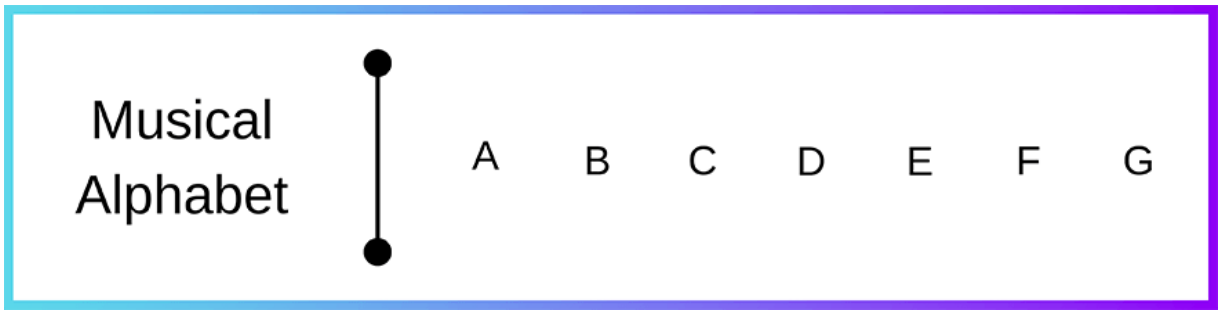
COMPLETE MUSIC THEORY

What is the musical alphabet?

Music is made using the musical alphabet, these are: **A B C D E F G**.

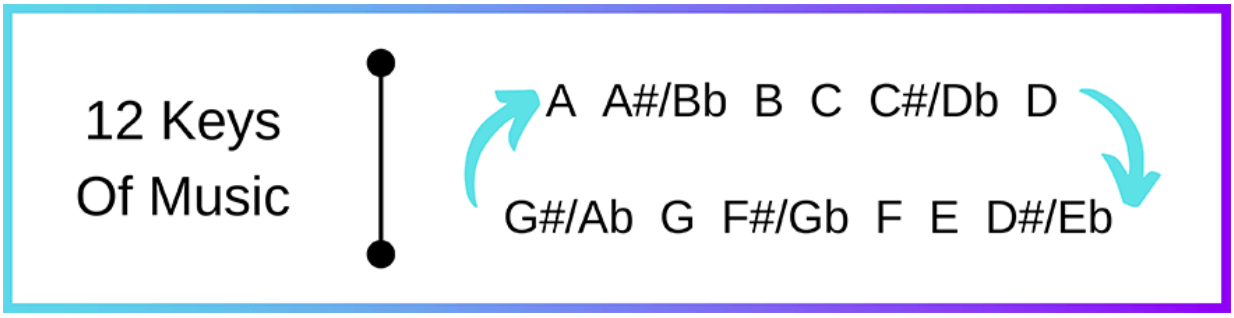


12 keys of music

Each letter of the musical alphabet can be distinguished by its own unique **natural pitch**, as well as a **sharp (#) / flat (b) pitch.**

A sharp has a slightly higher pitch than the natural pitch, and a flat has a slightly lower pitch.

Below are the 12 keys of music.



With consecutive letters of the musical alphabet, the sharp (#) / flat (b) notes both represent the same pitch, however depending on the key signature they would be phrased differently.

Note: *We discuss key signatures later in this post.*

B to C, and E to F are the only consecutive letters that don't have a #/b pitch. However, in certain scales they can be phrased as a #/b pitch. For example:

- B can be phrased as Cb
- C can be phrased as B#
- E can be phrased as Fb
- F can be phrased as E#

