

Musical notes and their families - how to understand musical harmony

Written by Michelle Birch
2007

Part 1: Scales And Keys

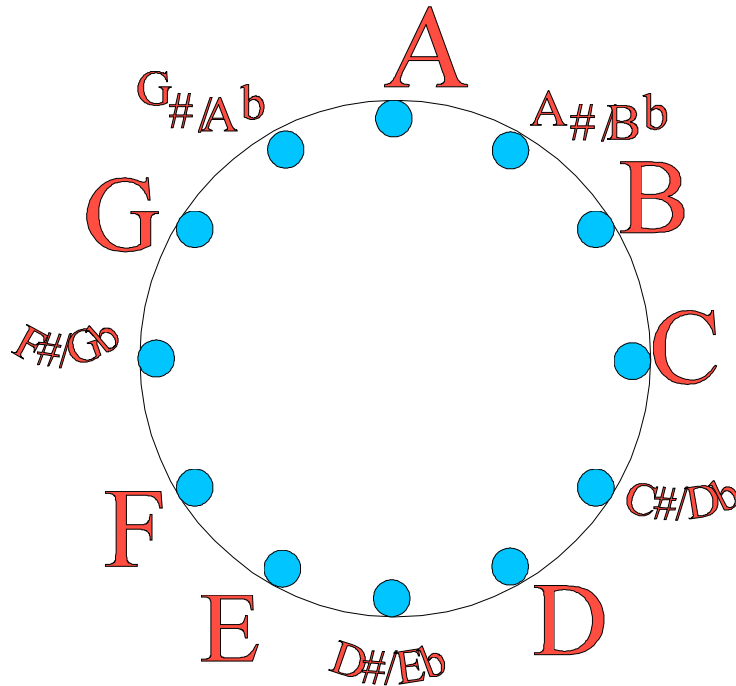
MUSICAL NOTES

In music, there are seven "natural" notes. These are named using the letters A to G.

In between each natural note **except for between E and F, and B and C**, there is an "accidental" (a sharp (#) or a flat (b)).

With the natural notes and the accidentals added together, there are 12 evenly spaced notes, each one a "semitone" (or half-step) apart.

The names of the musical notes are:



TONES AND SEMITONES

The distance between one note and the next is called a half step, or **semitone (ST)**.

Two semitones is called a whole step, or **tone (T)**.

SHARPS, FLATS AND NATURALS

A note without a sharp or flat is called a "natural" note. A "#" (sharp) sign means that the note is one fret (or semitone) **UP** from its related natural note. A "b" (flat) sign means that the note is one fret (or semitone) **DOWN** from its related natural note.

OCTAVES

The musical note cycle repeats as the notes climb upwards. The same note one cycle apart is said to be one "octave" (eight notes) apart.

HOW THESE NOTES APPLY TO THE GUITAR

Each fret on a guitar represents a note.

These notes climb **upwards** as the hand moves **towards** the player, along the neck.

See my **Note Chart** below.

TRY STARTING ON THE OPEN 5TH STRING (A) AND NAMING EACH NOTE AS YOU MOVE UP ONE FRET AT A TIME.

Fret no.s	1	2	3	4	5	6	7	8	9	10	11	12	
String 1 - E	E	F# Gb	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb	E	
String 2 - E	B	C	C# Db	D	D# Eb	E	F	F# Gb	G	G# Ab	A	A# Bb	B
String 3 - G	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb	G
String 4 - D	D	D# Eb	E	F	F# Gb	G	G# Ab	A	A# Bb	B	C	C# Db	D
String 5 - A	A	A# Bb	B	C	C# Db	D	D# Eb	E	F	F# Gb	G	G# Ab	A
String 6 - E	E	F	F# Gb	G	G# Ab	A	A# Bb	B	C	C# Db	D	D# Eb	E

Note Chart for Guitar

Michelle Birch

THE MUSICAL SCALE:

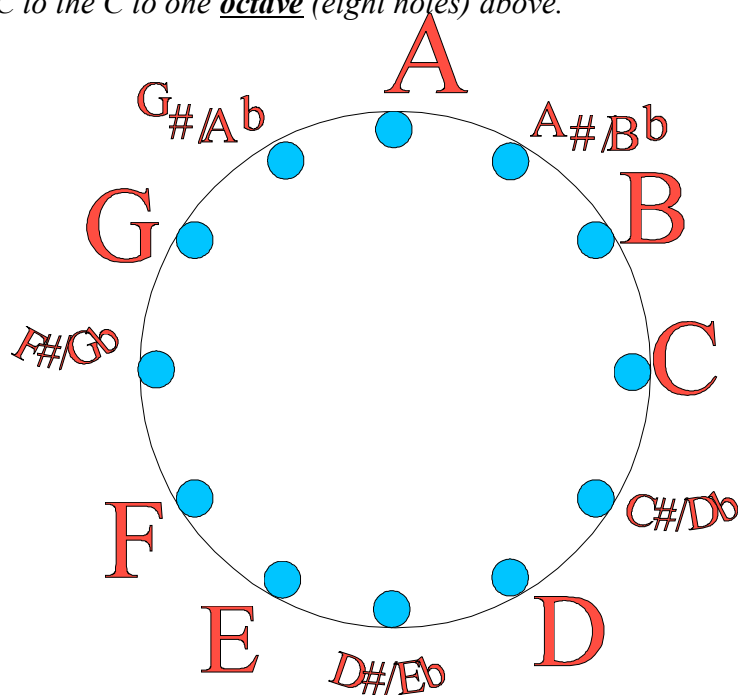
A musical scale is an *ascending or descending series of notes*.

