

BASIC THEORY

FOR

BASIC MUSICIANS

BY

Michael G. Pesta IV

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SCALES

Scale - Comes from the Latin word scala meaning "Ladder".

A scale is a set pattern of notes put into ascending or descending order. The most popular used consist of seven notes, these are: 1) Major 2) Natural Minor 3) Harmonic Minor 4) Melodic Minor. There are also 5 note scales: 1) Major Pentatonic 2) Minor Pentatonic (Penta=5 Tonic=Tone) 6 note scales: 1) Blues 2) Whole Tone. Another 7 note scale that is considered an altered scale is the Diminished scale. The Diminished and Whole tone scales are also considered to be symmetrical, because they follow a repeating pattern of whole steps and half steps. And finally, a 12 note scale named the Chromatic scale. I believe it was given this name because it consists of all 12 notes, and when played rapidly it has a very shimmery or shiney sound sort of like chrome. This may be correct or it may just be a way that I was taught to remember it by some colorful Teacher.

The most common, and the one you should be most familiar with is the Major scale. The Major scale consists of seven notes set in a specific whole-step half-step (known as 1S & 1/2S from now on) pattern. We measure steps on the guitar as frets. Every fret = 1/2 step, therefore every 2 frets = 1 whole step.

The specified pattern for the Major scale is:

whole-whole-half-whole-whole-whole-half

In other words, the distance between the first and second notes is 1 whole step, between 2 & 3 is 1 whole step, between 3 & 4 is 1/2 step and so on. Therefore to construct any Major scale, begin with its root and follow the 1S-1/2S formula.

SCALES CONT.

In Music we use a total of 12 notes, no more no less.

They are:

A-	A#	/	Bb-	B-	C-	C#	/	Db-	D-	D#	/	Eb-	E-	F-	F#	/	Gb-	G-	G#	/	Ab-	A	
1	2		3	4		5		6	7		8	9	10	11	12	(1,1)							

Every note has a Major scale. Use the Major scale 1s-1/2s pattern to construct it.

Before doing so, one important **thing** that you need to realize may have slipped past you. If you look at the chart, you will notice that 2 notes are missing, they are B# / Cb and E# / Fb. These 2 notes do not exist because the distance between B&C and E&F is only 1/2 step, every other natural note (A-B, C-D, D-E, F-G, G-A) has 1 whole step between them. That is just the way the notes occur. Study and remember that chart.

On the chart we see 2 kinds of notes, 1 letter named notes and 2 letter named notes. The 2 letter named notes are said to be "ENHARMONIC" meaning the same tone with 2 different names. If you look at a note, say, A you will notice that to the left of it is G# / Ab and to the right of it is A# / Bb. On either side A is followed by # or a b.

SCALES CONT.

On the guitar neck find **A** (5th fret first string). Now move your finger toward the tuning pegs or lower (flat). That note is on the 4th fret which is $\frac{1}{2}$ step below **A** or **A flat**. Now find the note $\frac{1}{2}$ step above **A** or the 6th fret, this note is known as **A sharp**. You can alter any note in this manner.

Again referring to our chart, if we take all of the Natural notes, or notes without sharps or flats, we get:

A B C D E F G

When we analyze this pattern and write down its 1S $\frac{1}{2}$ S pattern, we get:

A ₁ B $\frac{1}{2}$ C ₁ D ₁ E $\frac{1}{2}$ F ₁ G ₁ A

(remember between **B&C** and **E&F** is only $\frac{1}{2}$ step)

If we rearrange this pattern so that we start on **C**, we get the 1S- $\frac{1}{2}$ S pattern equal to the Major scale.

C ₁ D ₁ E $\frac{1}{2}$ F ₁ G ₁ A ₁ B $\frac{1}{2}$ C

Thus the scale of **C Major** has no sharps or flats.

SCALES CONT.

Having learned how to use the $1S-\frac{1}{2}S$ formula, let's construct another example. Use G

G $_1$ A $_1$ B $\frac{1}{2}$ C $_1$ D , E $_1$ F NO! Remember between E and F is only $\frac{1}{2}$ step. So to make this one whole step, which is what the formula calls for, we must increase the distance by $\frac{1}{2}$ step. So F becomes ~~E#~~! The correct spelling of the G Major scale is: G A B C D E ~~F#~~ G
Get the picture? Good, now let's do F Major.