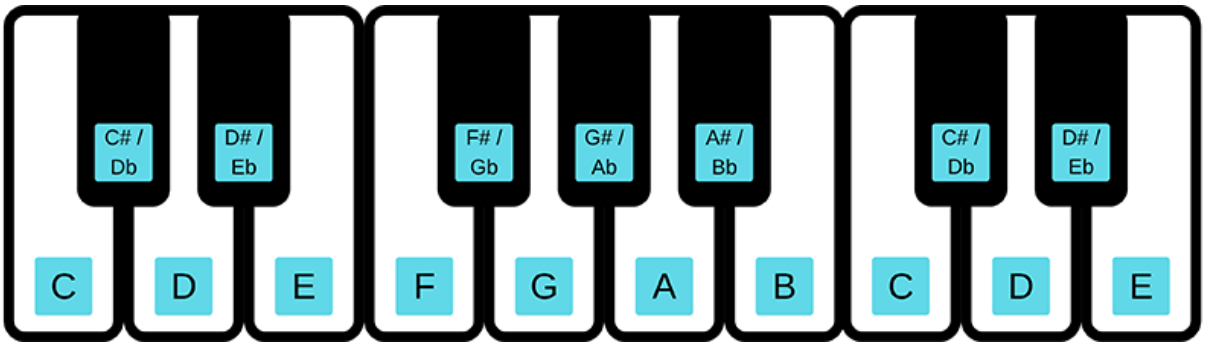
Notes that can be phrased differently but still have the same pitch are known as **enharmonic notes**, for example A# and Bb are enharmonic notes.

Natural and flat/sharp keys

Understanding the layout of notes is best represented using a piano/keyboard.

White keys on a piano are known as 'natural' notes of the alphabet, and the black keys on a piano are the 'flat/sharp' notes.

And as we can see B to C and E to F don't have a black key between them.



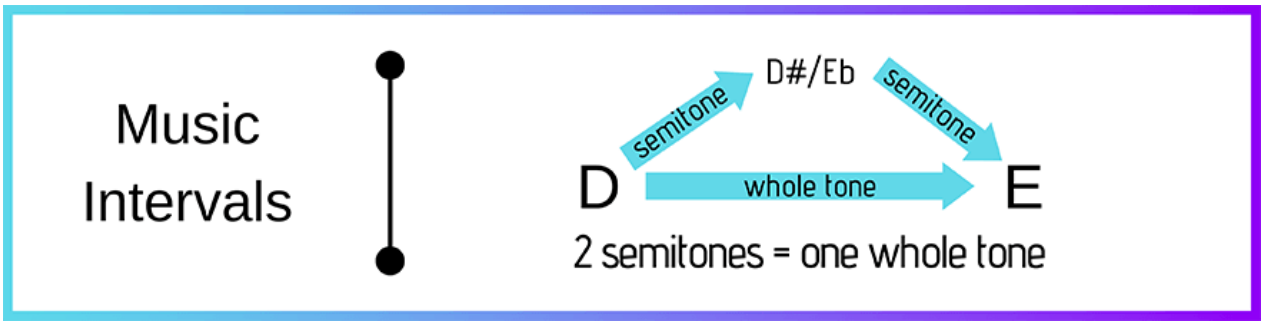
When we play the notes we can hear that the pitch gets higher as we move up the keyboard, and lower as we go down.

Music intervals (steps/semitones)

A music interval is the distance between each note in terms of pitch, which is measured in semitones (aka half step) and whole tones (aka whole step – equivalent to 2 semitones/2 half steps).

So for example the distance between D and D#/Eb is a semitone, same with the distance between E and F.

The distance between D and E is a whole tone.