Modern Western music is built predominantly around **two scale patterns**, forming what are called major and minor scales.

THE MAJOR SCALE

The major scale forms the basis of this system.

The major scale is built upon the pattern of tones and semitones which is created by playing the natural notes from C to the C to one octave (eight notes) above.



Using tones (T) and semitones (ST), you can see from counting the notes up through the note cycle that the pattern formed by a scale built on C is tone, tone, semitone, tone, tone, tone, semitone - or:

T T ST T T T ST

This is the MAJOR SCALE pattern.

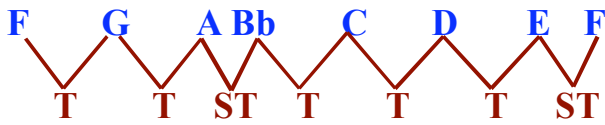
Every one of the 12 musical notes can have a major scale built on it.

A major scale is formed on any note by making notes in the scale conform to the major scale pattern.

If you start, for example, on the note D, in order to maintain the major scale pattern two notes will have to be raised one semi-tone - F to F#, and C to C#. This means that the D major scale will be as follows:



Another example of building a scale is one starting on F. In order to make the scale fit, the B must be flattened. Thus the scale will be:



IMPORTANT:

The letter name must always go up one. For example the F major scale CANNOT be:

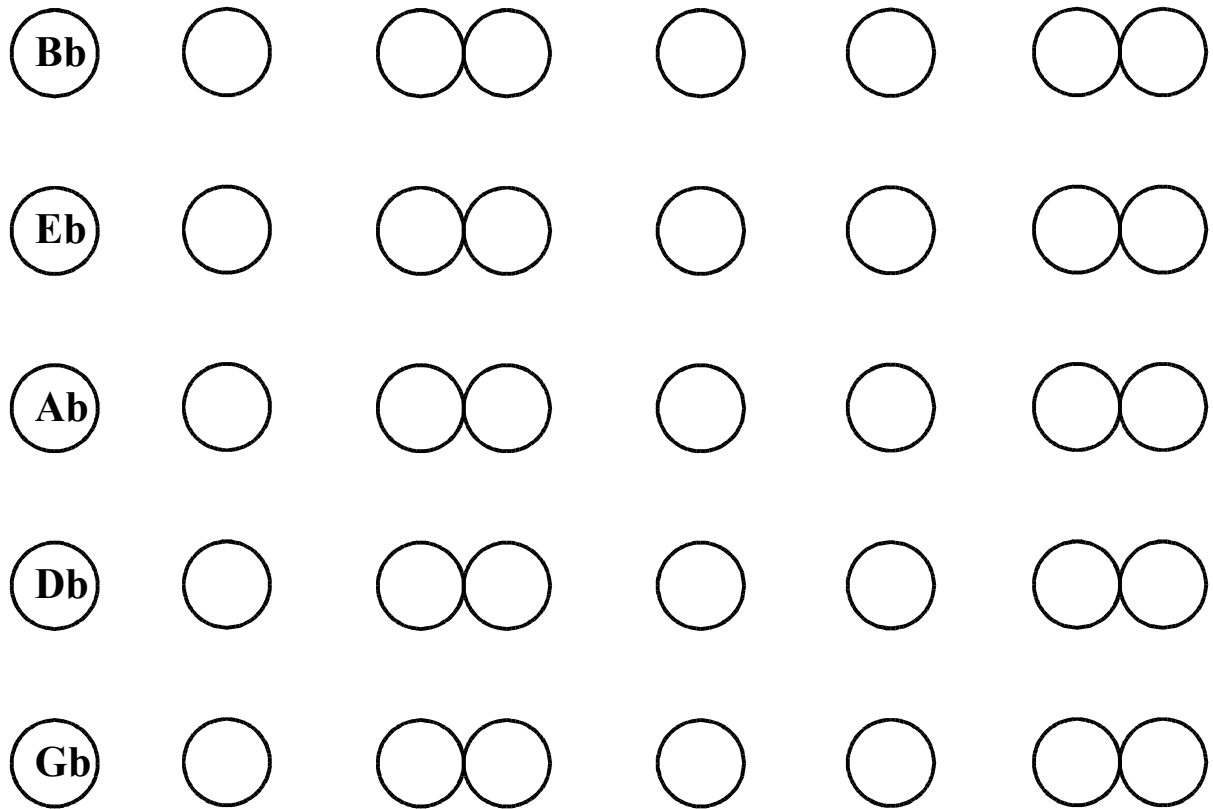
F G A A $\sharp$ C D E F

It must be instead:

F G A B $\flat$ C D E F

BUILD MAJOR SCALES STARTING ON EACH OF THE FOLLOWING NOTES:

C					
G					
D					
A					
E					
B					
F					



From this exercise you can see several important points:

- *Major scales will only contain either flats or sharps - not both.*
- *As you progressed down the list, each scale gained one extra accidental (sharp or flat).*
- *The scales containing sharps, in order, are five notes apart.*
- *The scales containing flats, in order, are four notes apart.*

THE MINOR SCALE:

Each major scale has a related (or relative) minor scale which shares its tone/semitone pattern.

