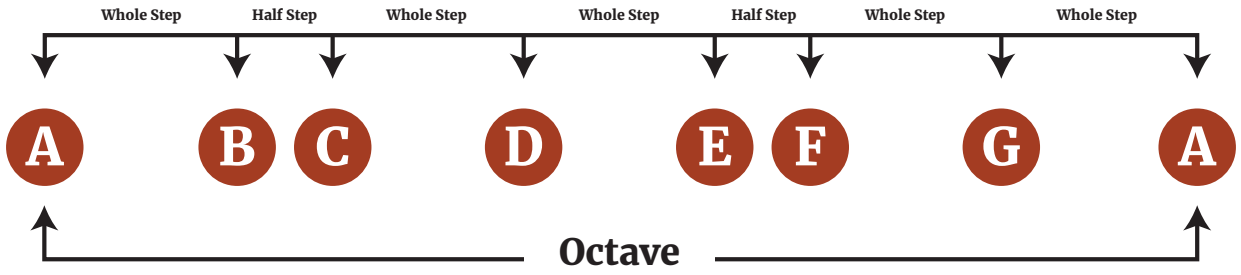

Aside from the chromatic scale, which ultimately serves as a musical pallete rather than a scale in a practical sense, the major scale is the most important scale of all , as it serves as a reference point for constructing scales and chords.

It is a crucial building block in music theory and practice. Its structure and properties underpin much of western music, making it an essential concept for musicians, composers, and music enthusiasts to grasp and utilize effectively.

As a result, learning the major scale's pattern of intervals provides a blueprint for understanding the relationships between notes, and the fundamentals of chord construction.

## The Natural Minor Scale

The natural minor scale is derived from the chromatic scale by using the step-pattern of: **whole - half - whole - whole - half - whole - whole**




The natural minor scale is another commonly used scale on the guitar. It has the ability to evoke a wide range of moods, from somber and introspective to mysterious and dramatic, making it a powerful tool for musical expression.

## Scale Degrees

Scale degrees can also be used in reference to both building scales and chords. In the context of scales, scale degrees indicate the position of each note within the scale's sequence of ascending or descending pitches.

For example, in the A major scale, the first note (A) is the tonic (1st scale degree), the second note (B) is the second scale degree, and so on.

In the context of chords, scale degrees can be used to determine the notes that constitute a particular chord. Chords are constructed by selecting specific scale degrees from a scale. For instance, an A major chord is built using the first, third, and fifth scale degrees of the C major scale. (more on chords shortly).

Along with intervals, scale degrees provide a consistent framework for building scales and constructing chords, enhancing a musicians' ability to understand and communicate the structure of melodies and harmonies in music.

## Scale Degree Names

Each of the scale degrees also have names that describe how they are expressed relative to the tonic note.

For example, the 7th scale degree is the 'leading tone' and it is called this because of its strong tendency to "lead" or "resolve" upward to the tonic, creating a sense of tension and a desire for resolution.

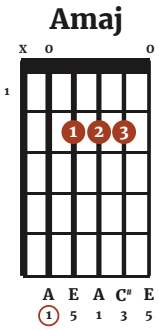
| Note | Scale Degree | Name |
|---|---|---|
| A | 1 | Tonic |
| B | 2 | Supertonic |
| C# | 3 | Mediant |
| D | 4 | Subdominant |
| E | 5 | Dominant |
| F# | 6 | Submediant |
| G# | 7 | Leading Tone |

# Guitar Chord Theory

A chord is any combination of three (or more) different notes played at the same time.

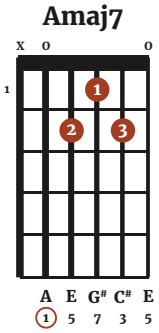
There are three categories of chords:

## Triads



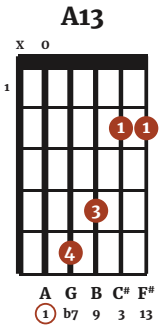

Triads are constructed using three notes. This doesn't mean when playing a triad on guitar that you only need to include 3 strings, the notes are often repeated e.g. the most common way to voice an E Major chord consists of 3 separate E notes.

## 7th Chords




7th chords consist of three notes + a major or minor 7th interval (a 7th above the root note). The seventh note adds complexity and color to the chord, creating a richer harmonic character. There are several types of seventh chords, each with its unique sound and function in music including major and minor 7th chords, along with dominant, diminished and half-diminished 7th chords.

## Extended Chords




Extended chords contain the same three notes as a triad + a major or minor 7th above the root + additional note/s beyond the 7th e.g. from the next highest octave.

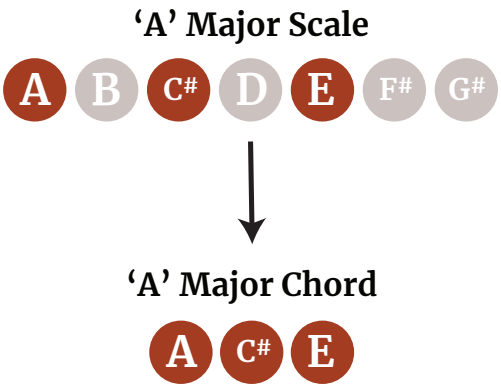
For example if building a Cmaj9 chord we include the basic triad (C-E-G) along with the major seventh (B) and the ninth (D).