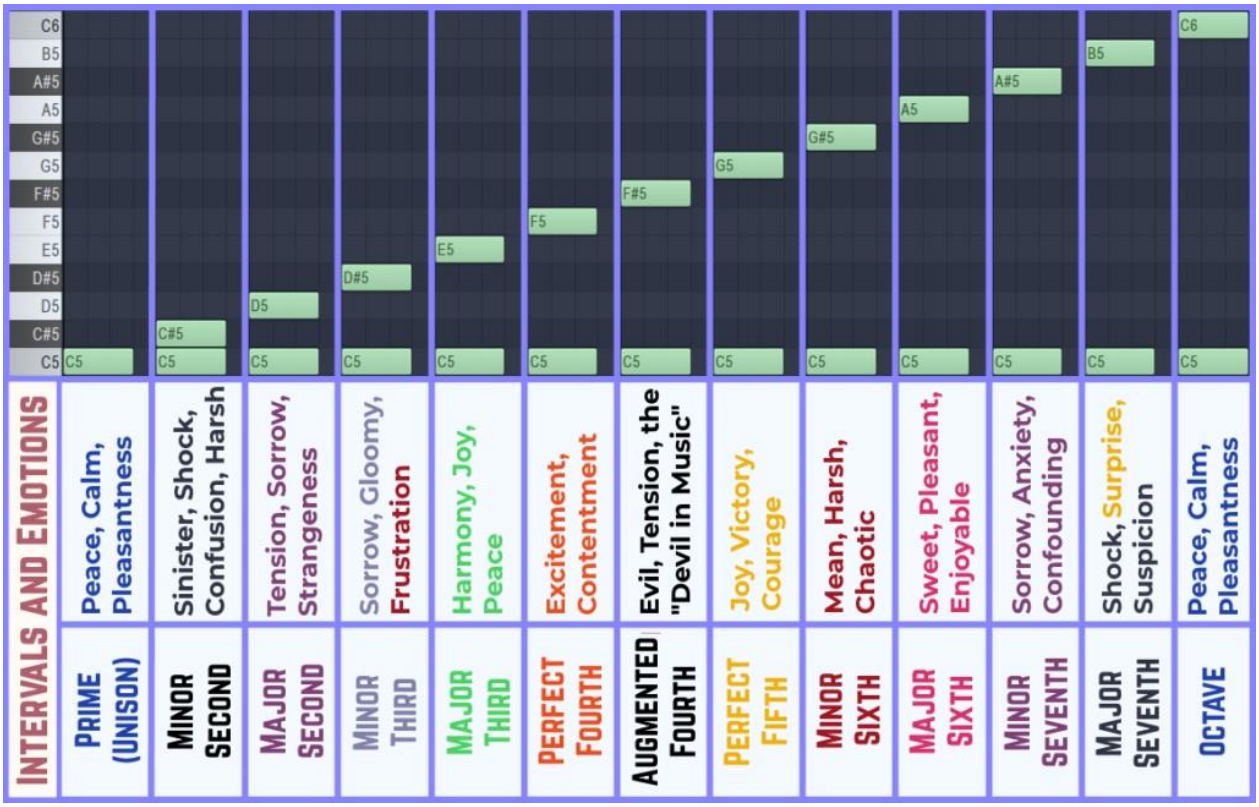


- A half step interval is one semitone
- A whole step interval is two semitones
- Two half steps make a whole-step

Intervals are also the foundation of both harmony and melody. Playing two or more notes at the same time creates harmonic intervals (chords). Playing single notes in a sequence makes melodic intervals (melodies).

Furthermore, we describe intervals by number (distance) and prefix (quality). The interval number represents the number of half-steps between two notes. These numbers are 1st (unison), 2nd, 3rd, 4th, 5th, 6th, 7th, and 8th (octave).

Lastly, intervals have using a prefix to describe their quality. The five interval qualities are major (M), minor (m), perfect (P), augmented (A), and diminished (d).



Music intervals helps us to distinguish music scales and prefixes attached to a chord.