F $_1$ G $_1$ A $\frac{1}{2}$ Bb $_1$ C $_1$ D $_1$ E $\frac{1}{2}$ F

Did you remember that there is $\frac{1}{2}$ step between the A and B thus creating Bb?

Hopefully you've learned something from this. A scale is a song's vocabulary, and we need to know how to construct a scale to speak the language of that song. As you can see scale construction is not hard, as a matter of fact it is quite mathematical. All you do is follow a particular formula and you've done it. Of course this is only one of many scales, but I feel that this is the most important one.

SUPPLEMENT TO SCALES

WHOLE STEP HALF STEP FORMULAS FOR OTHER POPULAR SCALE

1) Major Scale	1 1 $\frac{1}{2}$ 1 1 1 $\frac{1}{2}$
2) Natural Minor Scale	1 $\frac{1}{2}$ 1 1 $\frac{1}{2}$ 1 1
3) Harmonic Minor Scale	1 $\frac{1}{2}$ 1 1 $\frac{1}{2}$ $1\frac{1}{2}$ $\frac{1}{2}$
4) Melodic Minor Scale	1 $\frac{1}{2}$ 1 1 1 1 $\frac{1}{2}$
5) Major Pentatonic Scale	1 1 $1\frac{1}{2}$ 1 $1\frac{1}{2}$
6) Minor Pentatonic Scale	$1\frac{1}{2}$ 1 1 $1\frac{1}{2}$ 1
7) Blues Scale	$1\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$ $1\frac{1}{2}$ 1
8) Whole Tone Scale	1 1 1 1 1 1
9) Diminished Scale ($\frac{1}{2}$ 1)	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1
10) Diminished Scale (1 $\frac{1}{2}$)	1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$
11) Chromatic Scale	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
12) Altered Scale	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1 1 $\frac{1}{2}$ $1\frac{1}{2}$

These, I feel, are the most important scales that are used. There are more exotic scales, scales of the East, and variations on the above scales just to name a few. Notice that the Diminished Scale has two formulas, One begins with a half step the other with a whole step.

INTERVALS

An Interval is defined as the distance between two notes. Usually the low note is designated as the root and the distance is measured up from there.

To fully understand intervals, let us first review the Major Scale. Let's use C Major:

C 1 D 1 E $\frac{1}{2}$ F 1 G 1 A 1 B $\frac{1}{2}$ C

The seven note names also have synonymous numerical name. In the key of C Major they are:

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

The numbers are pronounced: Root or Unison (1)

Second (2) Third (3) Fourth (4) Fifth (5) Sixth (6)

Seventh (7) and Octave (8)

And so, when measuring distances between these notes, start with the root C, and measure to the note above. Try C-D. C is the root and D is a second up, so the interval is a Major second. Try C to A, C is the root and A is a Major sixth away, so the interval is a Major Sixth.

Each Interval also has a proper name, kind of like Mr., Mrs. or Miss. The names are Major and Perfect.

INTERVALS CONT.

In the key of C Major, the names are:

C - C Unison
C - D Major 2nd
C - E Major 3rd
C - F Perfect 4th
C - G Perfect 5th
C - A Major 6th
C - B Major 7th
C - C Perfect Octave

There are also formulas, using 1S - $\frac{1}{2}$ S, to figure out intervals. They are:

C - C 0 steps Unison
C - D 1 step Major 2nd
C - E 2 steps Major 3rd
C - F $2\frac{1}{2}$ steps Perfect 4th
C - G $3\frac{1}{2}$ steps Perfect 5th
C - A $4\frac{1}{2}$ steps Major 6th
C - B $5\frac{1}{2}$ steps Major 7th
C - C 6 steps Perfect Octave

Just start with a root, count the number of 1S - fs,
use the chart, and find the Interval name.

INTERVALS CONT.

Do you remember that notes can be altered by either raising or lowering the pitch? You do this by either moving your finger up, to raise the pitch, or down to lower the pitch. Move just one fret at a time.

Well we can also alter the intervals in the same way.