The minor scale is built on the 6th degree of its related major scale.

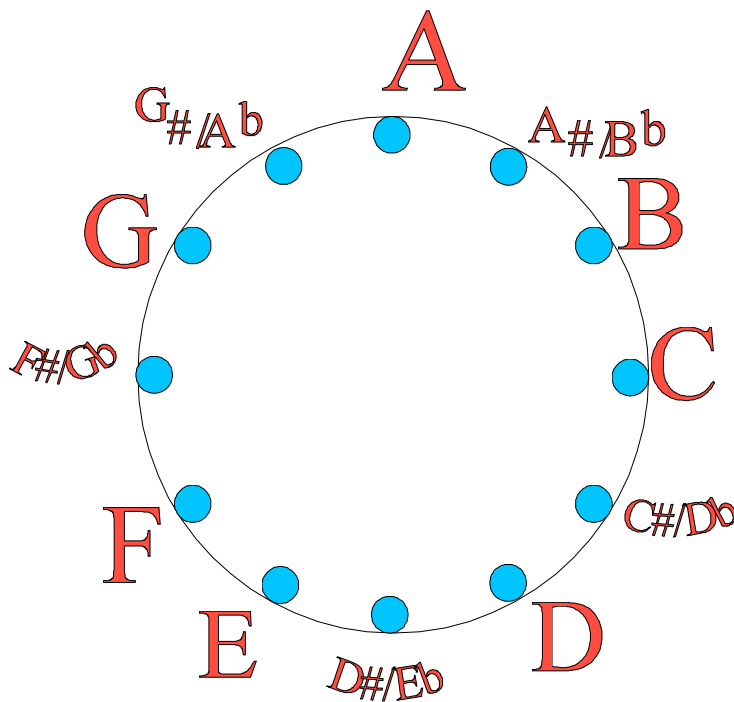
As you now know, the C major scale is:

C D E F G A B C

If you count from the bottom (including the first note):

C	D	E	F	G	<u>A</u>	B	C
1	2	3	4	5	<u>6</u>	7	8/1

then you will see that the 6th degree of C major is A. Therefore the relative minor of C major is A minor.



Counting up from the note A produces the following pattern:

T ST T T ST T T

This is the NATURAL MINOR SCALE pattern.

The notes for the A natural minor scale are:

A B C D E F G A

This is called a natural minor because it is built on its relative major scale with no variation from it.

Other than the natural minor scale, there are two other types of minor scales. All three types of the minor scale are built on the 6th degree of the relative major scale.

HARMONIC MINOR SCALE (most common) - raise the 7th degree by one semitone to produce the following pattern:

T ST T T ST T+ST ST

The notes of the scale must be changed to fit the pattern. Therefore the note G will become G# and the scale will be as follows:

A B C D E F G# A

MELODIC MINOR SCALE - raise the 6th and 7th degrees going up, and lower them on the way down (this means the descending scale is a natural minor scale).

