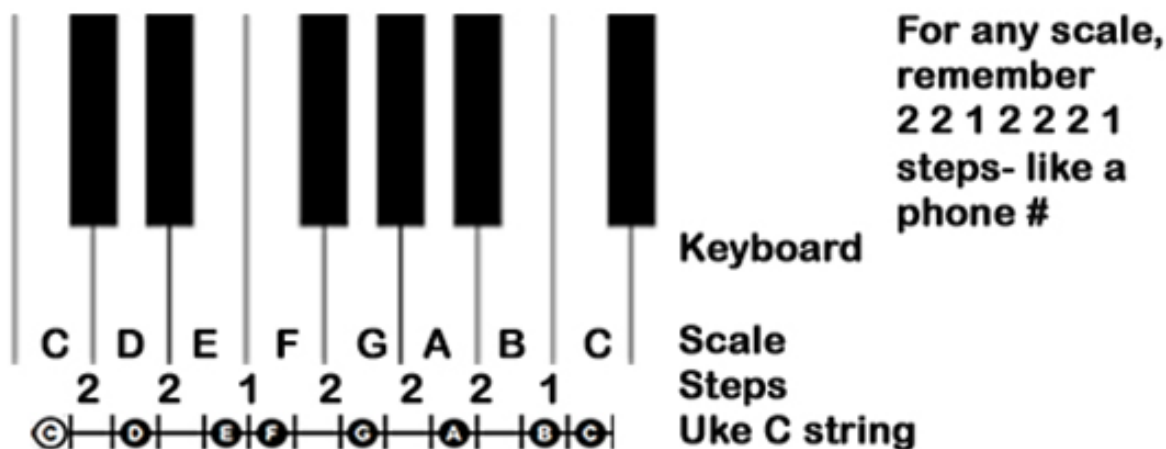
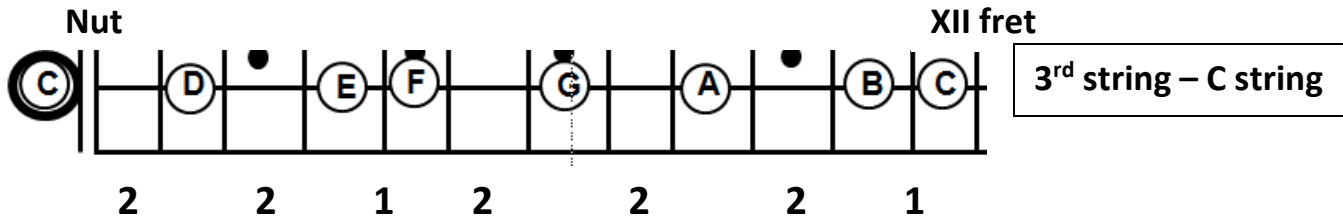


Scales The C Scale

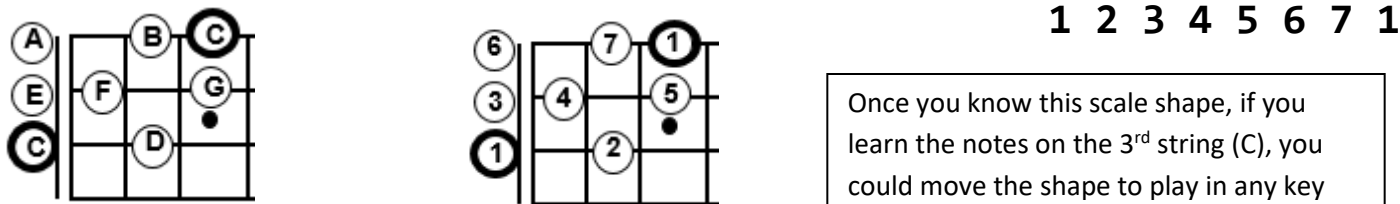
You have played many songs in the key of C major. C is the **root** note, begin there. This key, C major has a scale consisting of the notes **C D E F G A B C**. You could play the scale only using the third string - C string. Starting at the nut for C, go up 2 frets, play D. Then go up 2 more, then 1, 2, 2, 2, 1



