



Guitar theory

lesson notes



Contents

foundations

- 4 the major scale
- 5 tonics and naming major scales
- 6 major scale theory
- 7 key signatures
- 9 the natural minor scale
- 10 relative minors

chord theory

- 12 major chord theory
- 13 minor chord theory
- 14 fifth chord theory
- 16 major seventh chord theory
- 16 minor seventh chord theory
- 17 dominant seventh chord theory
- 18 sus chords and add chords

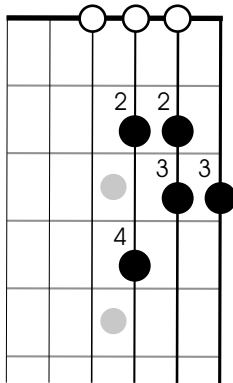
more advanced theory

- 22 modes
- 28 time signatures
- 29 BPM

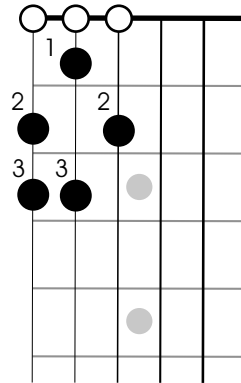
The Major scale

Open 'G' major scales

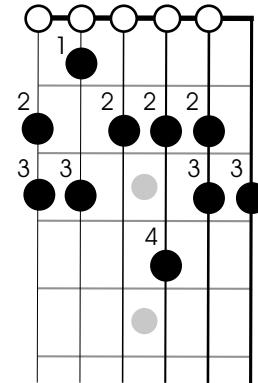
Lower, one octave
'G' major scale



Upper, one octave
'G' major scale

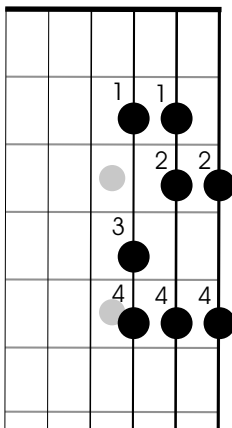


2 octave
'G' major scale

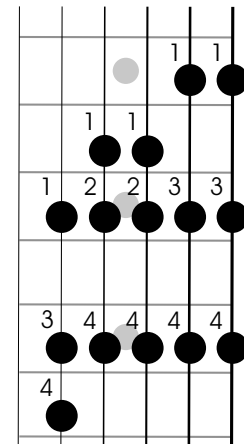
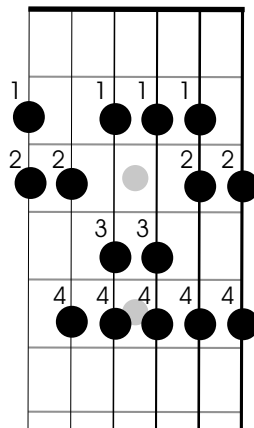


Barre 'G' major scales

Lower, one octave
'G' major scale



2 octave
'G' major scales



'Tonics' and octaves

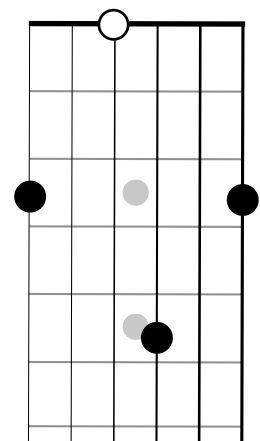
The tonic or root

The 'root' or 'tonic' is the note that gives the scale its name and it's the note you start the scale on. In the scales above the 'tonic' note is 'G', and in the illustration to the right you can see where the 'G' notes are relative to the scales. The major scale will always start on the note that gives the scale its name. For the examples above the tonic is 'G'.

Octave

An octave is the name given to the gap between the two closest notes with the same name. In the case of the major or minor scales there is an eight note gap between the tonic notes, hence the name Octave (oct being eight).

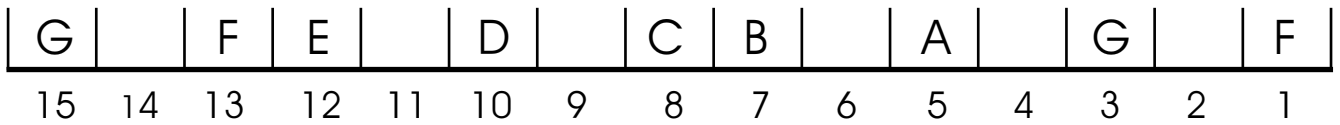
An octave major scale has eight notes in it and a two octave scale has fifteen.



Using 'Tonics' to find other major scales

As mentioned earlier the 'root' or 'tonic' is the note that gives the scale its name. In the case of the 2 octave scale the 'tonic' is on the bottom 'E' string. If you learn the names of the notes on the bottom 'E' string you can use this knowledge to move your major scale into different positions and therefore play different major scales.

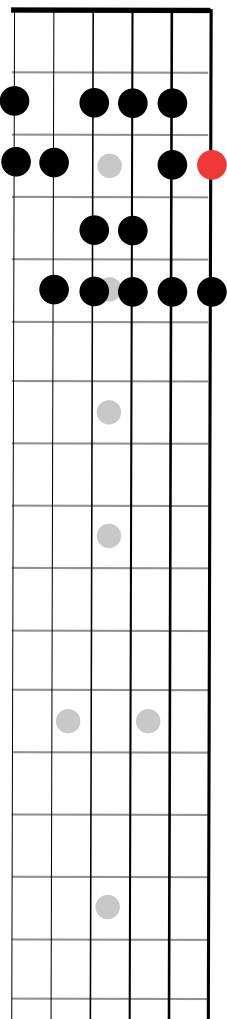
note names



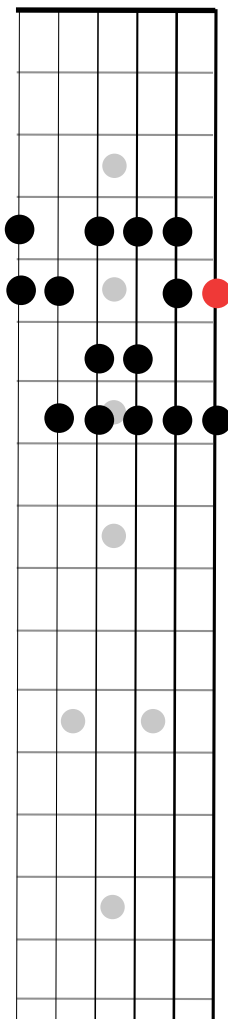
fret numbers

Examples. If you play the major scale starting on the 3rd fret it will be called the 'G' major scale and if you play the major scale starting on the 5th fret it will be called the 'A' major scale etc.

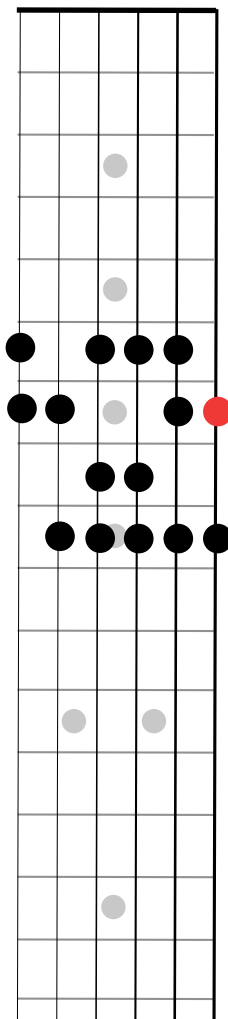
G major



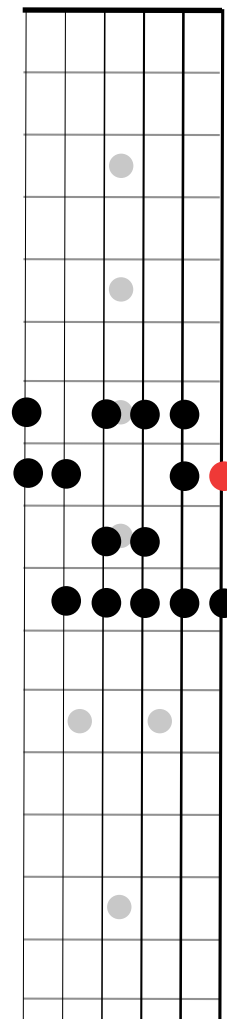
A major



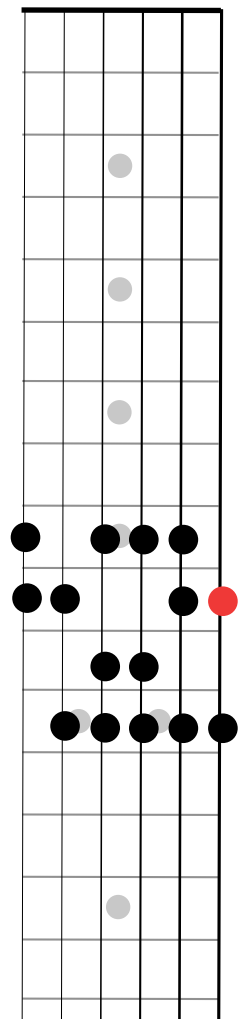
B major



C major



D major



The names of the notes in the gaps

The notes in the gaps are sharps and flats and the reason they aren't named is because each of the gaps can have 2 names. A sharp is up one fret and a flat is down one fret, so the 2nd fret could be 'F#' or 'Gb' and the 4th fret could be 'G#' or 'Ab'.

= sharp = up 1 fret

b = flat = down 1 fret

Major scale theory

The major scale is really important to learn and can be considered as the DNA of western music, virtually every scale you use and tune you play has either come directly from the major scale or has been derived from the major scale.

Most people know the sound of the major scale from the doh ray me's.

'DOH RAY ME FAH SOH LA TE DOH'

To help you understand what the major scale is and to understand the theory behind the major scale it is useful to know that the scale is a pattern of intervals. A pattern of intervals is a pattern of semitones or semitones and tones.