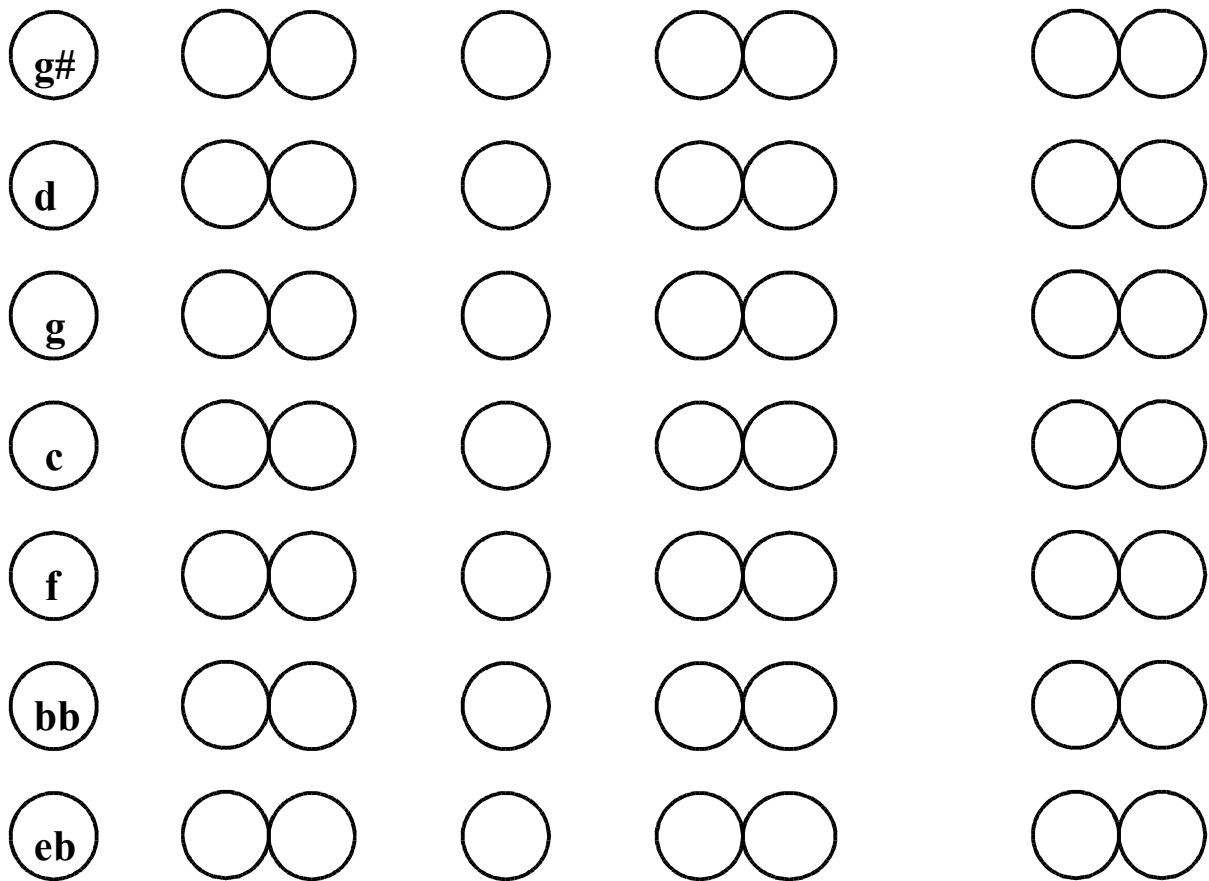
T ST T T T T ST T T ST T T ST T

The **A melodic minor** scale will be as follows:

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

BUILD HARMONIC MINOR SCALES STARTING ON EACH OF THE FOLLOWING NOTES:

a				
e				
b				
f#				
c#				



WRITE DOWN THE RELATIVE MINOR KEYS TO EACH OF THE FOLLOWING MAJOR KEYS:

C Major _____

G Major _____

D Major _____

A Major _____

E Major _____

B Major _____

F Major _____

Bb Major _____

Eb Major _____

Ab Major _____

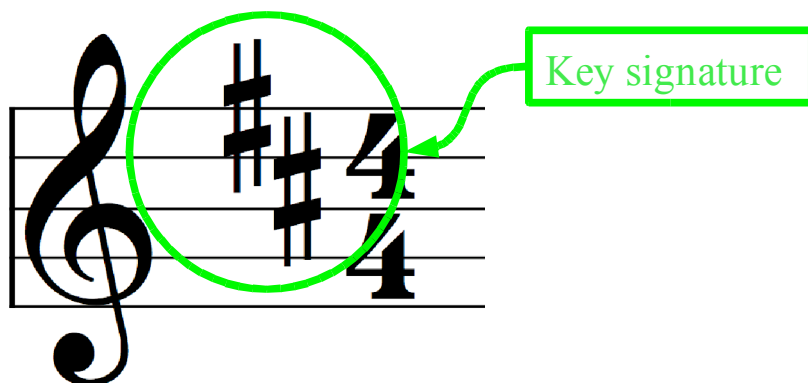
Db Major _____

Gb Major _____

KEYS:

The pattern of notes from within a particular scale form what is called the key.

You will notice at the beginning of a piece of music there is what is called a key signature. The key signature contains the sharps or flats from the scale, and so tells you what key the piece is in. It will look something like this:



The accidentals in the key signature are placed in the same order as the scales add them:
eg for sharps, five notes apart:

F# C# G# D# A# E#

For flats, four notes apart:

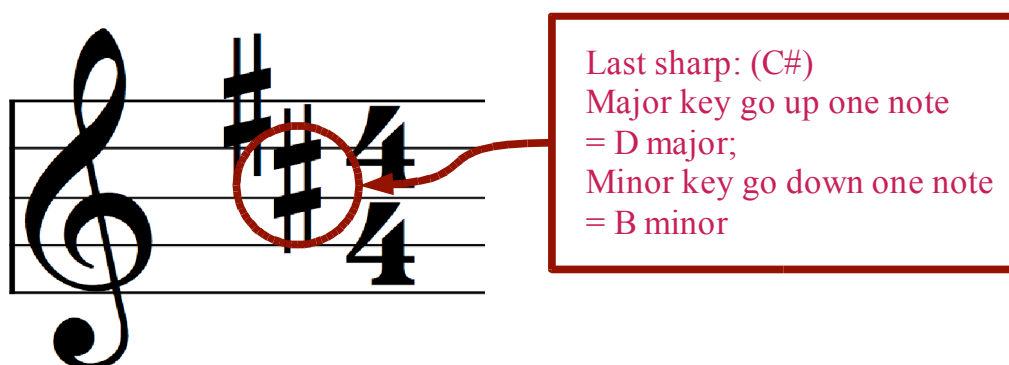
Bb Eb Ab Db Gb Cb

The key signature tells you which notes to substitute with their "accidentals." For example, if the key signature contains an F#, whenever you encounter an F in the piece of music, you will substitute an F#. Similarly, a Bb in the key signature means that whenever you encounter a B, you will substitute a Bb. A key signature takes away the need to put an accidental next to every note in the music that has been adjusted to make the key correct.

You can also identify the key of a piece of music by looking at the key signature. This is how it works:

In a key signature containing sharps:

The major key will be the note name above the last (or only) sharp;
The minor key will be the note name below the last (or only) sharp.