Look above at the notes on a piano, they help to remember that there is **no note** between E and F or B and C - only 1 step between these notes, but there are 2 steps between the others, as in C step1 C# step2 D

- C C# D D# E F F# G G# A A# B C **All the notes (the chromatic scale)**
- C 2 D 2 E 1 F 2 G 2 A 2 B 1 C **C major scale**
- 2 2 1 2 2 2 1 **Steps - this works for any major scale**

You could also play the C scale using strings 3, 2 and 1 and not move up the neck. Practice this and learn where C D E G A and C "live". Look at the notes at the nut. What numbers relative to the scale do these notes represent? **C D E F G A B C**



Practice the C scale until you can play it ascending and descending without looking.

Steps...vs tones, semi-tones and whole notes

I have chosen to call each increment between notes of the chromatic scale a **step**. The method traditionally taught to discuss musical increments uses the terms whole tone (two ½ tones) and half (or semi)tone. This ends up being a bit confusing, because you have to count the number of tones and half tones.

The frequency of the 12 notes in a chromatic scale are each separated by approximately $1/12^{\text{th}}$ of an octave— therefore, each note of the chromatic scale **C C# D D# E F F# G G# A A# B** is separated by what we will hereafter call a **step** – **same as one fret**. So, if someone wants to use the term whole tone, we understand them to mean 2 steps. So, a ½ tone is a step, and we will dispense with the terms whole and half tones until we learn how to use the scale.

This method of deriving the major and minor scales is so useful for knowing which note of the scale is being used, chord understanding, transposing, sorting out which sharps or flats are present in various keys. You will never regret memorizing the # **221-2221** sequence.

Songs are also written sometimes in minor keys - you can still use 221-2221 and start on the 6 note - but— let's leave minor keys out for now.

Let's apply 221-2221 to the key of G and find the **G major scale**

G G# A A# B C C# D D# E F F# G **All the notes**
G A B C D E F# G Use 221 2221 to find G major scale
2 2 1 2 2 2 1 (one #, F#)

To find the F major scale: first write all possible notes

F Gb G Ab A Bb B C Db D Eb E F
F G A Bb C D E F F major scale
2 2 1 2 2 2 1 (one b, Bb)

Let's use the resultant scales to transpose music:

If we wanted to **transpose** from the key of **C** to the key of **F**,

C D E F G A B C C scale One would take each note or chord from the score
F G A Bb C D E F F scale in C and substitute the corresponding note in F

221-2221 – a key to finding musical scales

Chords – Know the key and the scale, and the chords follow

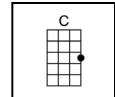
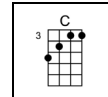
The key of C major describes a scale with the notes **C D E F G A B C**

We could assign a number to each note relative to C **1 2 3 4 5 6 7 1**

C E G C

If we start at C and choose every other note, we get a **C major chord, C E G - 1,3,5** (3 notes – a triad) Play one, skip one, play one, skip one, play one. Begins again at 1

For the ukulele, we have 4 strings, so one note can be repeated, yielding different combinations also known as inversions- a different order of the notes of the chord that will have a different sound C, for instance CEGC vs. GCEC



Remember how we found the correct notes for a major scale? Remember that we found the scale in **F**: first write all possible notes **F Gb G Ab A Bb B C Db D Eb E F**

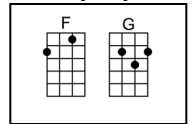
use the formula for the steps major scale **221-2221 F 2 G 2 A1Bb 2 C 2 D 2 E1F**