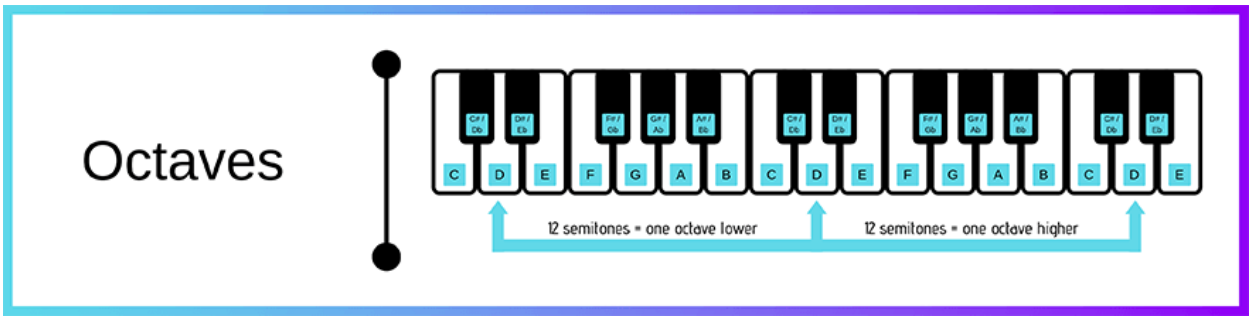
Note: *We discuss music scales and chord prefixes later in this post.*

Octaves

As we know, there are 12 keys in music which are on a cycle, and eventually on that cycle you will reach the same note but at a higher or lower pitch. You have reached the octave.

A notes octave is the same note played at a higher or lower pitch. These two notes will be 12 semitones apart.

Our example below shows the note D (the one in the centre), the D to the left is an octave lower, and the D to the right is an octave higher.



What is a music scale?

A music scale is a set of notes within an octave. The type of music scale is determined by the music intervals between each note.

Major scales

Major scales have seven notes containing each letter from the musical alphabet.

Each key has a major scale, therefore there are 12 major scales. This scale tends to have a sound that is happy, bright and uplifting.

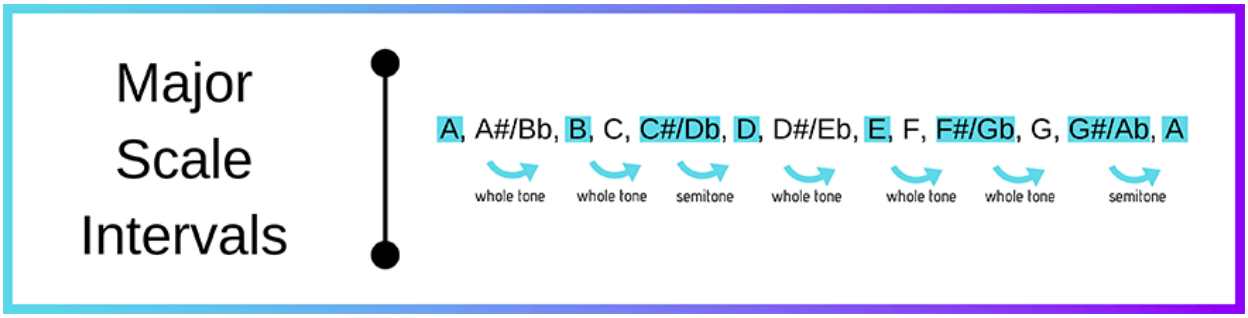
It follows a music interval pattern of: W – W – S – W – W – W – S (W = one whole tone / S = semitone).

The major scale formula is: **1 2 3 4 5 6 7**. All other scales use this formula, however some numbers may be altered depending on the scales relationship to the major scale.

This is best demonstrated when we get to minor scales later. The example below is creating a major scale starting at the key of A.

Following the major interval pattern:

- A to B is a whole tone
- B to C#/Db is a whole tone
- C#/Db to D is a semitone
- D to E is a whole tone
- E to F#/Gb is a whole tone
- F#/Gb to G#/Ab is a whole tone
- Finally, G#/Ab to A is a semitone