In a key signature containing flats:

The name of the **major key** will be the previous flat from the last one, or FIVE NOTES UP from the last (or only) flat.

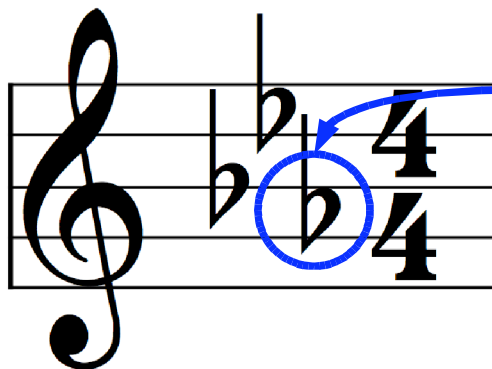


Flat keys:

Major key is the same letter name as the second to last flat – this one is **Eb major**.

Alternatively, count five notes up from last flat, counting last flat as first note: Ab-Bb-C-D-**Eb**.

The name of the **minor key** will be a third up from the last (or only) flat - counting the note itself.



Flat keys:

Minor key is a third up from the last flat, counting the flat itself: Ab-Bb-**C** = **C minor**.

Part 2: Harmony

Musical harmony is where two or more notes are added to the original tune, or melody, of a piece of music. This adds colour and interest, and gives the music more substance.

The entire harmony of a piece is built upon its key.

Remember again the C major scale, with its degrees:

C	D	E	F	G	A	B	C
1	2	3	4	5	6	7	8/1

Harmony is created from chords.

A chord is made up of a triad of notes:

- 5th
- 3rd
- 1st (root, and namesake of the chord)

Each of these notes are diatonic, or in other words to be found within the scale.

A chord can be constructed upon every degree of the scale.

NB: the degree of the scale which a chord is built on is referred to by its Roman numeral. They are as follows:

I = 1

II = 2

III = 3

IV = 4

V = 5

VI = 6

VII = 7

VIII = 8

Capital letters indicate a major chord, whilst small letters indicate a minor chord.

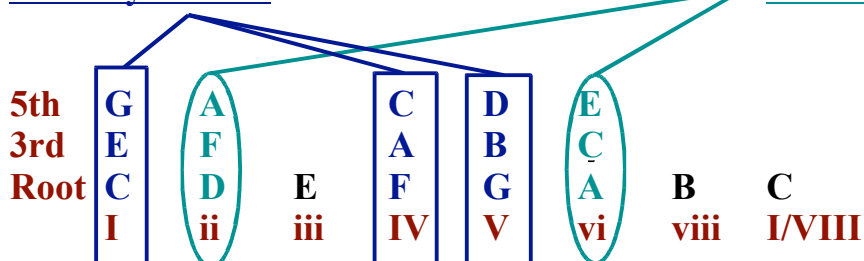
PRIMARY AND SECONDARY CHORDS

Chords built on degrees 1, IV and V are called **primary** chords because they contain every note in the scale between them, and therefore can be used on their own to harmonise a piece.

Chords built on degrees ii and vi can be used to add colour and are called **secondary** chords.

Primary chords

Secondary chords



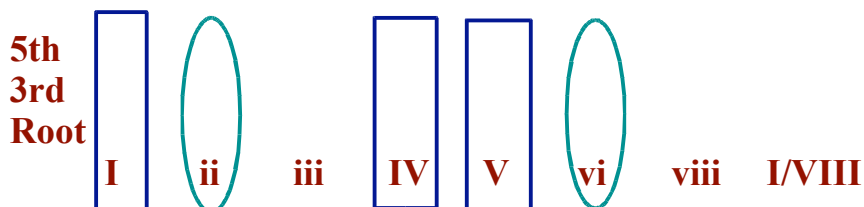
CHORDS IN DIFFERENT KEYS:

Remember that notes used to build a chord triad **MUST** be taken from within the scale that the key is built on. Therefore if chords are built in D major, with F# and C# in the key signature, the chords will contain these accidentals as well.

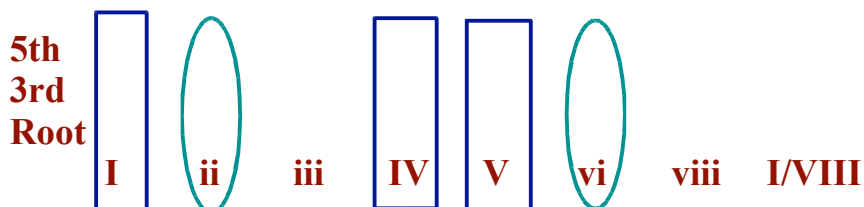
USE THE FOLLOWING TEMPLATES TO BUILD CHORDS IN THE STATED MAJOR KEYS.

TIP: WRITE OUT THE SCALE FIRST.