The pattern of intervals for the major scale in semitones is

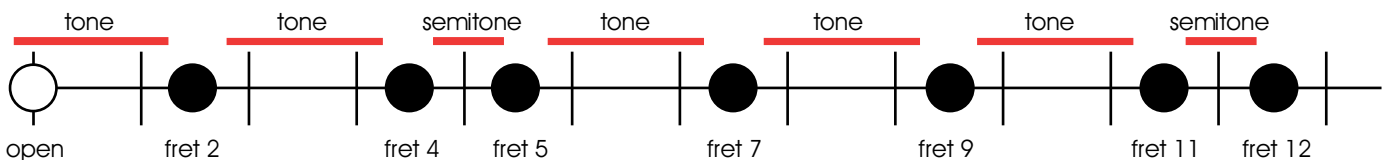
2 . 2 . 1 . 2 . 2 . 2 . 1

The pattern in tones and semitones is

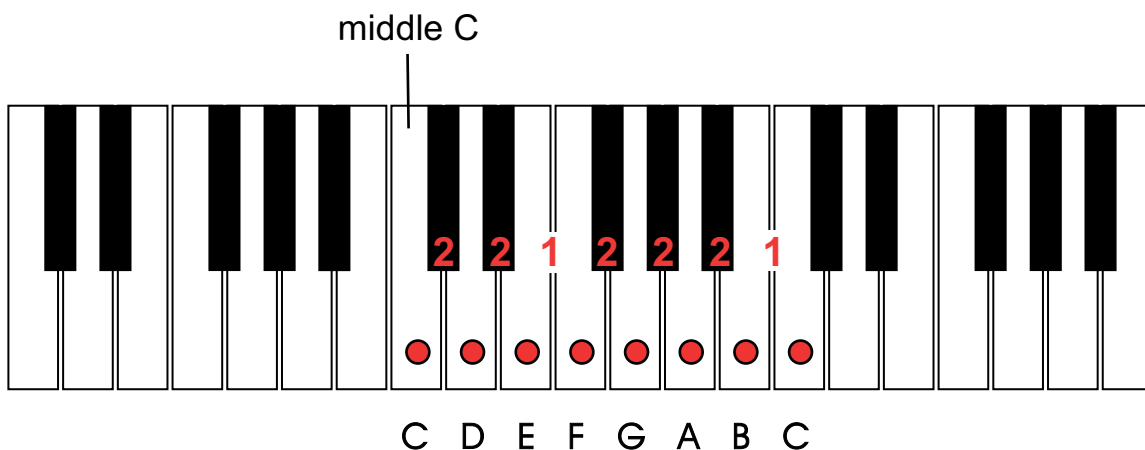
TONE TONE SEMITONE TONE TONE TONE SEMITONE

Try this . . .

Play the pattern above on one string (any string) so you can hear that it is the major scale. (A semitone is a gap of one fret and a tone is a gap of two frets)

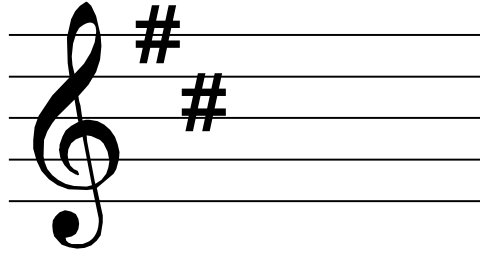


Note. This pattern is so important to the fundamentals of music that the layout of the keyboard has been designed around it. If you play the above pattern from C to C on a keyboard you will notice that a black note appears everywhere a tone is played or in other words when you play the 'C' major scale will only play white notes.



Key signatures

The key signature is shown in the score just after the clef. The key signature is represented by the number of sharps or flats and notifies the reader what key the tune is written in. The key a tune is written in is the major scale the tune is based around.



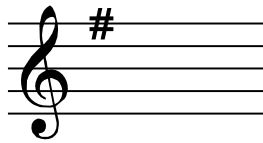
To understand this and translate it into a form that you can relate to on a guitar, when playing the major scales in different positions on the neck the number of sharps and flats played in the scale changes depending on where you play the major scale. Each major scale has a unique number of sharps or flats in it and this is the key signature. When reading music one of the first things on the staff is the sharps or flats used in that tune. The list of sharps or flats on the staff notifies the reader what key the music is in, or what major scale was used when the music was written.

List of key signatures

C major



G major



D major



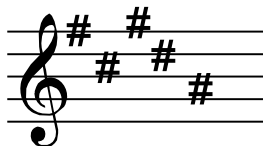
A major



E major



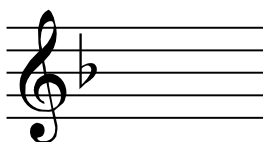
B major



F# major



F major



Bb major



Eb major



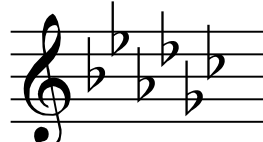
Ab major



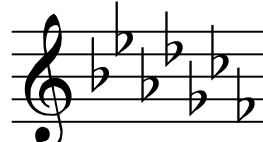
Db major



Gb major



Cb major

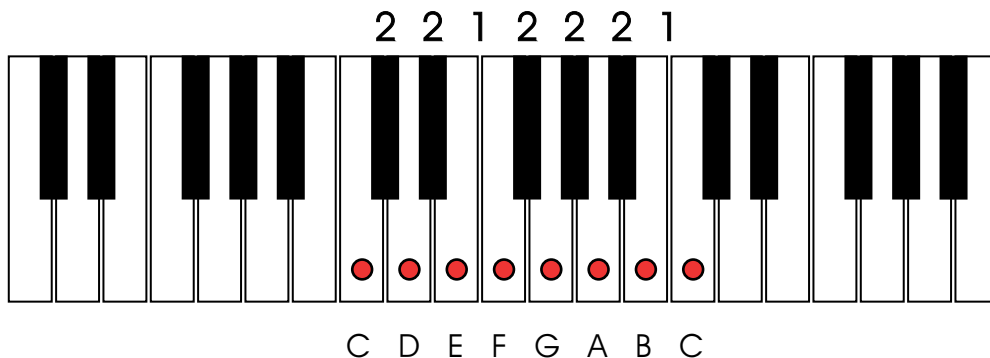


Examples, proving the theory of key signatures

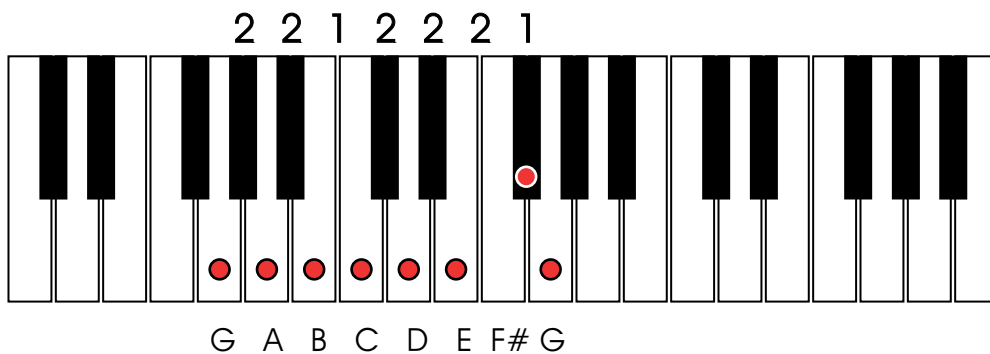
The best way to demonstrate that key signatures work and to help understand them is to use a keyboard. The reason a keyboard is being used here instead of a guitar neck is that the layout of a keyboard shows sharps and flats clearly. The black notes are the sharps and flats.

Use the major scale pattern of intervals 2 2 1 2 2 2 1

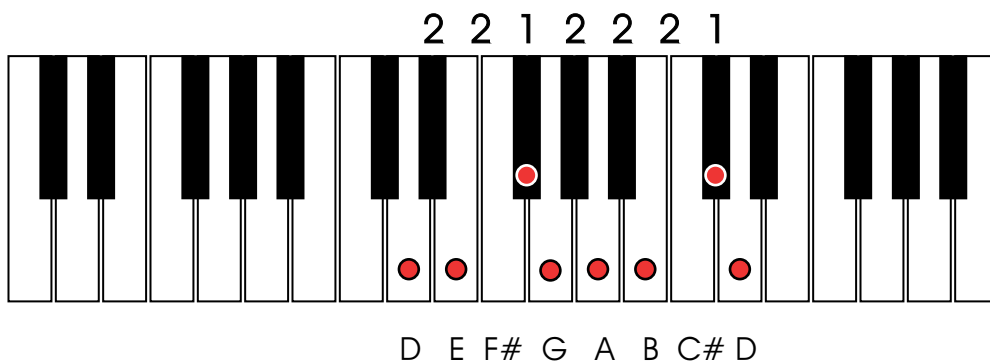
C major



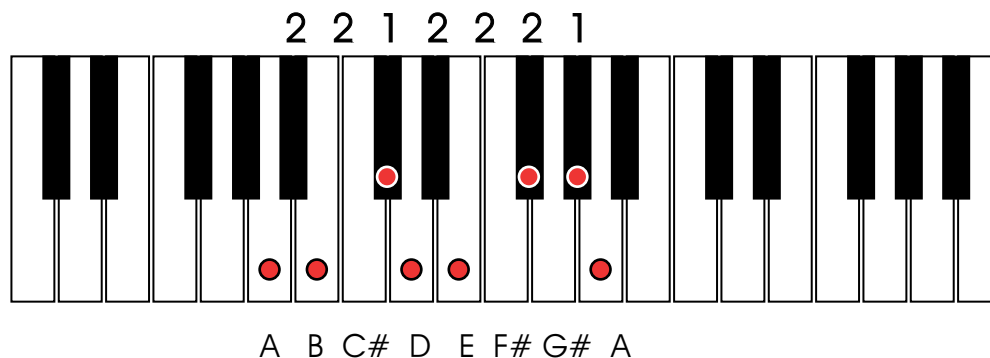
G major



D major



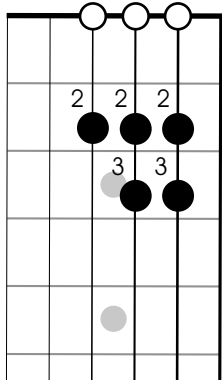
A major



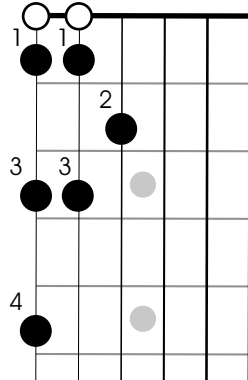
The natural minor scale

open 'A' natural minor scales

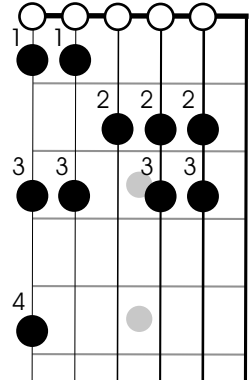
lower, one octave
'A' natural minor scale



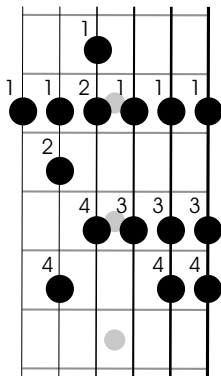
upper, one octave
'A' natural minor scale



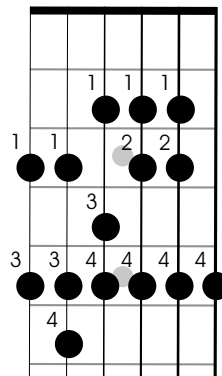
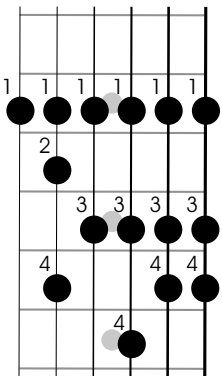
2 octave
'A' natural minor scale