Therefore, the F major scale is **F G A Bb C D E F**

Again, assign numbers **1 2 3 4 5 6 7 1 – the major chord is the 1, 3, 5**

For the key of F, the major chord is F A C, the F at the nut is ACFA

For the key of G, the major chord is G B D, the G at the nut is GDGB



F major scale

F G A Bb C D E F

1 2 3 4 5 6 7 1

F A C F

1 3 5 1

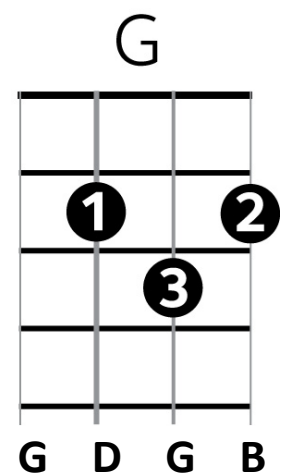
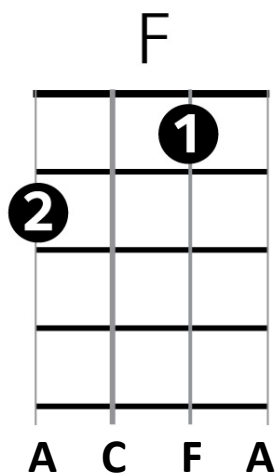
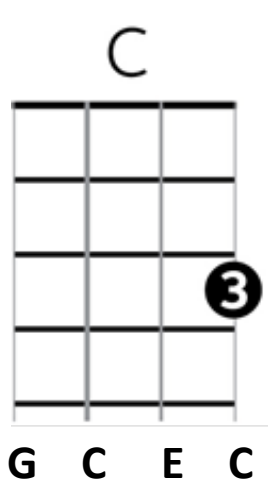
G major scale

G A B C D E F#G

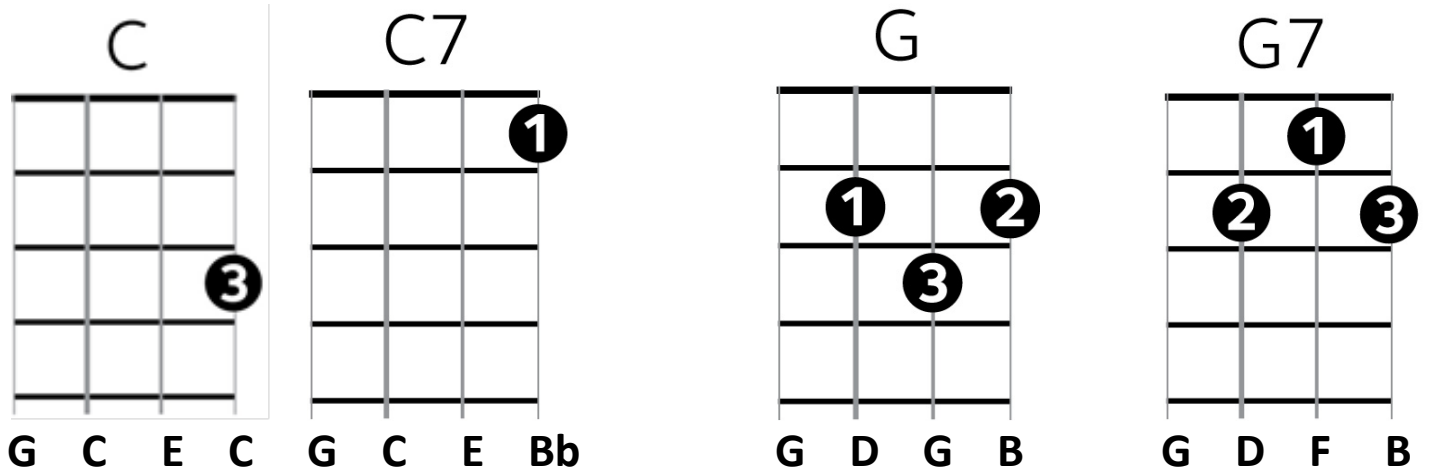
1 2 3 4 5 6 7 1

G B D G

1 3 5 1



Chords - Dominant 7th chord (or 7th chords for short)