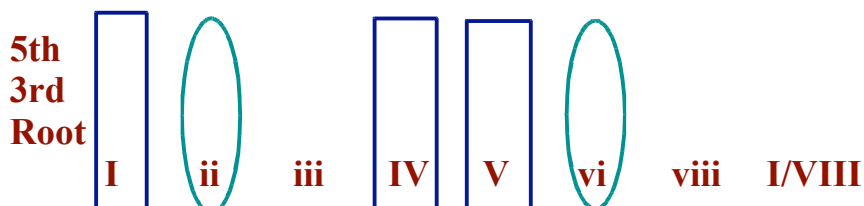
G MAJOR



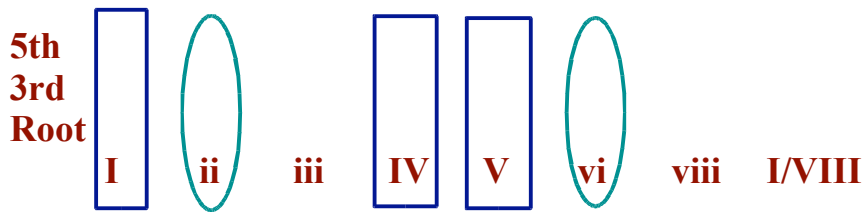
D MAJOR



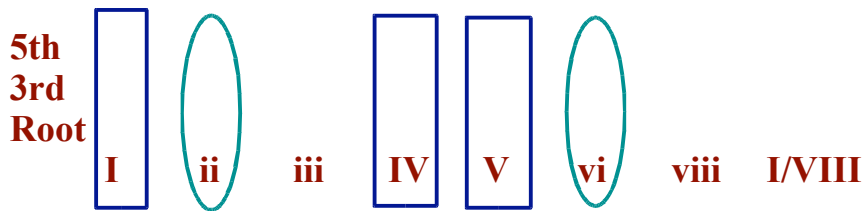
A MAJOR



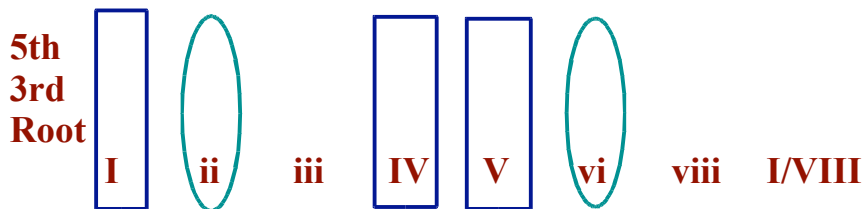
E MAJOR



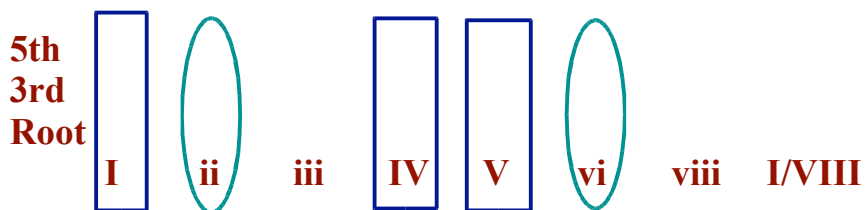
B MAJOR



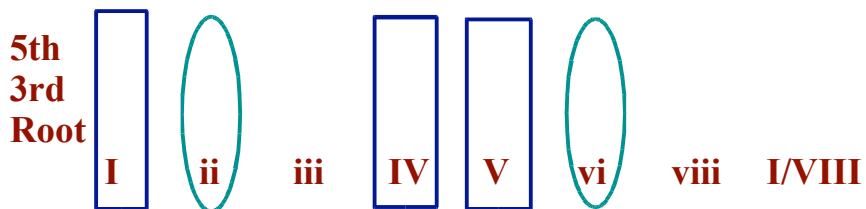
F MAJOR



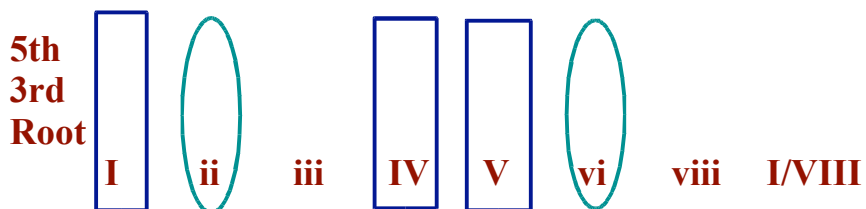
Bb MAJOR



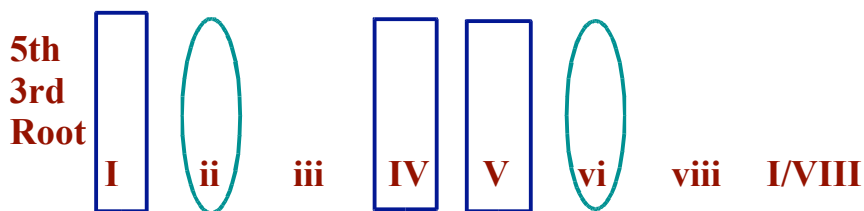
Eb MAJOR



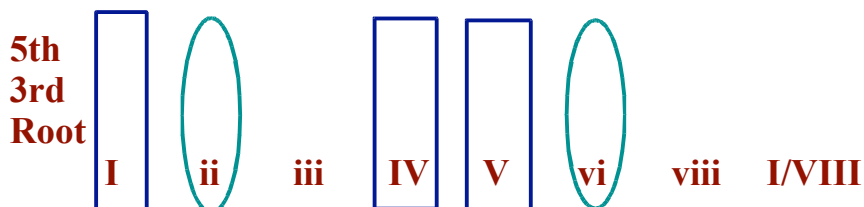
Ab MAJOR



Db MAJOR



Gb MAJOR



RELATIONSHIPS OF CHORDS TO ONE ANOTHER:

Chord progressions create a language of tension and release within a piece of music.