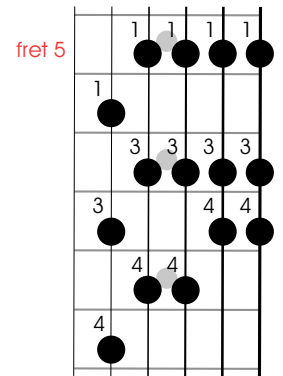
several ways to play the barred 'A' natural minor scales



fret 5



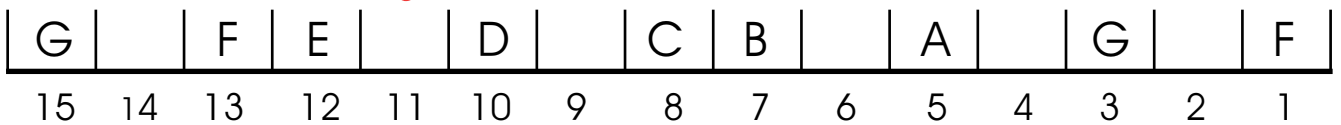
fret 5



fret 5

As with the major scale the name comes from the root note or the note the scale starts on. In these cases the first note is the 5th fret of the 'E' string which is an 'A'.

note names on the 'E' string



fret numbers

The interval pattern for the natural minor scale

2 1 2 2 1 2 2

or

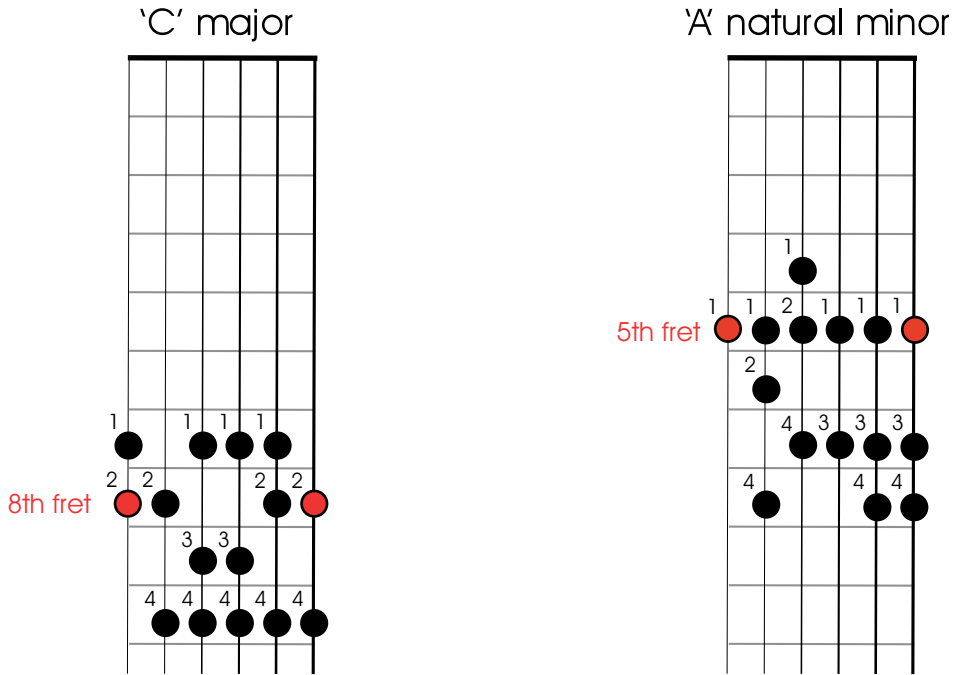
tone semitone tone tone semitone tone tone

Relative minor scales

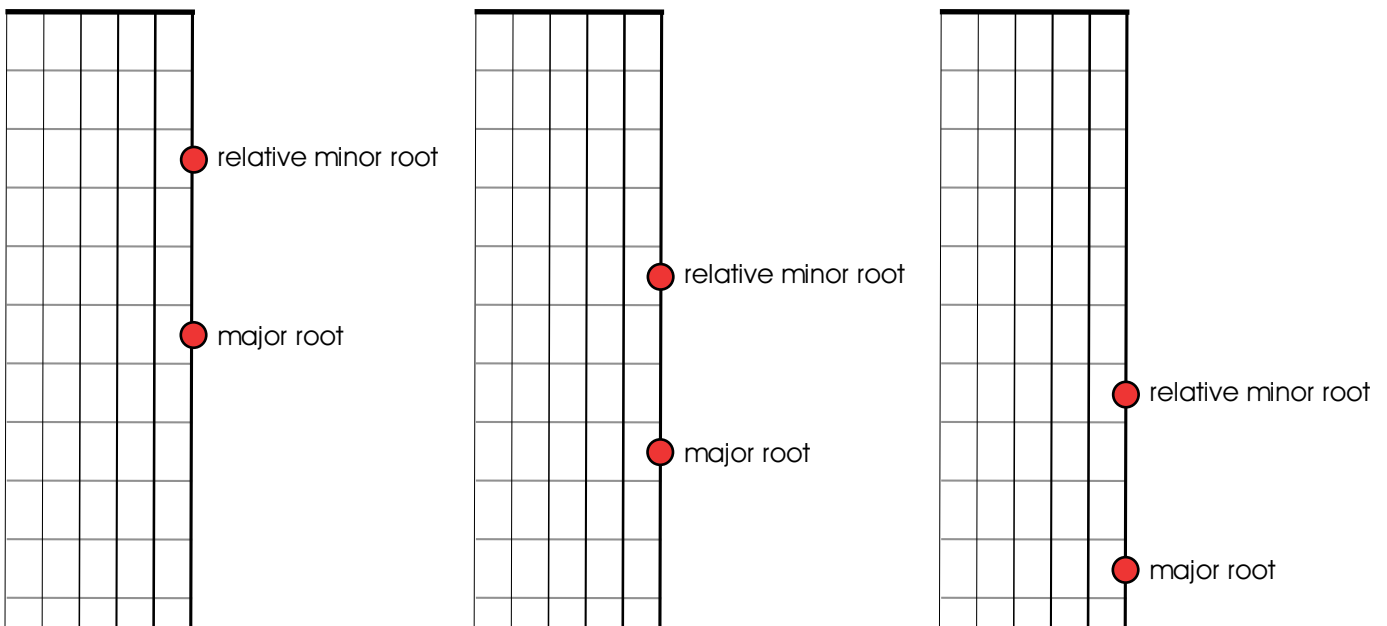
Every major scale has a relative natural minor scale.

In the previous lessons you learned the 'C' major scale and the 'A' natural minor scale, and this isn't by chance. I chose these two scales because the 'A' natural minor is the relative minor of 'C' major. The relative minor has the same key signature as the major scale it is related too and therefore both 'A' natural minor and 'C' major have no sharps or flats in the key signature and therefore can be used easily in the same tune.

The red notes in the illustrations below are the roots of the scales, or the notes that give the scales their names. 'C' is the 8th fret on the bottom 'E' string and 'A' is the fifth fret on the bottom 'E' string.



All major scales have relative natural minor scales and the root of the minor scale is always 2 intervals down from the root of the major scale. So you can find the relative minor scale by playing it 3 frets down from the root note of the major scale, and conversely the major scale starts 3 steps up from the natural scale.



A List of key signatures and their relative minors

Key signatures with sharps

major scales	relative minor
C	Am
G	Em
D	Bm
A	F#m
E	C#m
B	G#m
F#	D#m

Key signatures with flats

major scales	relative minor
F	Dm
Bb	Gm
Eb	Cm
Ab	Fm
Db	Bbm
Gb	Ebm
Cb	Abm

notes

Note 1

Because the major and relative natural minor scales are in the same key you can use them flawlessly together to improvise, or write your own solos. You can do this using backing tracks in the same key as the major scale. For example you can improvise using the 'C' major scale and the 'A' natural minor scale with any backing track in the or 'C' major.

Note 2

So you can move the barred major scale shape around the neck of the guitar in order to create new major scales you need to know the names of the root notes. The root notes of the two octave major scales are on the bottom 'E' string and therefore you need to learn the names of the notes of the bottom 'E' string.

note names on the 'E' string

G		F	E		D		C	B		A		G		F
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

fret numbers

Note 3

The major and natural minor scales are an important part of the modal scales. When you are ready to start learning the modes you will find knowing the major and minor scales well will help your understanding of the modes and because they are both modal scales you will have already learned 2 of the 7 scales. Knowing these scales will also help when you want to learn guitar and chord theory.

The 'C' major scale can also be called the 'C' Ionian scale.

The 'A' natural minor scale can also be called the 'A' Aeolian scale.

Chord theory

the major chord

All major chords are made up of 'TRIADS'.

The triad of a chord is the FIRST, THIRD and FIFTH note of the scale with the same name.

For example, the notes of the 'C' major scale are;

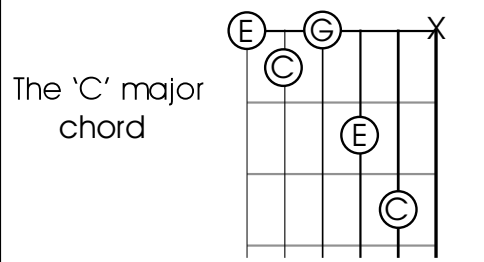
1	2	3	4	5	6	7	8
C	D	E	F	G	A	B	C

1st 3rd 5th

The triad is the FIRST, THIRD and FIFTH note.

the triad = C E G

The note names are marked on this chord map. You can see that all the notes in the chord are from the triad.

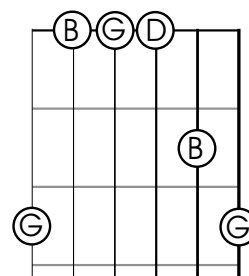


examples

G major

the 'G' major scale = G A B C D E F# G

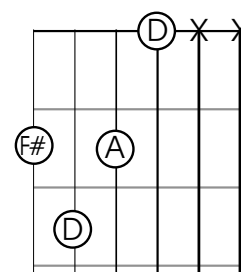
First, third and fifth note or triad = G B D



D major

the 'D' major scale = D E F# G A B C# D

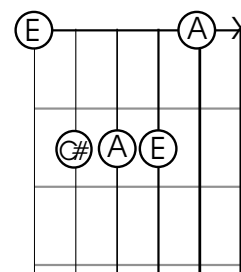
First, third and fifth note or triad = D F# A



A major

the 'A' major scale = A B C# D E F# G# A

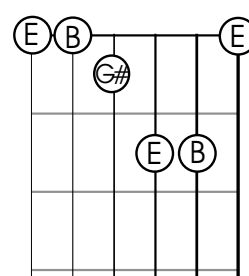
First, third and fifth note or triad = A C# E



E major

the 'E' major scale = E F# G# A B C# D# E

First, third and fifth note or triad = E G# B



Chord theory 2

the minor chord

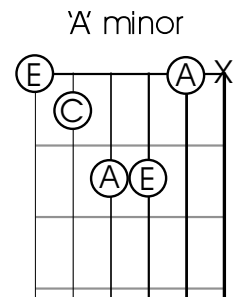
The construction of the minor chord is the same as it is for the major chord, however for a minor chord it is essential to use a minor scale. A major scale produces a major triad and major chord, and a minor scale produces a minor triad and minor chord.