You might be be thinking, but aren't there only 7 notes within a major scale? Yes, this is correct, the major 9th is the second note from the next highest octave.

Extended chords like the major ninth chord add layers of complexity and color to harmonies in music, enriching their sound with a broader range of notes while still maintaining the fundamental tonality of the major triad.

## The Relationship Between Chords And Scales

Chords are built by stacking thirds (adding notes that are a third apart from each other within a scale). This means the second note of a chord is a third above the root note and the third note of a chord is a third above the second note of the chord, which is a fifth above the root note).




A third is an interval that can be either major (spanning 4 semitones), minor (spanning 3 semitones), augmented (spanning 5 semitones), or diminished (spanning 2 semitones).

Major or minor chords are established based on the type of third the second note of the chord is. So, as you may have guessed, a major chord contains a major third, and a minor chord contains a minor third interval.

The table below shows the intervals from the root note (A) in the key of A Major.

| Note | Interval from Root Note (A) |
|---|---|
| A | Root (1st) |
| B | Major 2nd |
| C# | Major 3rd |
| D | Perfect 4th |
| E | Perfect 5th |
| F# | Major 6th |
| G# | Major 7th |
| A | Octave |

With this in mind, taking our newfound knowledge of how major chords are built (Root, Major 3rd, and Perfect 5th) we can construct an A major chord from the notes A (Root), C# (major 3rd), and E (perfect 5th).

If we were in the key of C, our C major chord would include the notes C (root), E (Major 3rd), and G (Perfect 5th).

On the following page I have included the formulas for building the most common chords using intervals.

| Chord Type | Formula | Example in the key of A |
|---|---|---|
| Major Triad | Root - Major 3rd - Perfect 5th | A - C# - E |
| Minor Triad | Root - Minor 3rd - Perfect 5th | A - C - E |
| Diminished Triad | Root - Minor 3rd - Diminished 5th | A- C - Eb |
| Augmented Triad | Root - Major 3rd - Augmented 5th | A - C# - F |
| Dominant 7th | Root - Major 3rd - Perfect 5th - Minor 7th | A - C# - E - G |
| Major 7th | Root - Major 3rd - Perfect 5th - Major 7th | A - C# - E - G# |
| Minor 7th | Root - Minor 3rd - Perfect 5th - Minor 7th | A - C- E - G |
| Half-Diminished 7th | Root - Minor 3rd - Diminished 5th - Minor 7th | A - C - Eb- G |
| Diminished 7th | Root - Minor 3rd - Diminished 5th - Diminished 7th | A - C - Eb - Gb |

*** Augmented describes raising the pitch of a perfect fifth interval by one semitone. Diminished means lowering the pitch by one semitone.**

## Using Scale Degrees To Build Chords

**Chords can be built using intervals or scale degree formulas based on the major scale.**

**For example, below is an A major scale:**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| A | B | C# | D | E | F# | G |

**Using scale degrees, we can construct an A major chord, for example, using the 1st, 3rd, and 5th scale degrees of the A major scale.**

**If we were building an A minor chord instead, our scale degree pattern would be 1, b3, 5**

**The flat symbol preceding the second scale degree indicates the note is to be flattened by a semitone making the interval a minor third rather than a major third. With this in mind the notes of an A minor chord are simply: A, C, and E**

**You can see a table showing the scale degree formulas for the m ost common chords by visiting here: [theacousticguitarist.com/guitar-chord-theory/](theacousticguitarist.com/guitar-chord-theory/)**

# Rhythm

Rhythm, can become quite complex when thinking in terms of simple and compound time signatures, note duration, metre and regular and irregular beats for example.

In most cases, a basic understanding of timing, strong and weak beats, and tempo will serve the typical guitarist well.

In the following section we'll cover these topics, but if you wish to learn more about the concepts of rhythm, including informaiton on time signatures and rhythmic notation you can read my in-depth article on rhythm here: theacousticguitarist.com/understanding-rhythm-notation-for-guitar/

## What is Rhythm?

The most common misconception regarding rhythm is that it is the beat of the song. But, that's not really the case. The beat is a constant underlying pulse that establishes the tempo of the music (more on tempo shortly).

Rhythm is built upon this pulse layer as a repeating pattern of sounds.

A simple way to demonstrate this is to clap or strum your guitar while counting in 4/4 time.

e.g. 1 – 2 – 3 – 4 | 1 – 2 – 3 – 4...

As you count, clap your hands on the 1, rest on the 2, clap on the 3, and rest on the four. In this exercise, you are clapping a rhythm while counting the beat.