For example, chord I will always feel like "home."

Chord V will always sound unstable, and will point towards chord I (home).

An unstable chord will create a feeling of tension or movement within a piece. Moving from an unstable chord to a stable chord will create a sense of release.

CADENCES:

A musical cadence is a chord progression which functions like punctuation in a sentence. One cadence will sound like a comma, another like question mark, and another like a full stop. Sometimes cadences will be very simple, whilst other times (such as in a symphony) they can be quite extended. Some composers will tease the listeners with really extended "full stop" cadences as their piece comes to an end, keeping things exquisitely suspended until the very last moment.

- The most common cadence is the **perfect** cadence. This is chords **V-I**. It sounds like a full stop. Music most often finishes with a perfect cadence.
- The **imperfect** cadence, which sounds like a question mark, is **I-V**.
- The **interrupted** cadence, which sounds like a comma, is **V-VI**.
- The **plagal** cadence, which sounds like a full stop but not quite as settled as the perfect cadence, is **IV-I**.

VARIATIONS TO THE COMPOSITION OF CHORDS:

Chords can have notes added to them. For example it is common to add a 7th to chord V, making it into V7. This would mean that in the key of C major chord V would contain the notes G, B, D and F. Adding a 7th makes chord V even more unstable, and thus even more satisfying to return to chord I.

Chords can also have other degrees added. For example if a chord says Fsus2, it means that as well as the usual chord triad built on F (F, A and C), the 2nd note above F will also be part of the chord: G. Therefore Fsus2 would be F, G, A, and C). "Sus" is short for suspended, usually because the added 2nd degree creates a feeling of suspension which is resolved with the next chord.

MAJOR AND MINOR CHORDS:

The character of a chord is decided by the intervals between the notes in the triad.

An **interval** is the distance between two notes, counting from the bottom note. For example, from A-C is a 3rd, as is from G-B.

Each third in a chord triad (between the root and the 3rd, and between the 3rd and the 5th) is classified as either a **major 3rd** or **minor 3rd**.

A minor 3rd is three semitones, or a tone and a half - eg A-A#-B-C.

A major 3rd is four semitones, or two tones - eg G-G#- A- A#-B

- A **major chord** is made up of a major 3rd topped by a minor 3rd:
eg:

A	
F#	(F#, G, G#, A = minor 3rd)
D	(D, D#, E, F, F# = major 3rd)

D major chord

A major chord sounds happy and optimistic.

- A **minor chord** is made up of a minor 3rd topped by a major 3rd. Another way of looking at it is that the middle note in the triad is lowered by one semitone.
eg:

A	
F	(F, F#, G, G#, A = major 3rd)
D	(D, D#, E, F = minor 3rd)

D minor chord

A minor chord sounds sad.

DIMINISHED AND AUGMENTED CHORDS:

Diminished and augmented chords are much less common than major or minor chords.

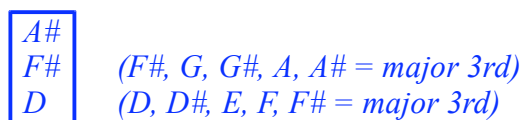
- A **diminished chord** is made up of two minor 3rds stacked on top of one another.
eg:

Ab	
F	(F, F#, G, Ab = minor 3rd)
D	(D, D#, E, F = minor 3rd)

D diminished chord

- An **augmented chord** is made up of two major 3rds stacked on top of one another.

eg:



D augmented chord

MAJOR AND MINOR CHORDS IN A KEY:

Major and minor keys each have a consistent pattern of major and minor chords within the key.

Remember that Roman numerals in **capitals** indicate a **major** chord, whilst Roman numerals in **small letters** indicate a **minor** chord.

A small "o" indicates a **diminished** chord.

As you have seen earlier, major keys form the following pattern:

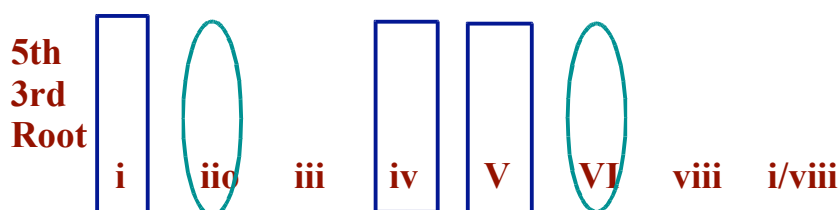
I ii IV V vi

Minor scales form the following pattern:

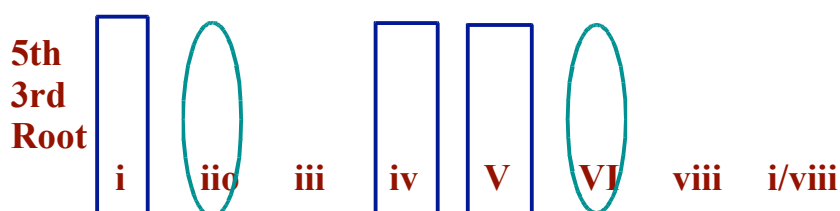
i iio iv V VI

USE THE FOLLOWING TEMPLATES TO BUILD CHORDS IN THE STATED MINOR KEYS.