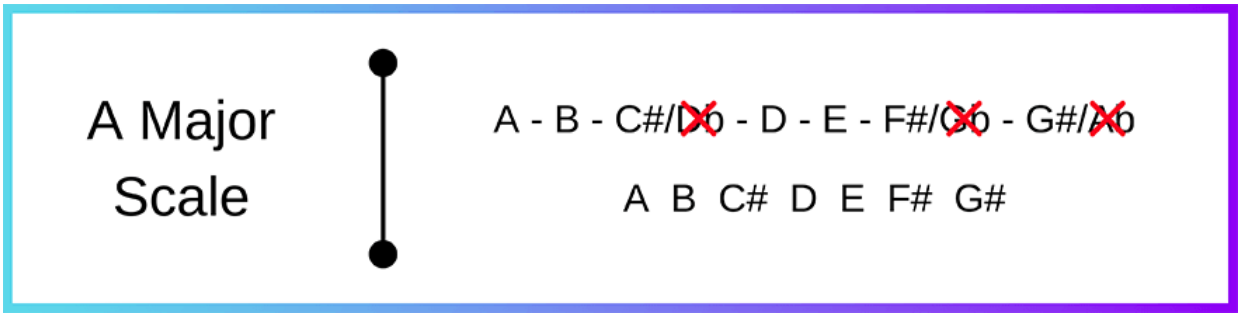


The next step is to determine if we label some notes as a sharp (#) or a flat (b). As you can see with the A major scale example we have 3 notes that have two names (enharmonic notes), C#/Db, F#/Gb and G#/Ab.

You will only use sharp or flat symbols in a scale, not a mixture of both. Therefore, if you figure out the first is a sharp note, the following enharmonic notes will also be sharp.

Also, another way to do this is to make sure each musical letter has been used.

This would be:



Minor scales

Minor scales also have seven notes containing each letter from the musical alphabet.

This scale tends to sound emotional, sad and dark.

Each note has a minor scale, therefore there are 12 minor scales.

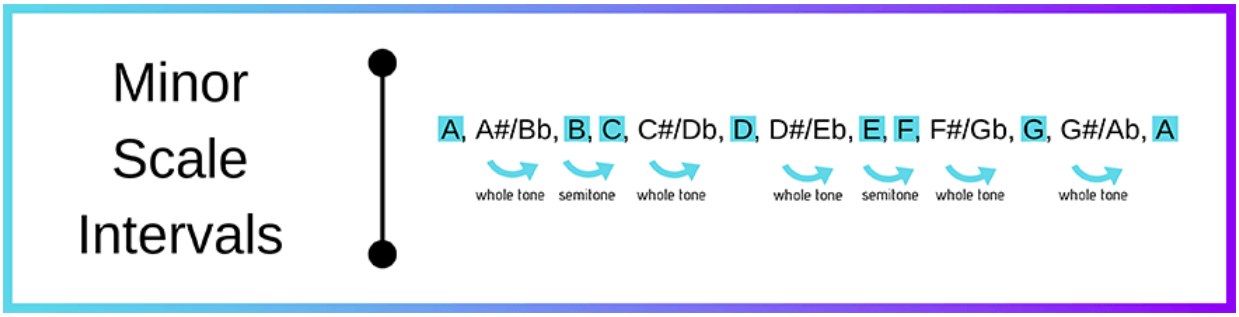
It follows a music interval pattern of: W – S – W – W – S – W – W (W = one whole tone / S = semitone).

Minor scales has the formula: 1 2 b3 4 5 b6 b7. What this means is that the 3rd, 6th and 7th note is a semitone lower than the note that appears in the major scale starting at the same key.

The example below is creating a natural minor scale starting at the key of A.

Following the minor interval pattern:

- A to B is a whole tone
- B to C is a semitone
- C to D is a whole tone
- D to E is a whole tone
- E to F is a semitone
- F to G is a whole tone
- Finally, G to A is a whole tone



In this scale we have no sharps or flats.

If we compare A major and A minor we can see that the differences are: C#, F# and G# are in the major scale, however for the minor scale these three notes have been lowered by a semitone to: C, F and G.

You can practice learning these major and minor scales by working them out yourself for each key.