For example, the notes of the 'A' minor scale are;

1	2	3	4	5	6	7	8
A	B	C	D	E	F	G	A
1st		3rd		5th			

The minor triad is still the FIRST, THIRD and FIFTH note.

the triad = A C E

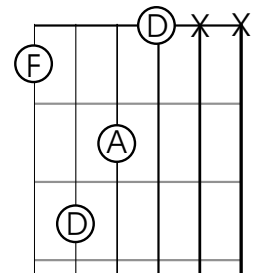


examples

D minor

the 'D' minor scale = D E F G A B \flat C D

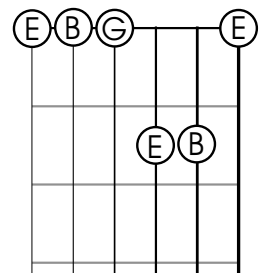
First, third and fifth note or triad = D F A



E minor

the 'E' minor scale = E F \sharp G A B C D E

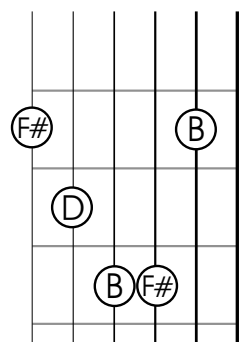
First, third and fifth note or triad = E G B



B minor

the 'B' minor scale = B C \sharp D E F \sharp G A B

First, third and fifth note or triad = B D F \sharp

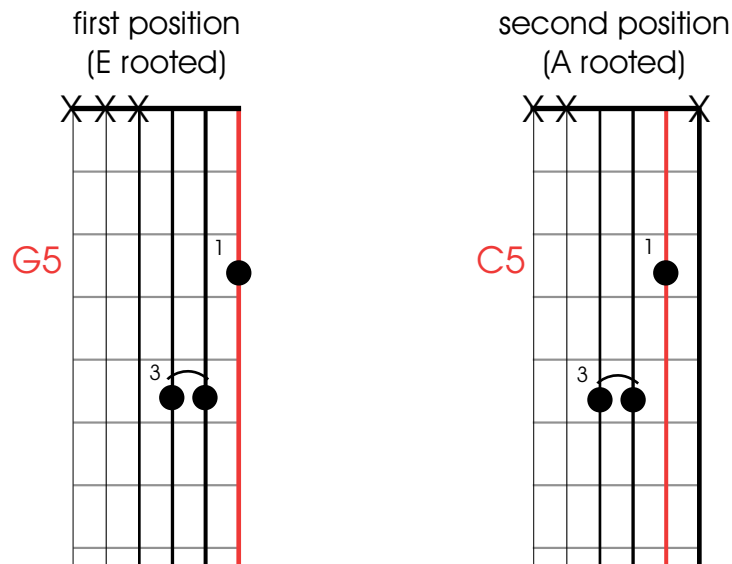


How to mute strings in the middle of chords.

Let a finger rest on or hang over the string you want to mute. This will take practice because you need to maintain the pressure on the fingered notes at the same time as muting.

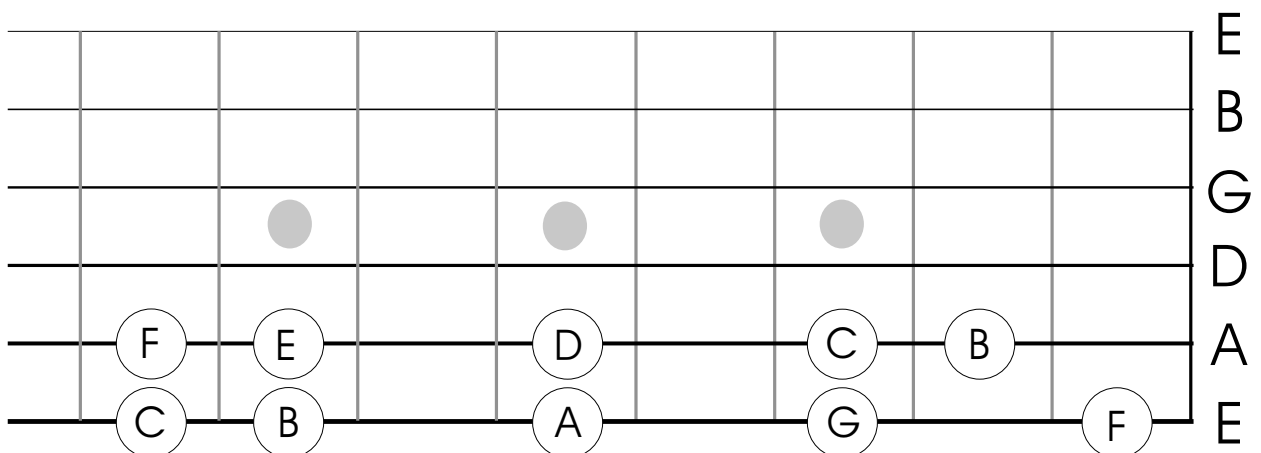
'E' string and 'A' string rooted barre 5th chords

The most common 5th chords are barre chords. If you haven't learned barre chords yet don't worry because these are the easiest barre chords to play and learn. Just like when you learn scales in different positions these 5th chords are named after the root notes. The 'E' string rooted 5th chords take their name from the names of the notes on the bottom 'E' string and the 'A' string rooted 5th chord gets its name from the 'A' string.



The chords in the examples above are on the 3rd fret and are a G5 and a C5, however if you play exactly the same shape chords in the 5th fret they would be A5 and D5. By learning these 2 chord shapes and the names of the notes on the 'E' and 'A' string you will be learning over 20 chords.

fret map for the 'E' and 'A' strings



The gaps in this fret map are the sharps and flats. A sharp is a note moved up one fret and a flat is when a note is moved down one fret. This means that most of the blank frets can have 2 names, a sharp and a flat.

Seventh chord theory

the major seventh chord

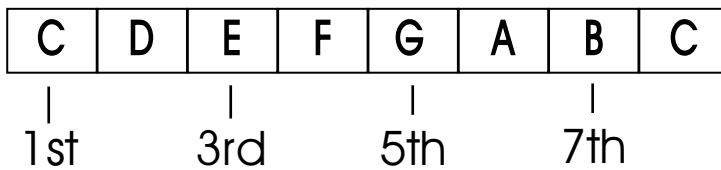
The major seventh chord like all major chords starts with the major triad, however this time we find the seventh note of the same major scale we got the triad from and add it to the chord.

For example, to create a Cmaj7 we start with the scale of C major, then we find the first, third and fifth notes so we have the triad. Finally we find the seventh note so we have a Cmaj7.

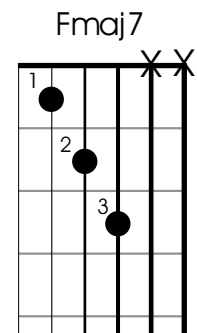
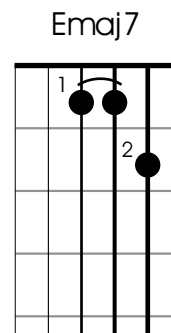
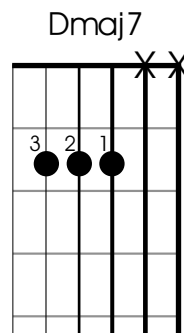
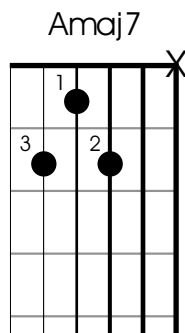
The notes in Cmaj7 are C E G B.

The note names are marked on this chord map. You can see that all the notes in the chord are from the triad.

The 'Cmaj7' chord



examples

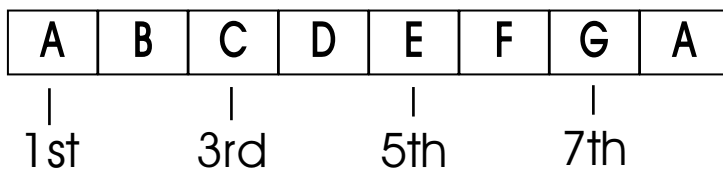


the minor seventh chord

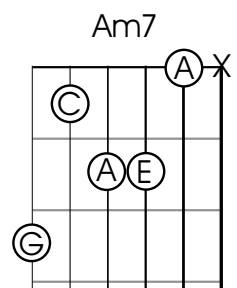
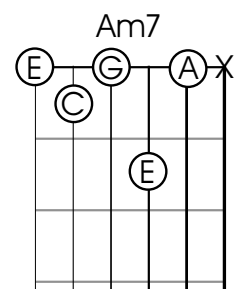
The minor seventh chord follow exactly the same pattern of logic as the major seventh chord with the exception that you have to use a minor scale rather than a major scale.

For Example, to create an Am7 we start with the scale of A minor, then we find the first, third and fifth notes so we have the triad. Finally we find the seventh note so we have an Am7.

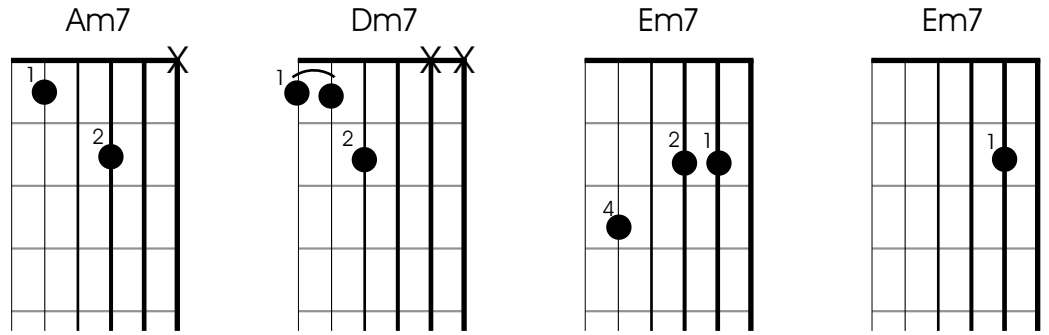
The notes in Am7 are A C E G



This is why you can have several variations of one chord, but they will all contain the same notes.



examples of minor sevenths



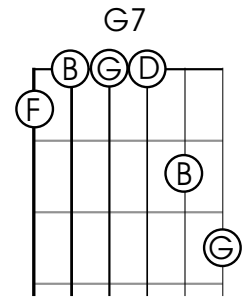
the dominant seventh chord

The dominant seventh chord is without doubt the seventh chord we use the most, however it has the most complex theory of all the seventh chords. So, for the sake of the first year of the course we will use a simplified theory.