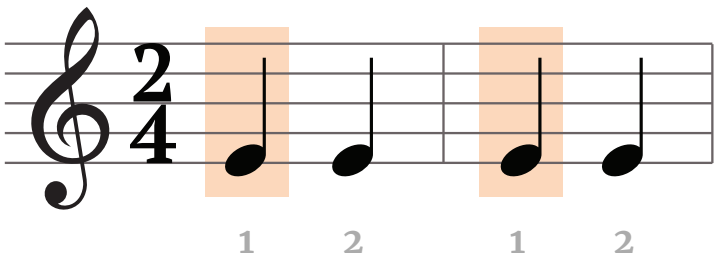
## Strong and Weak Beats

We create rhythm by emphasizing beats. For example, the first beat of a bar, referred to as the downbeat is accented, meaning it is given greater emphasis. This identifies it as the first beat of a bar and allows beats to be grouped around the accented beat. This grouping of beats is described as meter.

Alternatively, An upbeat is the last beat of the measure. It is not accented and being the last beat, comes directly before the downbeat, building anticipation for the downbeat.

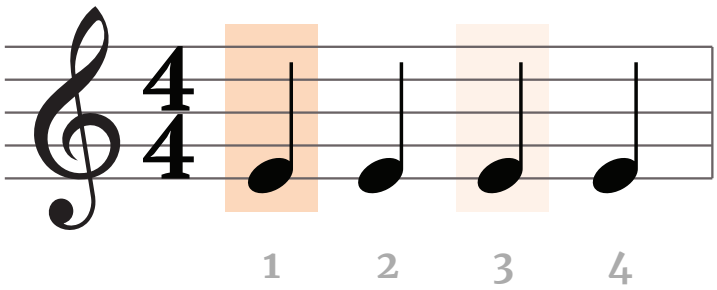
Let's take a look at a few examples to explain the concept more clearly.

## 2/4 Timing




In 2/4 time, the first beat of a measure is accented (e.g. given greater emphasis), shown in orange above.

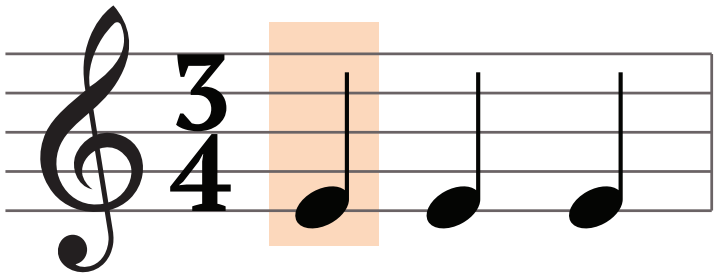
## 4/4 Timing




In 4/4 timing, beat 1 is usually the downbeat. While beat 3 is also often stronger than beats 2 and 4, but not quite as strong as beat 1.

This is the difference between 2/4 and 4/4 timing. If beat 3 were as strong as beat 1 there would be no audible difference.

## 3/4 Timing




3/4 timing is a 3-beat pattern in which the 1st beat is strongest, while beats 2, and 3 are weaker beats. It's essentially a waltz.

## Syncopation

Syncopation is a rhythmic technique where the emphasis is placed on the offbeat or unexpected parts of a musical measure rather than on the downbeat, which is the normally accented beat.

It creates a sense of rhythmic tension and adds complexity to the music's overall feel. Syncopation can be achieved by accenting weak beats, using rests to create unexpected silences, or emphasizing notes that fall between the main beats.

For example, in a 4/4 time signature, where each measure has four beats, a syncopated rhythm might emphasize the "and" of each beat (e.g., "1 and 2 and 3 and 4 and"), creating a sense of rhythmic surprise.

## Groove and Feel

Understanding groove and feel involves creating a sense of flow and emotion in music. It's about finding the right balance of timing and dynamics (variations in loudness and intensity throughout a musical piece) to make the music feel engaging and expressive.

## Tempo

The tempo dictates the speed of the music based on the pace of the constant pulse we described earlier.

The tempo of a song is measured in BPM (beats per minute).

For example, a song played at 120 BPM would be played at a tempo of 120 beats per minute. A song played at 80 BPM would therefore be played at a slower pace than 120 BPM.

It's important to remember tempo and rhythm are two entirely different things. Changing the rhythm of a song won't change the song's pulse, but it will change the feel of the music e.g. how you tap your foot to it.

Tempo plays a crucial role in shaping the mood and feel of a musical composition, influencing factors like rhythm, energy, and emotional expression. Musicians and composers use tempo markings (such as "allegro" for fast, "andante" for moderately slow, or "adagio" for very slow) to indicate the desired tempo for a piece of music, ensuring that performers and listeners experience the music as intended.

# Final Thoughts

I hope this guide has provided you with valuable insights, and practical applications that will enhance your understanding of music theory for guitar.

Remember, music theory is not just a set of rules; it's a gateway to creativity and expression. With a solid understanding of music theory, you'll have the tools to craft unique melodies, and harmonies, taking your guitar playing to new heights.

Keep practicing, exploring, and experimenting with what you've learned. Music is a lifelong adventure, and the more you delve into it, the more rewarding it becomes. Whether you're a beginner or an experienced guitarist, there's always room to grow and develop your musical abilities.

I sincerely hope that this eBook has inspired you to delve deeper into the art of playing the guitar and understanding the language of music.