The reason we do this is to construct other scales and to create different "HARMONIES" in a song.

Now, there are only certain changes that can be done to Major and Perfect Intervals. They are:

Diminished - Minor - MAJOR - Augmented

Diminished - PERFECT - Augmented

Notice that the Major has three alterations and the Perfect has only two. I've got my ideas on this. There are 3 Perfect intervals, they are Perfect **4th**, Perfect 5th and Perfect Unison (or Octave). In the Major Scale 2 out of 3 of these intervals have another natural interval one half step below them. $\frac{1}{2}$ below Perfect 4 is Major 3, $\frac{1}{2}$ step below Perfect Unison (Octave) is Major 7.

Now as far as perfect 5th goes, the flatted 5th is quite a unique interval. The b5 is the exact middle of the Scale, and causes the most TENSION of any other interval. There may be a different theory as to why these intervals occur, but this theory makes sense to me.

INTERVALS CONT.

So, the names of all of the intervals, within one octave (between C and C) are:

C		D		E	F		G		A		B	C
P1	A1	M2	A2	M3	P4	A4	P5	A5	M6	A6	M7	P8(1)
D2	m2	D3	m3	D4	A3	D5	D6	m6	D7	m7	D8	A7

As you can see, all Perfect Intervals can be altered to either Diminished or Augmented. All Major Intervals can be altered to either Diminished, Minor or Augmented. Now, when asked to measure an interval within the C Major Scale, the root may not always be C. We can measure the distance between any two notes. Just consider the lower note the root, and measure up from there, using whole steps and half steps. Here's the chart:

P	Unison	0	steps
A1	m2	$\frac{1}{2}$	step
M2	D3	1	step
A2	m3	$1\frac{1}{2}$	steps
M3	D4	2	steps
P4	A3	$2\frac{1}{2}$	steps
A4	D5	3	steps
P5	D6	$3\frac{1}{2}$	steps
A5	m6	4	steps
M6	D7	$4\frac{1}{2}$	steps
A6	m7	5	steps
M7	D8	$5\frac{1}{2}$	steps
P8	A7	6	steps

* P= Perfect M= Major m= minor D= Diminished A= Augmented

INTERVALS CONT.

Now, let's measure some intervals. All you need to do is count the number of 1S - $\frac{1}{2}$ S between the two notes, refer to the chart, and there you have it. But remember when counting 1S - $\frac{1}{2}$ S, there is only $\frac{1}{2}$ step between B & C, and E & F.

Okay, Let's try C to F.

C to C# $\frac{1}{2}$ step,

C# to D $\frac{1}{2}$ step,

D to D# $\frac{1}{2}$ step,

D# to E $\frac{1}{2}$ step,

E to F $\frac{1}{2}$ step (E to F only $\frac{1}{2}$ step)

$2\frac{1}{2}$ steps

Look at the chart, find $2\frac{1}{2}$ steps, what does it equal?

It equals a Perfect 4th.

Now try A to Db.

A to B 1 step

B to C $\frac{1}{2}$ step

C to Db $\frac{1}{2}$ step

2 steps

Look at the chart, it says 2 steps equals either a major 3rd or a Diminished 4th, which is it? Well, now's a good time to address this issue. There is a rule pertaining to this, and the rule says that the interval is a Diminished 4th.

INTERVALS CONT.

We were asked to measure the distance between A and Db. Db is the key as to why the interval is a **D4**. If you look at the key of A Major, A B **C#** D E **F#** G# A, you see that **D is the 4th**. That means that Db is some type of 4th. Using the chart we find that an interval of 2 steps is either a Major 3rd or a Diminished 4th. Knowing that we must find some sort of **4th**, we know that the correct answer is a Diminished 4th.

Did you understand that? It can be a little confusing.

So let's try another one. F to Eb

F to G 1 step,

G to A 1 step,

A to B 1 step,

B to C $\frac{1}{2}$ step

C to D 1 step,

D to Eb $\frac{1}{2}$ step

5 steps, Augmented 6th or minor 7th

How many letters away is Eb from F? Count F as 1, G as 2, **A** as 3 B as 4, **C** as 5, D as 6, and E as 7.