The dominant seventh can be created in the same way as the major and minor seventh, however we use the mixolydian scale as its source.

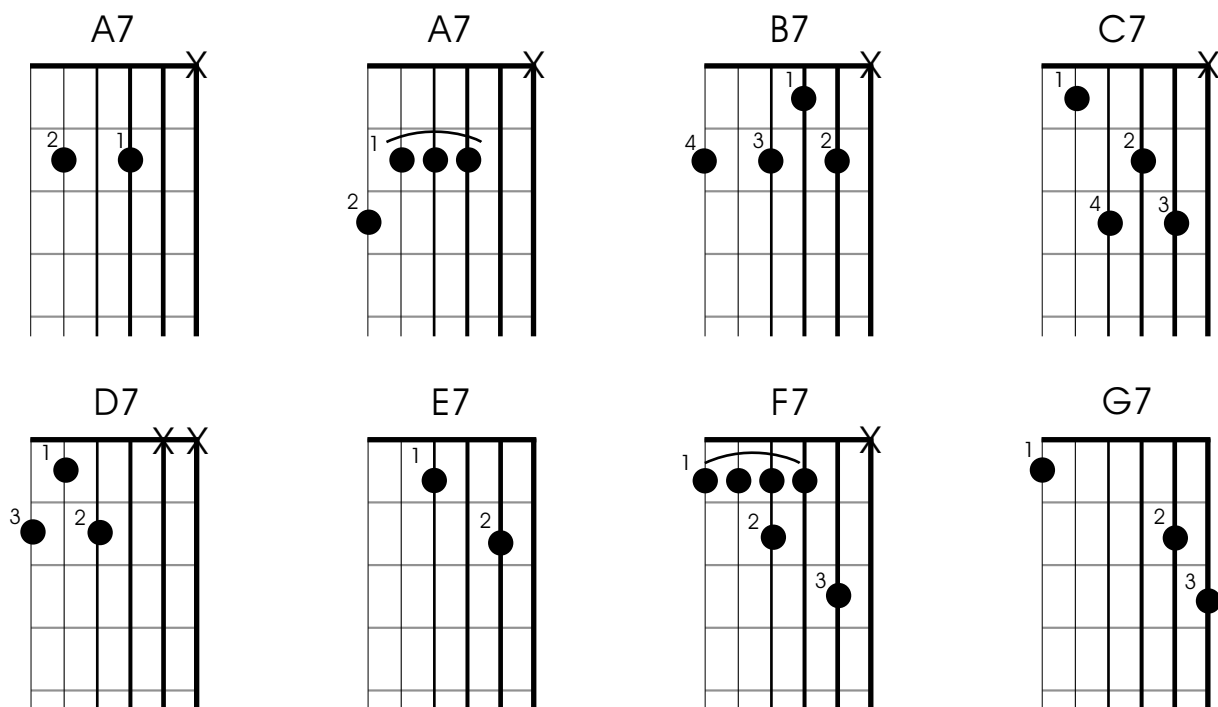
For Example, to create a G7 we start with the scale of G mixolydian, then we find the first, third and fifth notes so we have the triad. Finally we find the seventh note so we have a G7.

The notes in G7 are G B D F



G	A	B	C	D	E	F	G
1st		3rd		5th		7th	

example chords



Sus chords and add chords

what are the numbers in chords ? the simple answer

The numbers in chord names refer to notes in the scale that make up the chord. For example below you can see the notes in the scale of 'C' major and the numbers for each note underneath.

The scale of 'C' major.

scale	C	D	E	F	G	A	B	C
note number	1	2	3	4	5	6	7	8

Using this 'C' major scale you can see that the 2 = 'D' and the 4 = 'F' and if the number is higher than 8, which often happens with a 9 then you just start the scale again.

scale	C	D	E	F	G	A	B	C	D	E	F
note number	1	2	3	4	5	6	7	8	9	10	11

sus chords vs add chords

The difference between a sus chord and an add chord

Sus chords, suspended.

Sus chords are when a note in the chord (the 3rd) is replaced with another note from the scale, either the 2nd or the 4th.

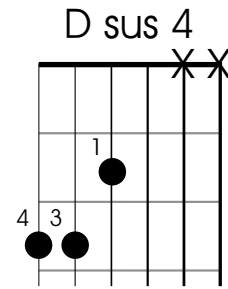
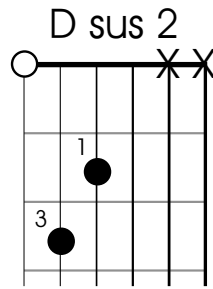
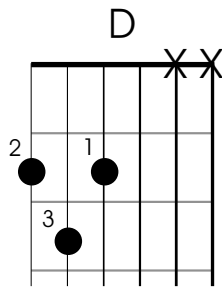
Add chords, added.

Add chords are when a note from the scale is added to the chord so that the complete triad is still played, but an extra note is added to it.

note

To fully understand these definitions and this lesson, you will need to know some basic chord theory first and particularly about triads. A very quick definition of triads is this; Triads are the 3 notes that make up any major or minor chord and are the 1st, 3rd and 5th notes of the scale with the same name as the chord.

examples of sus chords

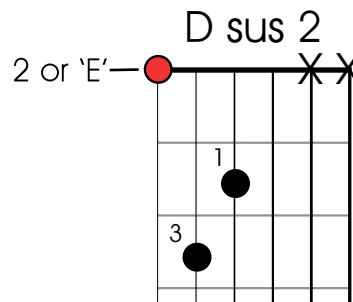
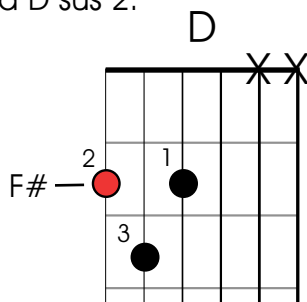


The scale of 'D' major.

scale	D	E	F#	G	A	B	C#	D
note number	1	2	3	4	5	6	7	8

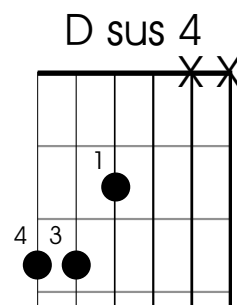
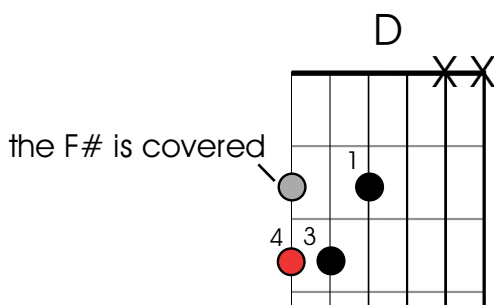
The D sus 2 chord

The 2 is the 2nd note of the scale which is 'E'. We can alter the 'D' chord so that the 2 or 'E' is played by removing the 'F#'. When we remove the 'F#' so that the 'E' is played the chord now becomes a D sus 2.



The D sus 4 chord

The 4 is the 4th note of the scale and is a 'G'. We can alter the 'D' chord so that the 4 or 'G' is played by placing our 4th finger on the 3rd fret of the top 'E' string. When we cover the 'F#' to play the 'G' the chord now becomes a D sus 4.

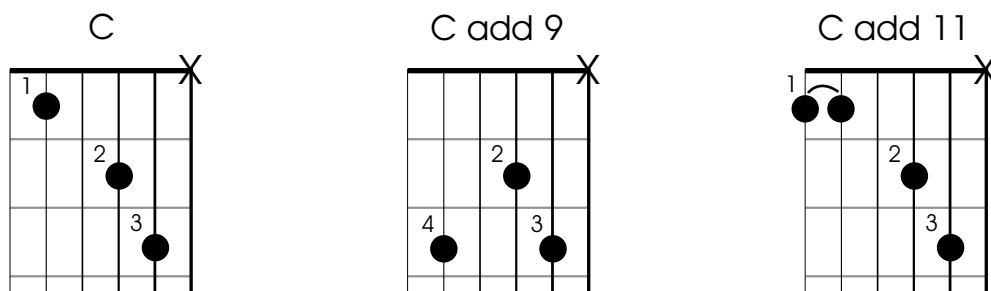


notes

All triads are made up of the 1st, 3rd and 5th note of the scale. In the 'D' major scale the 'F#' is the 3rd note and so when we remove the 'F#' from the chord, the chord no longer contains a complete triad.

The 'D' major scale has 2 sharps, an F# and a C# and if you want to understand why this is you will need to go through the lesson on key signatures.

examples of add chords

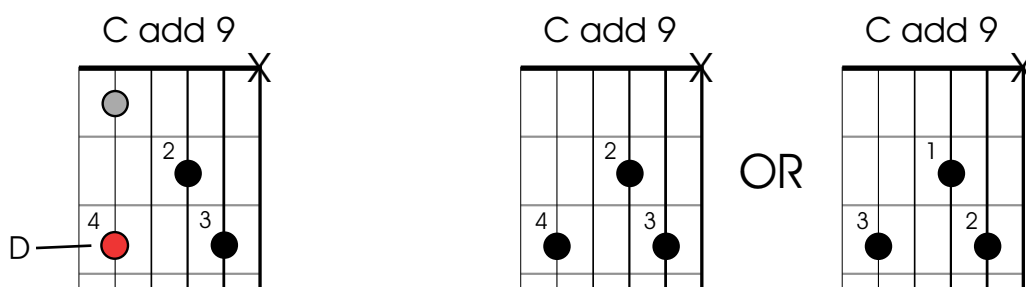


The scale of 'C' major.

scale	C	D	E	F	G	A	B	C	D	E	F
note number	1	2	3	4	5	6	7	8	9	10	11

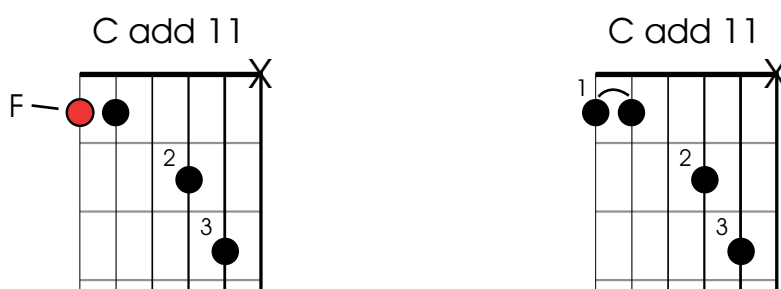
The C add 9 chord

The 9 is the 9th note of the 'C' scale which is a 'D'. We can add the 9 or 'D' by placing the 4th finger on the 3rd fret of the 'B' string. When the 4th finger is on the 3rd fret we can remove the 1st finger.