To make a **7th chord**, add a 4th note to the triad - the flatted 7th note- 2 steps lower than the C. Changing the C on the first string to Bb gives a **C7** chord **GCEBb**. The 7th is also called a "dominant 7th chord" - not so important why just now

C Db D Eb E F Gb G Ab A Bb B C
C D **E** F **G** A B **C** **C Major chord**
C E **G** **Bb**
1 2 **3** 4 **5** 6 **b7** 7 **1** **C7 chord**

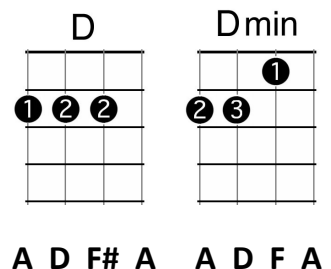
See image above for the **G7** chord at the nut - a G7 includes the flatted 7th - **F** - therefore changing GDGB to GDFB. These 7th chords have inherent tension - the 7th chord "wants" to resolve to the I chord (the tonic).

G A B C D E F# G G major scale
 1 2 3 4 5 6 7 1 Numbered
1 3 5 b7 1 Gmaj chord plus the flat 7 F =G7
G B D F see chord shape above

Minor Chords are made by lowering the 3 note to flat 3

D major chord is 1, 3, 5 **D F# A**
D major chord is 1, b3, 5 **D F A G D G B**
 Minor chords can have a 7th to make a minor 7th

(numbers are finger positions)



Examine each chord to see how it is built by adding to or modifying the major chord, 1, 3 & 5

Chord	Note							
major	1		3		5			
minor	1		b3		5			
7	1		3		5		b7	
M7	1		3		5		7	
m7	1		b3		5		b7	
9	1		3		5		b7	9
6	1		3		5	6		
m6	1		b3		5	6		
m7b5	1		b3		b5		b7	
dim	1		b3		b5			
dim7	1		b3		b5	6	=bb7	
aug	1		3		#5			
sus4	1			4	5			
sus2	1	2			5			
6/9	1		3		5	6		9

Chord names define the chord. Find the note in the scale of the key of the chord.

Chords – Harmonizing the major scale -

Take the C major scale and use each note as the 1 note (root) of a chord and stack thirds - (play - skip - play- skip - play) as chords. Start with C, CEG is a C major chord. DFA is a D minor chord. EGB is Em. FAC is F major, GBE is G major...

	1	2	3	4	5	6	7	1
1	C	D	E	F	G	A	B	C
3	E	F	G	A	B	C	D	E
5	G	A	B	C	D	E	F	G
Chord	I	iim	iiim	IV	V	vim	VII_{dim}	I
Chord	C	Dm	Em	F	G	Am	B_{dim}	C

These chords in sequence, C Dm Em F G Am Bdim C is called a chorded scale, or a harmonized scale. It demonstrates how the major, minor and diminished chords are determined built on a major scale.

You are likely already familiar with chord progressions used in the key of C –C F G Roman numerals are used for major chords-lower case for minor. I, IV & V You could count it out on your fingers from the I chord to find the IV and V. Suppose you wanted to change key and play in the key of G? Use the G scale, count it out and you'd have G as the I chord, C as the IV and D as the V chord.

Once you know the key you are playing in, then you will be able to find the scale and you'll know the chords as above. To find the key, look at the score for the number of #’s and b’s. If tabs only, the first and sometimes last chords of the song are often the key of the song. Then, look for the other chords used to confirm that they fit the harmonized scale of your proposed key. Songwriters sometimes “break the rules” and use for instance a D major chord in a song in C major for effect, so you need to stay agile and keep your mind open to learn.