Okay, so the answer is some kind of 7th. If E is the Major 7th then Eb is minor 7. Easier? I hope you have it now, if not you should ask your teacher or maybe go to the library and look up Intervals.

INTERVALS CONT.

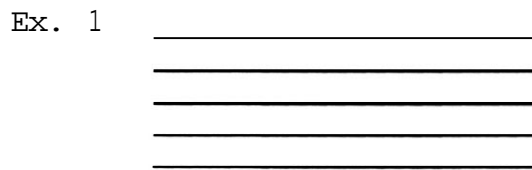
You can measure any 2 notes like this and always come up correct.

Intervals have always given students trouble. I believe it's because we use the words second, third, fourth, fifth, sixth, and seventh to mean two different things. In the key of C Major, D is the second degree of the scale. True! But, the distance between F and G is a Major 2nd. How can this be? Well, D is the second degree because that is its name, and the space between F and G (which in the key of C is the 4th and 5th) is 1 step or a Major 2nd. You may be able to remember this a little easier if you think that an Interval will always have that name before it, like Major or Diminished. The Scale degrees will only be called a name like second, third etc..

Hopefully, you now understand INTERVALS! Again, just like scales, this is another Mathematical subject. Use a formula, find an answer.

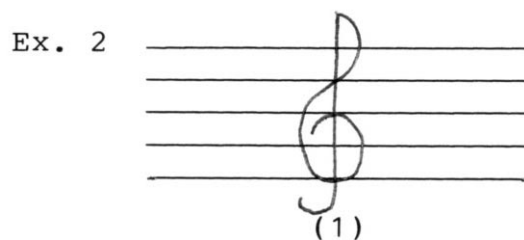
BASIC NOTATION

We've talked about Scales and Intervals and we've used all of the note names possible **i.e.** A#, C, Db and so on. What we haven't discussed is how these notes look musically. There are a few things that need explained before we go on. The next chapter will be on rhythm, but to understand rhythm notation, we need to know time signatures, and what notes look like. So, if you look at example 1, you will see a STAFF.



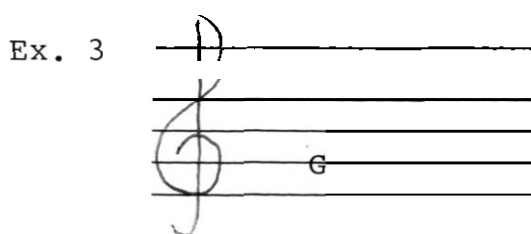
The Staff is made up of 5 lines and 4 spaces. Each line and space has a specific name. The line or space that a note sits on is its name, like A or F.

Now, positive designation of the lines and spaces is determined by the CLEF. There are a number of CLEFS, but 6 string guitarists basically only use just one, although I'll show you 2. The main one is shown in example 2, this clef is called the "TREBLE CLEF" or the "G CLEF".

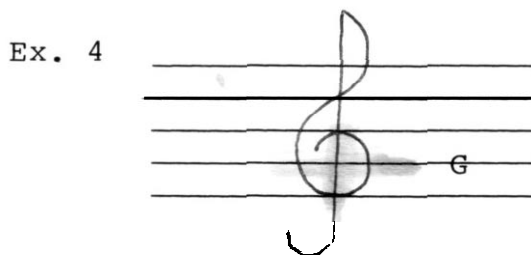


BASIC NOTATION CONT.

It is called the "G" CLEF because it tells us which line is considered G. Then once you find which line is G, you can complete the staff from there. The line that is considered G is, the 2nd line from the bottom. As in example 3.



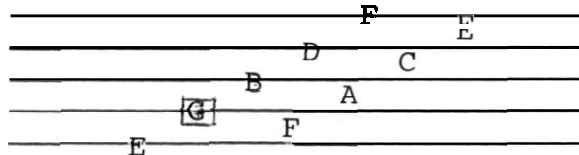
We can remember that the G CLEF designates G because there is a "Bull's Eye" or target that rests on the G line, see example 4.



Now that we know which line to start with, we can fill in the rest, all we need to know is in which direction to go. If we go up from G to the next space, we get A, up from A to the next line B, to the next space C and so on until we get to the top line F. Now, go down from our first line G, to the bottom space F, and then finally to the bottom line E. See example 5.