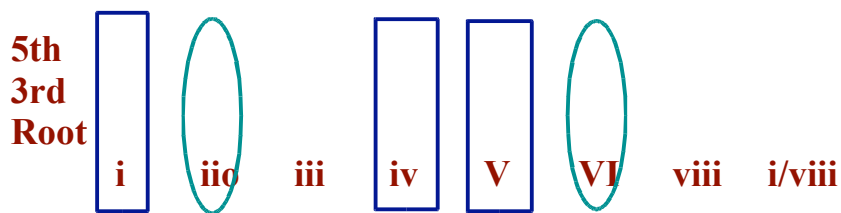
A MINOR



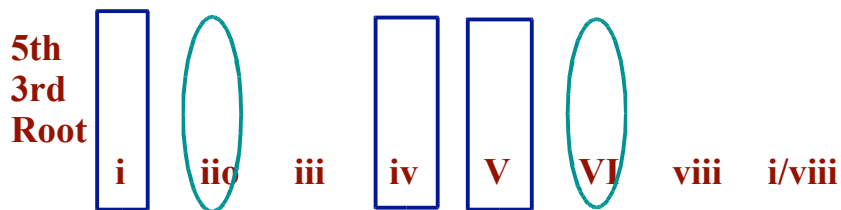
E MINOR



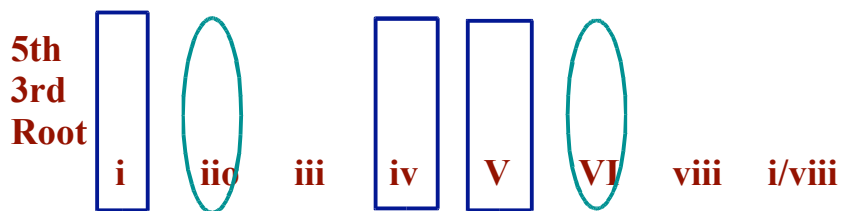
B MINOR



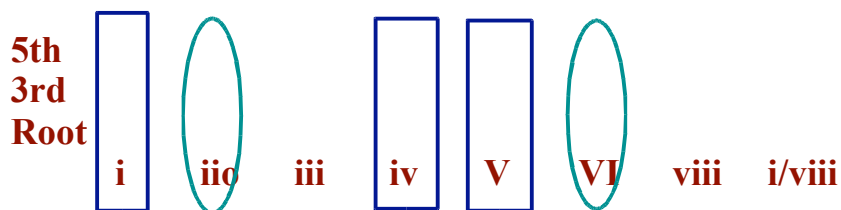
F# MINOR



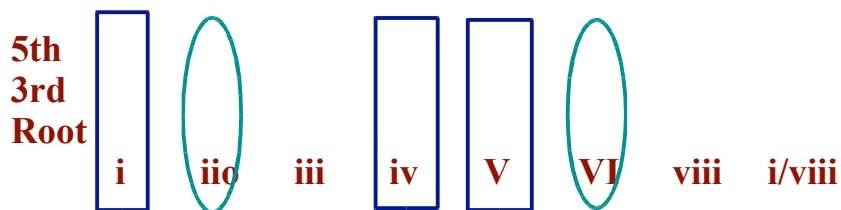
C# MINOR



G# MINOR

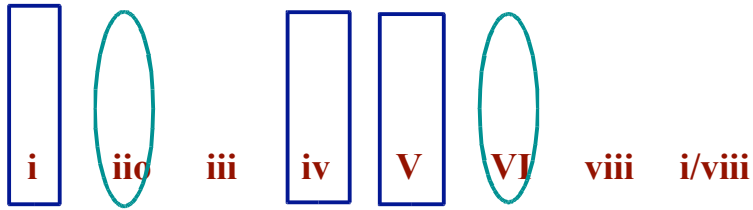


D MINOR



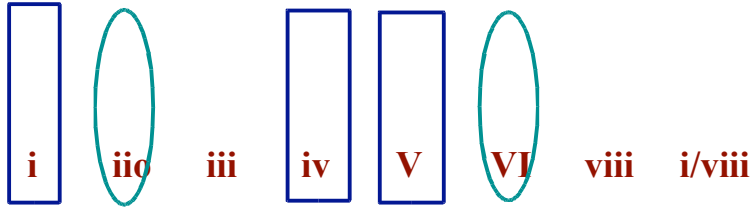
G MINOR

5th
3rd
Root



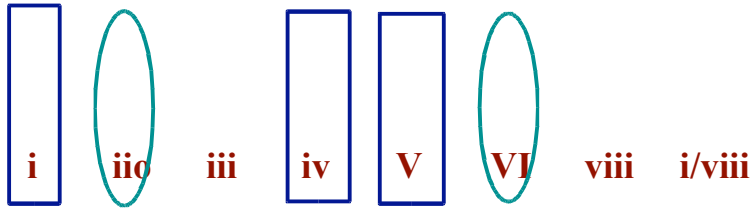
C MINOR

5th
3rd
Root



F MINOR

5th
3rd
Root



Bb MINOR

5th
3rd
Root