Note: *Major and minor have a special relationship. Every minor scale starts at the 6th note of a major scale. We discuss this more in 'Relative keys' later in this post.*

There are many different scales in music, but they can be divided into different categories based on the number of pitch classes they contain. Here are some examples of different types of scales:

- Chromatic : A chromatic scale is a musical scale with twelve pitches, each a semitone, also known as a half-step, above or below its adjacent pitches. It covers all 12 of the available pitches in 12-tone equal temperament, the most common

tuning in Western music. The chromatic scale can be played on both the white and black keys of the keyboard. The word "chromatic" comes from the Greek word chroma meaning "color". The chromatic scale can be used to create a sense of sadness or tension in music.

- Nonatonic : The nonatonic scale is a nine-note scale with a chromatic variation of a major scale with a flat third and seventh degree. This scale is widely used in blues music, with these notes known as the blues notes.This scale is also played using quarter tones added to the third and seventh steps of the minor blues scale. It's usually used by jazz and blues musicians for improvising melodies.
- Octatonic : An octatonic scale is a scale composed of eight notes within one octave. The most common type of octatonic scale is the one that alternates between whole and half steps, starting from any root note. This scale is also called the whole-half scale or the ancohemitonic symmetric scale. There are three possible octatonic scales of this type, each with two modes. The octatonic scale contains multiple diminished chords, giving it a tense and dissonant sound.
- Heptatonic : A diatonic scale is a type of music scale that consists of seven notes (also known as a heptatonic scale). Diatonic scales must have two half-step intervals (semitones) and five whole-step intervals (tones) within one octave . The two half-step intervals should be separated by two and three whole steps .
- Diatonic scales are the foundation of Western music and are used in a variety of genres, including classical, jazz, and pop music . There are many different types of diatonic scales, including the major scale, the natural minor scale, and the musical modes .
- The major scale is probably the most familiar and easily recognizable of all diatonic scales. It has a sequence of half and whole steps of W W H W W W H . The natural minor scale is the relative minor scale of the major scale and has a sequence of half and whole steps of W H W W H W W . The musical modes are a series of scales that are based on the major scale, but each has different characteristics .
- Hexatonic : Hexatonic scale is musical scale containing six different tones within an octave.
- Pentatonic : A pentatonic scale is a type of musical scale that uses only five notes in an octave. The name pentatonic comes from the Greek word 'pente', which means five, and is where we get words like pentagon (a five-sided shape) and pentameter (a form of poetry that uses five strong beats). The pentatonic scale is used widely in a lot of different music genres. It's one of the easiest scales to play and often will sound good with notes played in any order, as there are no half step (semitone) intervals in it which can cause dissonance.For this reason, it's very common for improvising and guitar solos.
- Tetratonic : A tetratonic scale is a musical scale or mode with four notes per octave. This is in contrast to a heptatonic scale such as the major scale and minor

scale, or a dodecatonic scale, both common in modern Western music. Tetratonic scales are not common in modern art music, and are generally associated with prehistoric music.

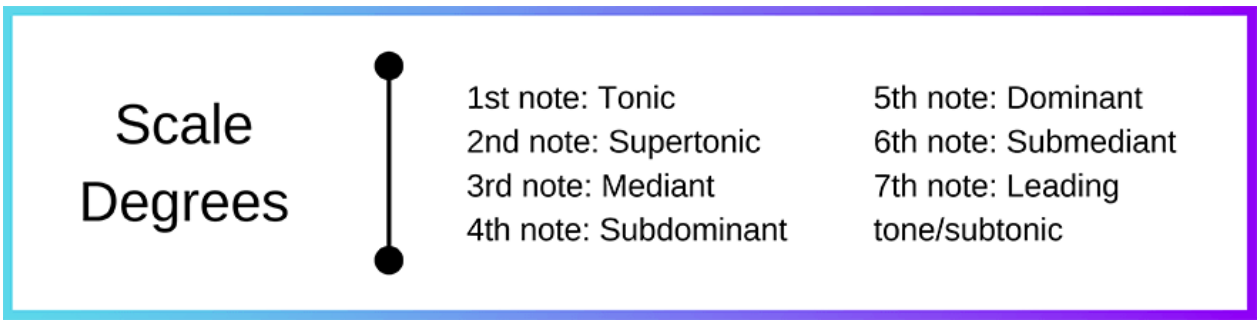
Scale degrees

Each note of a scale has a specific name related to its function, called a scale degree. The name is the function, and a number indicates its position on the scale.