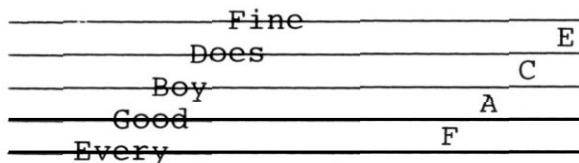
BASIC NOTATION CONT.

Ex. 5



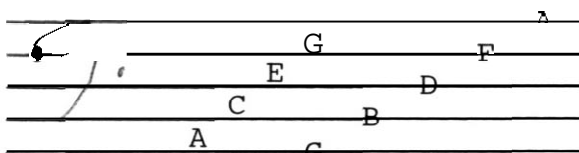
To memorize the lines and spaces, there are two helpful phrases. For lines it is: **Every Good Boy Does Fine**. For spaces it is the word **E - A - C - E**. See example 6.

Ex. 6



The other Clef that I'll show you is the "BASS CLEF" or the "F CLEF". Obviously called the "F" CLEF because it denotes where F will be located on the staff. Example 7 shows the clef, the F line and the rest of the Bass Clef note names.

Ex. 7



These Basic Notations are the building blocks of Music. The faster you learn to recognize them, the easier it will be to read and understand Music.

BASIC NOTATION CONT.

If you think of the staff as a road map, and the clef as the legend, then we must notate something to equal a mile, this will be a MEASURE. A measure is a part of the staff. The staff is broken down into equal measures. A measure is the space between two BAR LINES. You will also hear Bar Lines called MEASURE LINES, they both mean the same thing. See Example 8. (All examples will follow this section on measures, endings and signs), You will learn more about measures in the rhythm chapter, I just wanted you to be familiar with the term. Okay, one last thing that completes a map is, what route to take. This is designated by the "REPEAT SIGNS", "ENDINGS" and "CODAS".

Repeat signs look like double bar lines (measure lines) with two dots. The dots can be on either side of the lines depending on which side of the line is to be repeated. Example **9A** shows a repeat sign with the dots on the left side. If this is the only repeat sign so far, in the song, then you must repeat all the way back to the beginning of the song. Example **9B** shows 2 repeat signs. The first one has the dots on the RIGHT side of the bar line, the second one has the dots on the left side of the bar line. This means that the music in between these 2 signs is to be repeated. **9C** shows the same as **9B** except, there is an ending number above the last measure in the repeated area, and another ending number over the measure immediately following the repeated area.

BASIC NOTATION CONT.

What this means is that you play the music between the 2 repeat signs using the first ending, then after repeating the passage the first ending and go right into the second ending. This doesn't necessarily mean the end of a song, just the endings to use on the repeated piece of music. You may see the first ending numbered more than once, if that is the case, repeat the phrase between the 2 repeat signs using the first ending as many times as designated. In other words, if there are 3 numbers in the ending, as in example 9D, play the phrase once, twice and three times using the first ending. Then repeat the phrase once more again, only on the fourth time use the 4th ending. Also, the distance between the 2 repeat signs has no limit, it may be pages long. Just make a mental note of the repeat sign with the dots on the right because you will see another repeat sign, with the dots on the left, telling you to go back to the first repeat sign.

Now let's talk about the CODA. The CODA is defined as " .. a short passage added at the end of a composition to round it off" A Coda is music that you will find written at the end of a song, with a sign next to it that looks like the sign in example 9E. The word "CODA" usually accompanies the sign.

BASIC NOTATION CONT.

Now, at the end of a song that includes a Coda you will find one of two phrases: 1) **D.C. al Coda**
2) **D.S. al Coda** These phrases respectively mean:
1) Da Capo al Coda or repeat from the beginning until you see the Coda sign.

2) Dal Segno al Coda or repeat from the sign until you see the Coda sign.

The signs for these phrases are in example **9F**.

Once you play the music between either the beginning and the Coda sign, or the Sign (**S**) and the Coda sign, go straight to the Coda at the end of the score and finish the song there. Coda is not hard to understand once it is explained.