The C add 11 chord

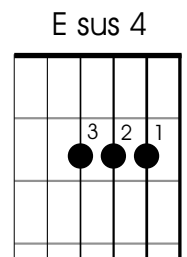
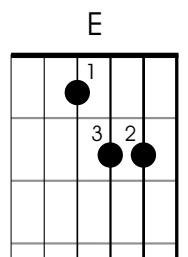
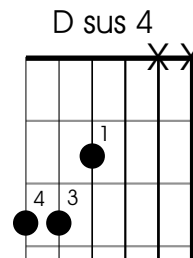
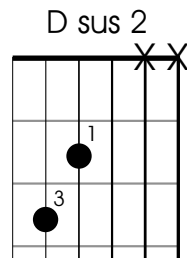
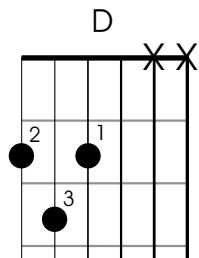
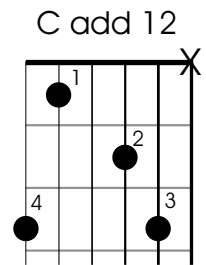
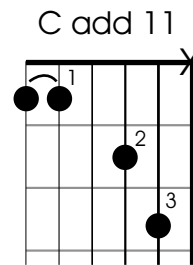
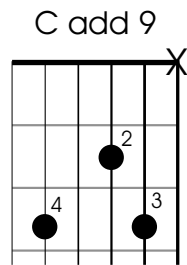
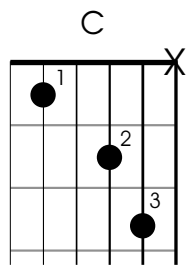
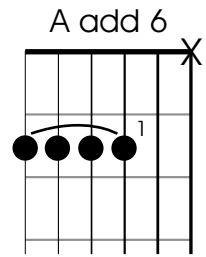
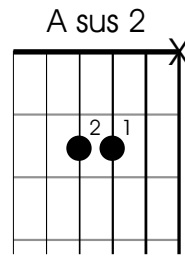
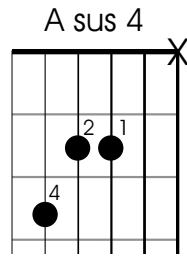
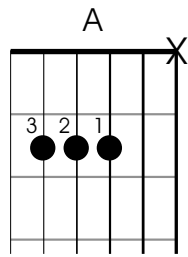
The 11 is the 11th note of the 'C' scale which is an 'F'. We can add the 11 or 'F' by playing the first fret of the top 'E' string. The easiest way to play this chord is to straddle the 'B' and 'E' string with one finger if you can.



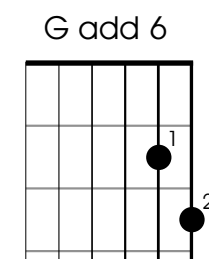
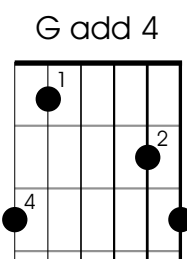
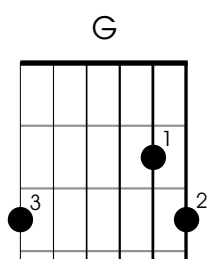
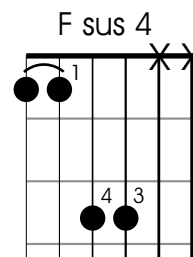
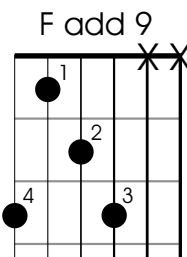
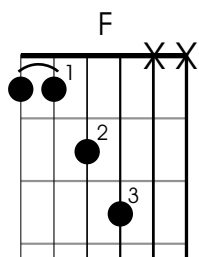
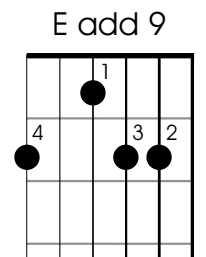
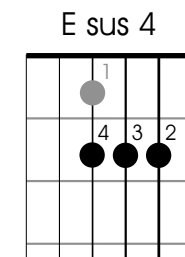
notes

With all add chords you should still play the complete triad, so the chord is still a complete chord even though you are adding an extra note to it. In the case of the 'C' major chord the triad is C, E, G which are played on the A, D and G strings and as demonstrated in the examples above these three strings are unaffected by the additional notes.

some chords you might come across



OR



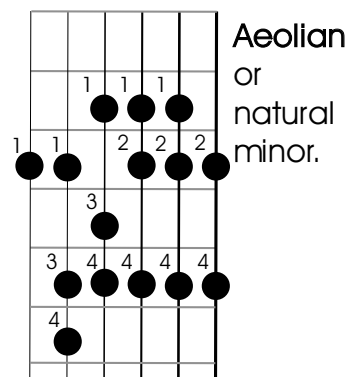
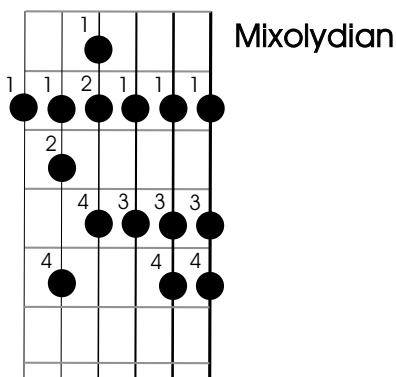
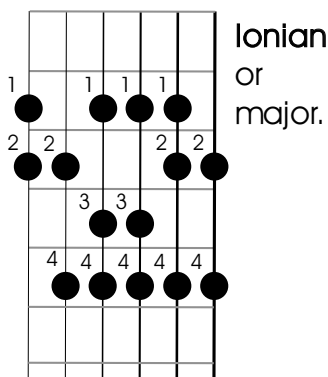
Modes

Modes are scales that start and finish on different root notes relative to the key signature. Modes can be created by changing the start and end note of a scale, whilst maintaining the key signature. Modes can be useful when improvising, and a great deal of theory can be explained using modal scales.

Below is an example of modes using the key of 'C' major as the root scale or key signature.

M o d e 1	- C	D	E	F	G	A	B	C	- C Ionian
M o d e 2	- D	E	F	G	A	B	C	D	- D Dorian
M o d e 3	- E	F	G	A	B	C	D	E	- E Phrygian
M o d e 4	- F	G	A	B	C	D	E	F	- F Lydian
M o d e 5	- G	A	B	C	D	E	F	G	- G Mixolydian
M o d e 6	- A	B	C	D	E	F	G	A	- A Aeolian
M o d e 7	- B	C	D	E	F	G	A	B	- B Locrian

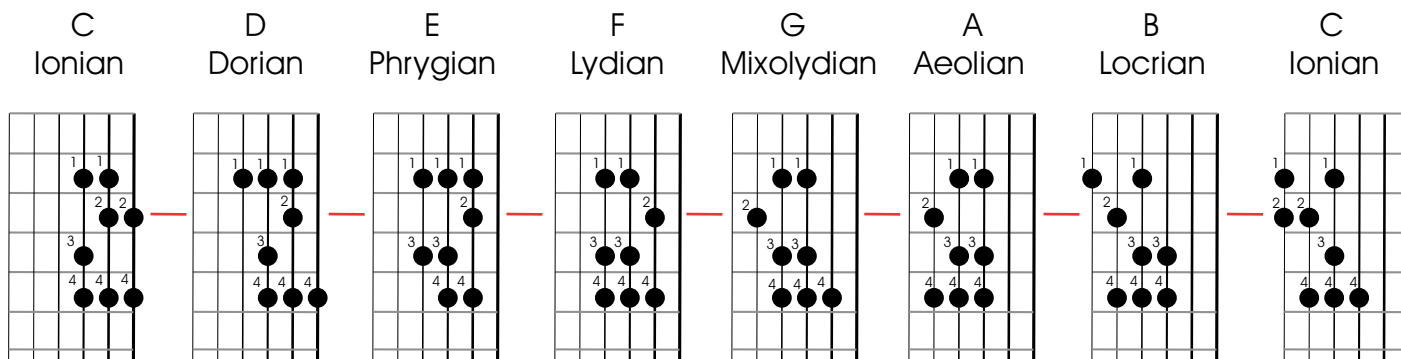
During the course we have encountered three modal scales.



Try this . . .

play the following scales noting how the first notes of each scale can be string together to create the steps in a major scale and that all the scales are partial patterns from the 'C' diatonic major scale.

(Diatonic = 2 octave)



— 8th fret —

Improvising using modes

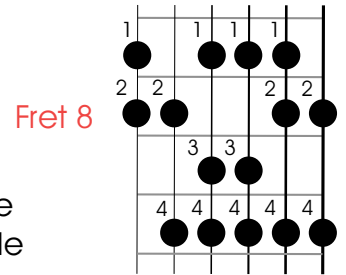
In the same way as it is possible to improvise with the blues scale, it is possible to improvise with the major scale. You must be sure to use the correct scale for the key signature however.

example

The key signature of C



should use the scale of 'C' major.