Feel the nature of the I chord (home), IV chord (away) V chord (tension)

The 7th chord increases tension even more - the V7 chord wants to resolve to the I chord

Chorded Scales for the Most Common Keys

Key	I	ii	iii	IV	V	vi	vii ⁰	#/b's
C	C	Dm	Em	F	G	Am	B ⁰	None
G	G	Am	Bm	C	D	Em	F# ⁰	1# F#
D	D	Em	F#m	G	A	Bm	C# ⁰	2 # F#C#
A	A	Bm	C#m	D	E	F#m	G# ⁰	3 # C#F#G#
E	E	F#m	G#m	A	B	C#m	D# ⁰	4 F#C#G#D#

This chart shows the chorded scales in the most common keys - C, G, D, A, and F. The superscript⁰ is used to represent a diminished chord. I might want to play a song in a different key to fit my vocal range or to voice chords differently for effect or ease of play. To find your vocal range, sing the notes as you play the scale from C to high A. At some point, you may find the limit. (YouTube video to help with this: <https://www.youtube.com/watch?v=bHLUKKoFP14>). One way to transpose - write the original key scale C major C D E F G A B C and then below the new key – in this case, G major G A B C D E F# G it may be helpful to number the chords I ii iii IV V vi vii⁰ I to show minor chords.

For each chord in your original song, then substitute the new chord from the key of G for the original one from the key of C. One could just write the song sheet out with the numbers instead of letters and decide on the key depending on the range of the singer. Let's practice this technique on a couple of songs...

Frequency of use of ukulele chords represented by font size

C G F D Am A Dm D7 G7 Bb Em E7 A7
Bm C7 B Eb Fm Gm Am7 Cm B7 Bm7 F#m Em7 CM7 E

That's Alright Mama

Strum=dD

First note=A

A

Well, that's alright, mama, that's alright for you

A

A7

That's alright mama, just anyway you do

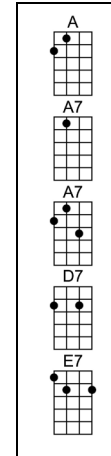
D7

Well, that's alright, that's alright.

E7

A

That's alright now mama, anyway you do



Range=A3-C5

What are the chords? A A7 D7 E7

First, what key? A

I I7 IV7 V7

Now in C major? Scale-C Dm Em F G Am B⁰ C

New chords C C7 F7 G7

I ii iii IV V vi vii I

Range=C4-Eb5

Listen for some great licks from the YouTube Elvis version with Scotty Moore guitar artist extraordinaire, playing the A using a barre at the 4th fret

A Teenager In Love

Strum D DU UD

First note=G

C Am F G7

Range=F-C

Each time we have a quarrel it almost breaks my heart

C Am F G7

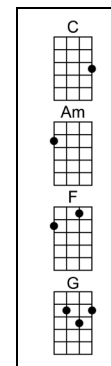
Cause I am so afraid that we will have to part

C Am F G7

Each night I ask the stars up above

C Am F G7

Why must I be a teenager in love?



What is the sequence? C Am F G7

First, what key? Easy...C . but the soprano wants it in F

I vi IV V7

Now in F major? Scale-F Gm Am Bb C Dm E⁰

New chords F Dm Bb C7

I ii iii IV V vi vii

First note-C - Range=Bb-F

The I vi IV V7 sequence is also known as the Doo Wop sequence and there are many songs built on it, many from the 1950's such as Duke of Earl.

Now, let's further exercise our understanding of use of numbered chords.

Like A Rolling Stone

Bob Dylan

Intro C F C I IV I

Strum=D DU UD

First note=C

C Dm
Once upon a time you dressed so fine

Em F G
You threw the bums a dime in your prime, didn't you?

I iim
People'd call, say, "Beware doll,
iim IV V
you're bound to fall" You thought they were all kiddin' you

F G
You used to laugh about
IV V
Everybody that was hangin' out

F Em Dm C
Now you don't talk so loud
IV iim iim I
Now you don't seem so proud

Dm F G
About having to be scrounging for your next meal.

C F G
How does it feel

I IV V
How does it feel

C F G
To be without a home

I IV V
Like a complete unknown

C F G
Like a rolling stone

I	ii	iii	IV	V	vi	vii ⁰	I
C	Dm	Em	F	G	Am	B ^{dim}	C
F	Gm	Am	Bb	C	Dm	G ^{dim}	F