Each note in a scale, regardless of if it's part of a major or minor scale, has a name attached to it which relates to its position and function in the scale.

These are: tonic, supertonic, mediant, subdominant, dominant, submediant and leading tone/subtonic.

Tonic (1st note) and dominant (5th note) are perceived to be important in any given scale.



Let's go into more detail for each one:

- 1st note – Tonic
- The tonic note is the tonal center of the key you are playing in – it's the beginning of the scale and is usually referred to a lot during a piece of music. It acts as home.
- 2nd note – Supertonic
- The supertonic note strengthens the dominant note. You may hear that this note often appears before or after the dominant note in a piece of music.
- 3rd note – Mediant
- The mediant note is rather harmonically weak compared to other degrees.
- 4th note – Subdominant
- The subdominant note offers a gentle resolution leading to the tonic note.
- 5th note – Dominant
- The dominant note is harmonically strong and uplifting and works well with the tonic note.
- 6th note – Submediant
- The submediant strengthens the dominant note.
- 7th note – Leading Tone (major scales) / Subtonic (minor scales)

- The leading tone/subtonic note creates tension, and is often harmonically weak and unstable.

Let's use the key of A using a major scale as our example, this is how the scale degrees work out:

- A = tonic
- B = supertonic
- C# = mediant
- D = subdominant
- E = dominant
- F# = submediant
- G# = leading tone.

Therefore, A and E are our important notes in the A major scale.

Understanding a notes scale degree in a given scale will allow you to create and release tension throughout your music.

MUSIC MODES

Scale mode is a type of musical scale that has a different order of notes than the major or minor scales. There are seven modes, each with a unique sound and a Greek name.

Musical modes are scales derived from a parent scale. There are seven music modes.

Each mode is a slight variation of a scale. They use all the same notes and interval patterns as the parent scale.

The main difference is the root note used to build the scale. Starting a scale on a different note defines the tonal center, giving it distinct melodic characteristics.

The seven musical modes are:

I – Ionian (major scale)

ii – Dorian (major scale starting on the 2nd degree)

iii – Phrygian (major scale starting on the 3rd degree)

IV – Lydian (major scale starting on the 4th degree)

V – Mixolydian (major scale starting on the 5th degree)

vi – Aeolian (natural minor scale or major scale starting on the 6th degree)

vii – Locrian (major scale starting on the 7th degree)

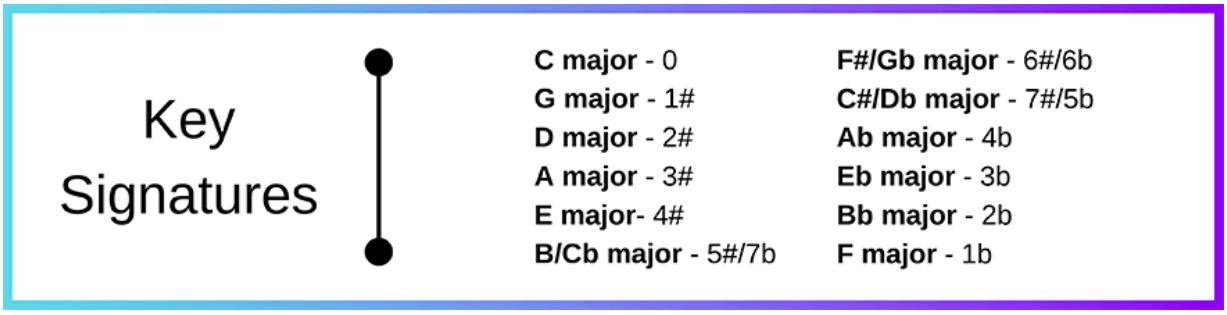
Learning musical modes goes beyond basic music theory and is more advanced. However, getting familiar with these terms and basic functions is helpful.