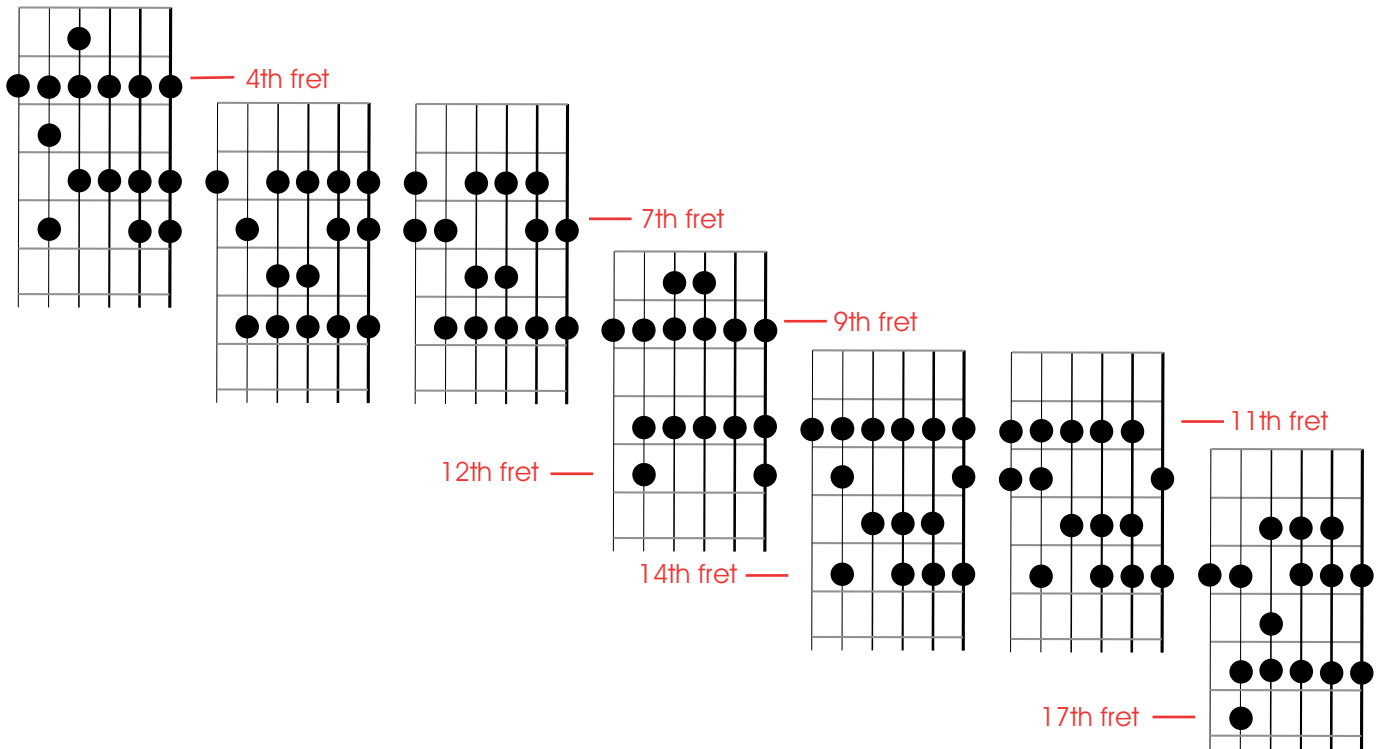


As with this example above, once you have identified the key signature of the piece you would like to improvise with, simply use the major scale with the same name as the key signature.

Once you feel you can improvise with the major scale, you can advance your skills by improvising with the modes. Start with the Aeolian scale or the relative minor and then use more modes as you feel comfortable.

The modal scales joined

These scales are the modes of 'C' major.



Improvising is an important step towards writing your own tunes.

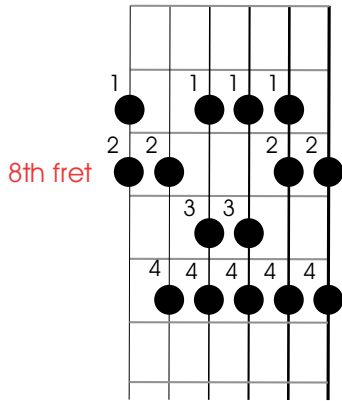


'C' major modes

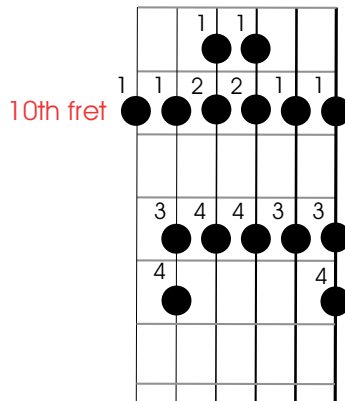


The individual modes of C major

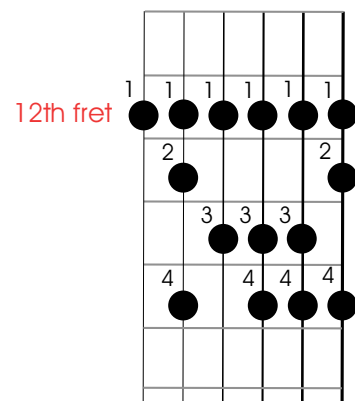
C Ionian
or 'C' major



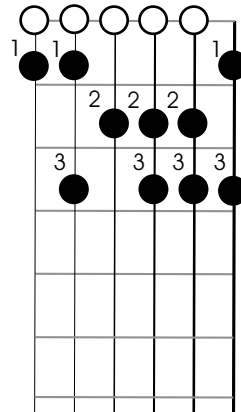
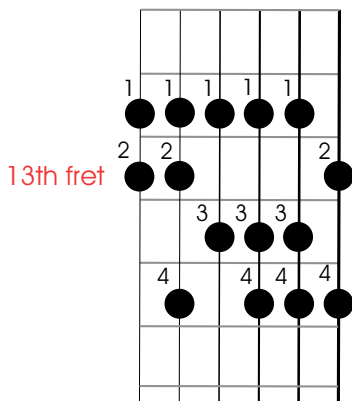
D Dorian