Fundamentally, the notes remain the same, but the overall focusing point of the scale is different. This adds a very interesting flavor to the sound, and can bring out new emotions and feelings from the music. Often, these modes will sound a little foreign and off the beaten path compared to just regular major and minor scales.

What is a key signature?

A key signature tells you what and how many notes in a scale are sharp (#) and flat (b).

The image below shows how many sharps and flats are in each major scale.



You can memorize the order of adding sharps to a key signature with a mnemonic such as:

- Father Charles Goes Down And Ends Battle (sharps)
- F# C# G# D# A# E# B#

This means:

- G major would contain F#
- D major would contain F# and C#
- A major would contain F#, C# and G#
- And so on…

You can do the same with adding flat notes to a key signature:

- Battle Ends And Down Goes Charles Father (flats)
- Bb Eb Ab Db Gb Cb Fb

This means:

- F major would contain Bb
- Bb major would contain Bb and Eb

- Eb major would contain Bb, Eb and Ab
- And so on…

Key relationships

Parallel keys

Parallel keys are major and minor scales that have the same tonic note, this means they both contain the same first note at the beginning of their scale.

The examples below are the A major scale, and the A minor scale, both start with the note A.

The next example are the C major scale, and the C minor scale, both start with the note C.

Relative keys

Major and minor (natural) scales have a special relationship, as we mentioned earlier.

Relative keys are major and minor scales that share the same key signature, this means they both contain the same notes in their scale.

You can find the beginning of the minor scale by using the 6th note in the major scale.

In the example below we have the A major scale, the 6th note in the scale is an F#. Therefore, F# is the relative minor key to A major.

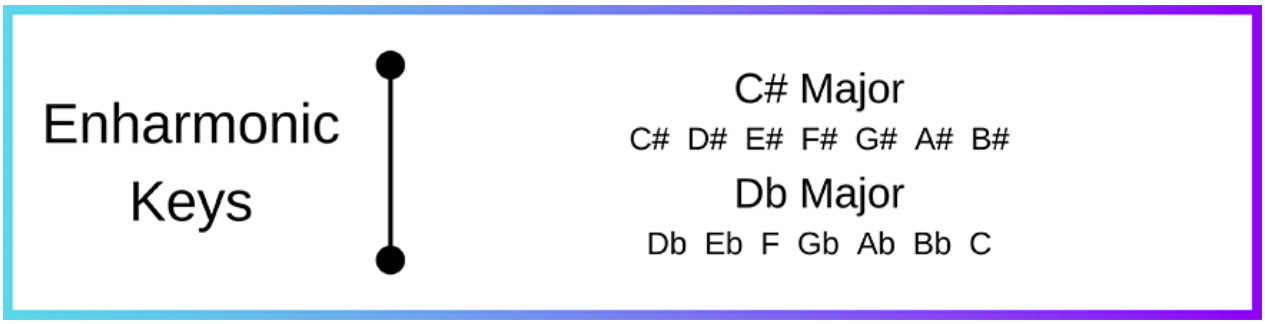
Both scales of A major and F# minor contain the same notes: A – B – C# – D – E – F# G, however the minor scale starts at the 6th note instead: F# – G# – A – B – C# – D – E.

We also have C major, the 6th note in the scale is an A. Therefore, A is the relative minor key to C.

Enharmonic keys

Enharmonic keys are scales which contain the same notes but are labelled differently.

An example would be the key signature of C# major and Db major. C# major contains 7 sharps and Db major contains 5 flats, however each note sounds the same when played or sung.



How you phrase the key signature is ultimately down to you, but the composer usually uses the scale which is easier to translate to sheet music.

In the example above using Db major is preferable because it only involves 5 notes changing, compared to 7.

So how does all this key signature, relative key, minor key, major keys, scales all fit together?

How do I remember it all? There's so much! This is where the '**Circle of Fifths**' comes in.