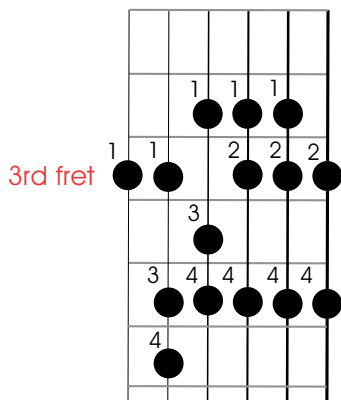
E Phygian



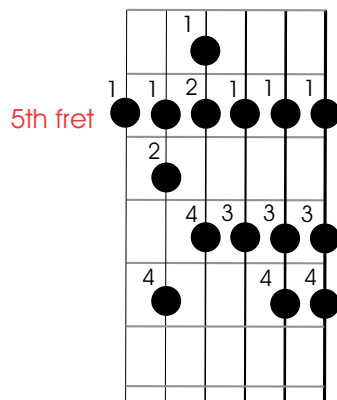
F Lydian
barre and open



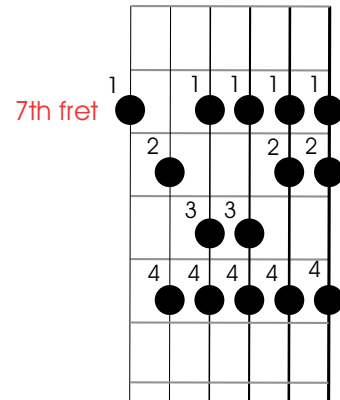
G Mixolydian



A Aeolian
or 'A' minor

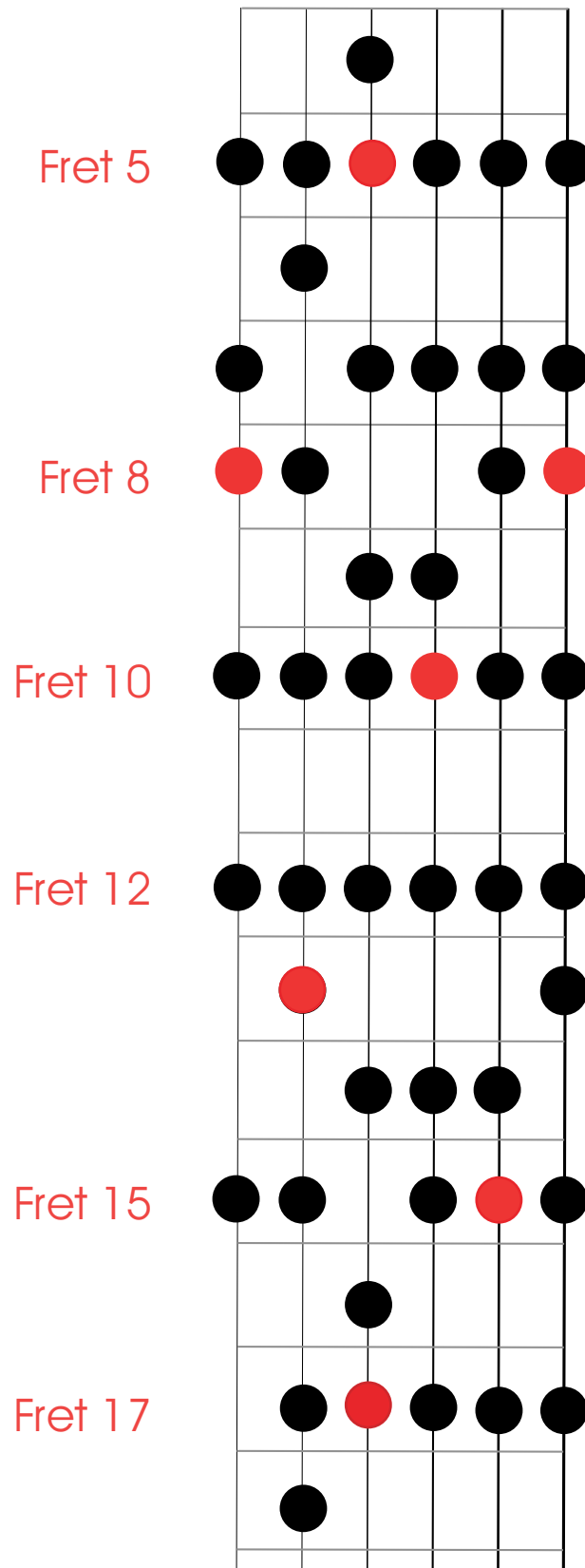


B Locrian



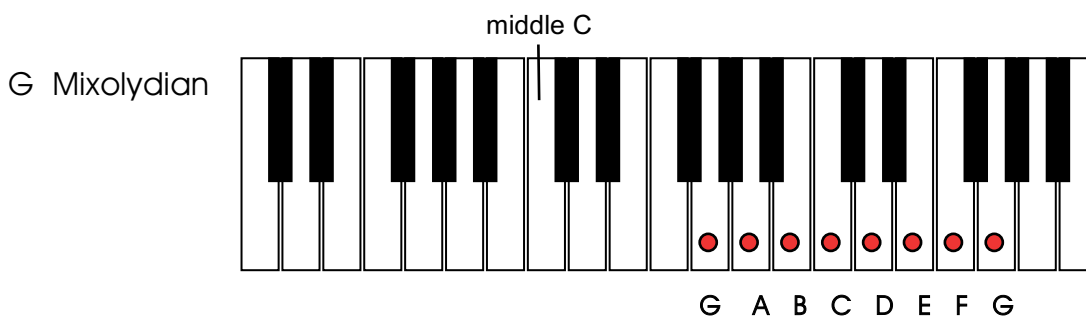
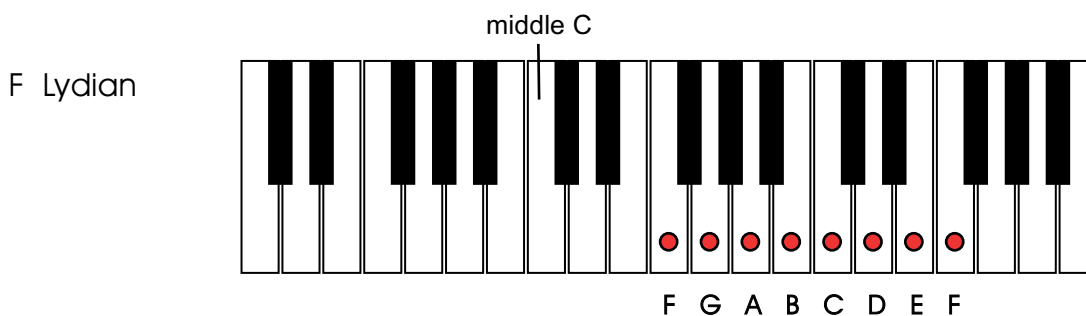
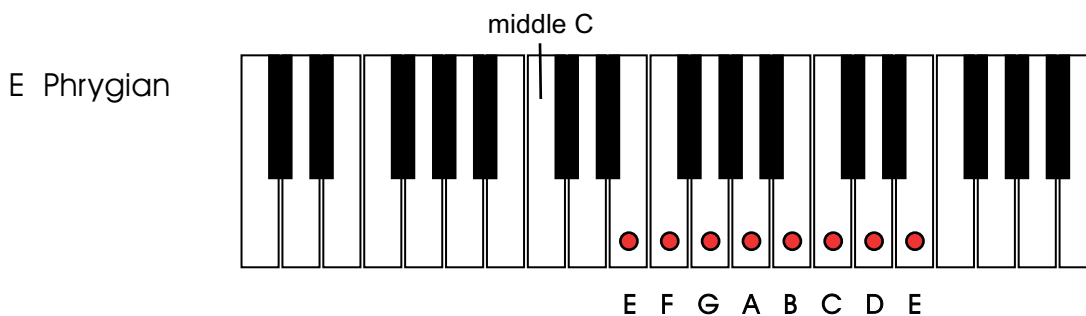
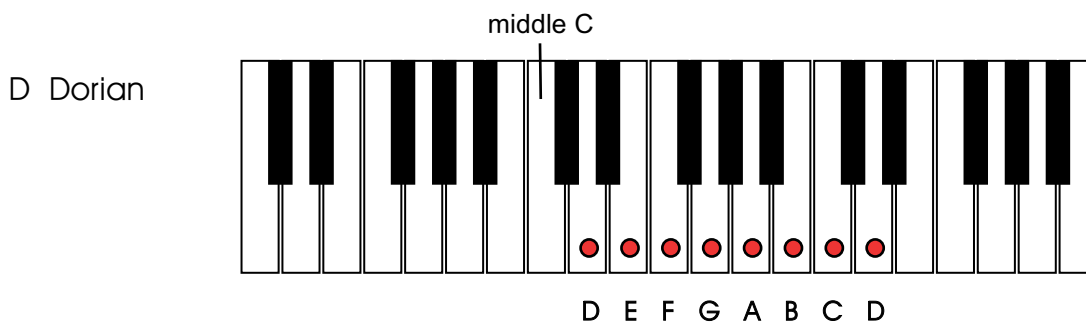
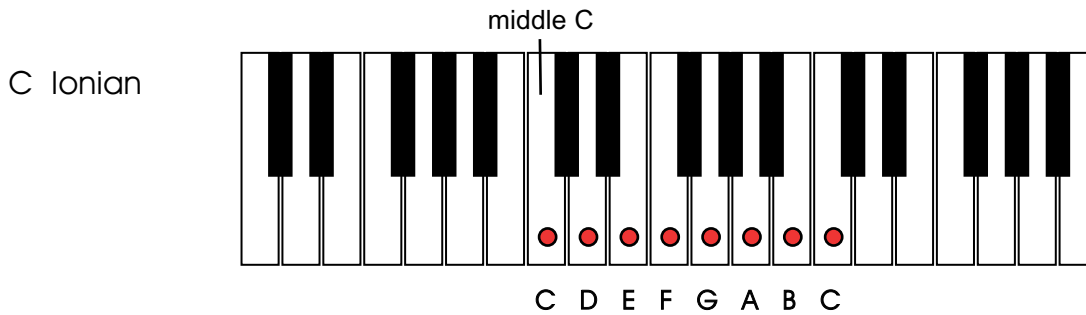
The notes you can use in the key of C major

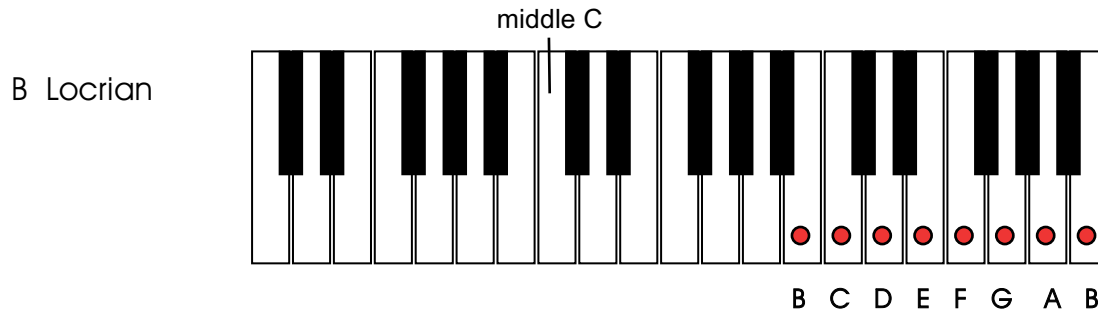
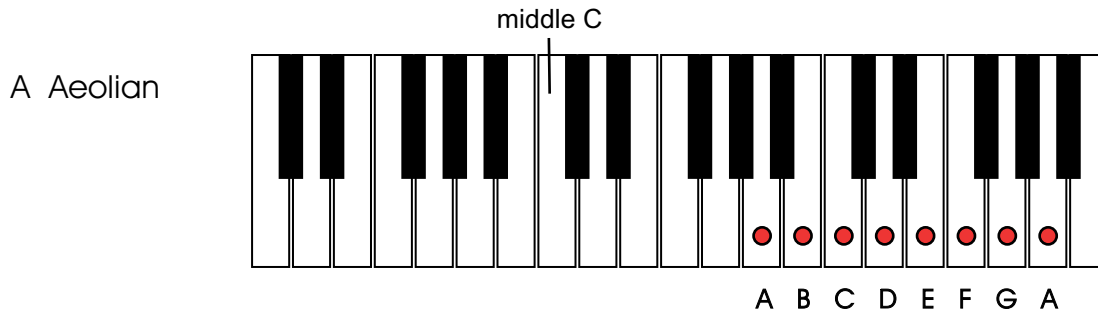
The red notes are where the root occurs



Demonstrating modes using a keyboard

Again, the best way to demonstrate modes is to use a keyboard map, this is because it is clear what key signature you are playing in as the sharps and flats are the black notes. For these examples we will use the key signature of 'C' major, because you never play a sharp or flat note, and therefore you should never play a black note in the key of 'C'.





Notice how even though these scales start and end on different notes, they still maintain the key of 'C' major, ie. none of these scales have any sharps or flats.

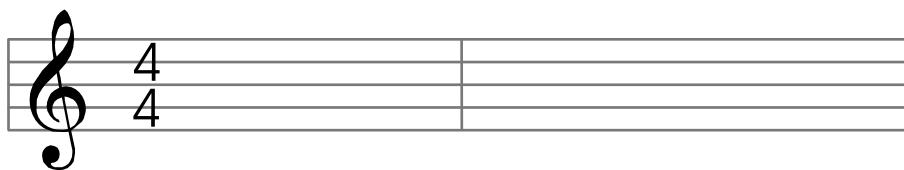
The modal interval patterns

In the same way we used the pattern for the major scale to explain key signatures, we can see how the mode patterns relate to one another. This illustration shows the pattern for each of the modes. The red numbers are semitones.

	Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Locrian
Ionian	2 . 2 . 1 . 2 . 2 . 2 . 1						
Dorian		2 . 1 . 2 . 2 . 2 . 1 . 2					
Phrygian			1 . 2 . 2 . 2 . 1 . 2 . 2				
Lydian				2 . 2 . 2 . 1 . 2 . 2 . 1			
Mixolydian					2 . 2 . 1 . 2 . 2 . 1 . 2		
Aeolian						2 . 1 . 2 . 2 . 1 . 2 . 2	
Locrian							1 . 2 . 2 . 1 . 2 . 2 . 2

What does the time signature mean

A time signature is the numbers at the beginning of a score that looks like a fraction. The time signature tells the musician how the rhythm should be counted (the beats per bar).



Interpreting time signatures







- 4 The TOP number is the number of beats in the bar.
- 4 The BOTTOM number represents the fraction of a semibreve.

For example we have used 4/4 time in many of the tunes you have learned, and 4/4 time is in the example above because it is by far the most common time signature you will come across. The top 4 means that there are 4 beats in the bar, and the bottom 4 is a fraction of a semibreve and therefore 4 in the bottom is 1/4 of a semibreve which is a crotchet.

I think the bottom number is the hardest to understand because you need to know the values of the notes and therefore here's a list of the values represented by it.

semibreve = 1 minim = 2 crotchet = 4 quaver = 8 etc.

A List of note values

	1	semibreve
	1/2	minim
	1/4	crotchet
	1/8	quaver
	1/16	semiquaver
	1/32	demisemiquaver

Where you might find time signatures useful.

If you don't know a tune, the time signature is essential to knowing how the tune should be played and how the rhythm sounds. If you want to play a tune fingerstyle, it is important to know the time signature to know which finger picking pattern will work with the tune.

Some example of common time signatures

$\frac{4}{4}$ Four crotchets in a bar

$\frac{3}{4}$ Three crotchets in a bar

$\frac{2}{4}$ Two crotchets in a bar

$\frac{6}{8}$ Six quavers in a bar

$\frac{2}{2}$ Two minims in a bar

$\frac{6}{16}$ Six semiquavers in a bar

what is the BPM number

At the start of a piece of music, along with the key signature and the time signature it is not unusual to find a BPM value especially with contemporary music. The BPM value is the speed of the tune and BPM stands for 'Beats Per Minute'.

Examples

60 BPM = 60 beats per minute = 1 beat per second

120 BPM = 120 beats per minute = 2 beats per second


You will find BPM values on metronomes and drum machines to set the speed. I recommend you get hold of a metronome to practise with because you can easily find free ones available in the form of apps for mobile devices and desktop computers.

Beware

The BPM value may be different for different time signatures and it will depend what type of note is shown before the BPM value. For example you might get a crotchet equals 120 BPM or a quaver equals 120 BPM.

Examples

 = 100 BPM is 100 crotchet beats per minute

 = 100 BPM is 100 quaver beats per minute

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