You may also see the phrase **D.C. al Fine**, or **D.S. al Fine**. These mean from the beginning to the Fine or finish, or from the Sign (**S**) to the Fine or finish. The signs for these are the same ones used for example **9F** except, you play until you see the word "**FINE**", or finish, written above or below a measure, this is where the song ends.

And finally there is the DOUBLE BAR LINE this usually signifies the end of a song or passage or key. This looks just like a repeat sign, only without the dots.

BASIC NOTATION CONT.

Ex. 8 - Bar Lines (measure Lines)

Ex. 9A- Repeat Sign used when you repeat from the beginning

Ex. 9B- 2 Repeat Signs used when repeating what is found in between.

Ex. 9C- 1st and 2nd ending

Ex. 9D- Multiple endings

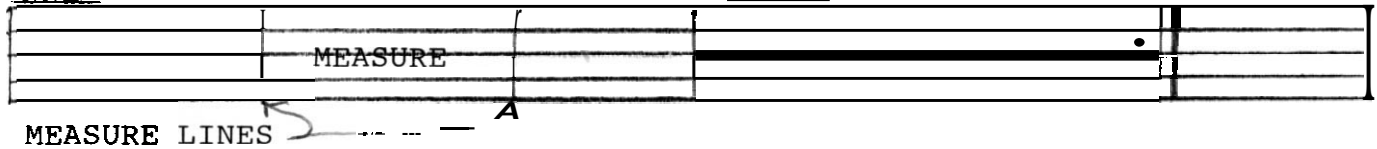
Ex. 9E- Coda Sign

Ex. 9F- Da Capo al Coda, Dal Segno al Coda

Ex. 9G- Da Capo al Fine, Dal Segno al Fine

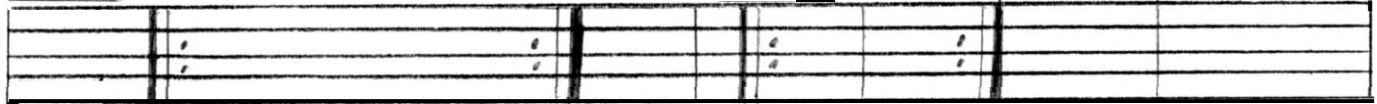
Ex. 8

Ex. 9A



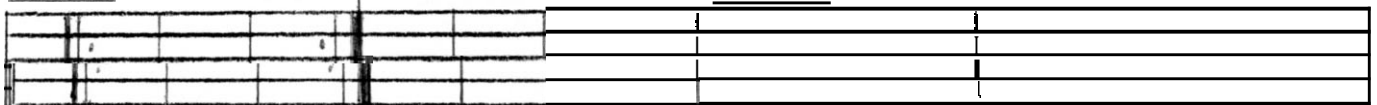
Ex. 9B

Ex. 9C



Ex. 9D

Ex. 9E

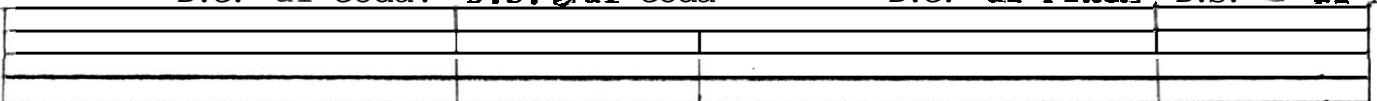


Ex. 9F

D.C. al Coda. D.S. al Coda

Ex. 9G

D.C. al Fine. D.S. al Fine



RHYTHM

Rhythm is defined as a regular or measured flow of sound or of action; measured periodic movement; regular recurrence; symmetry.

In simple terms when you hear a song and tap your foot, you are keeping Rhythm.

When you look at a note you see two things: 1) The appearance of the note ie. flags, stems and note heads. 2) The placement of the note, on what line or space it appears. The appearance of the note tells us how long or short to let it ring, which is called duration.

The placement of the note tells us what pitch to play. In this Chapter, we will deal with both appearance and placement.

First, let's learn what the notes look like. Let's start with the WHOLE NOTE. (Supplement Page A will have all of the notes and their values, that we talk about). In the most common time or $4/4$, the WHOLE NOTE receives 4 BEATS. What that means is that you let the note ring for 4 whole beats, no more, no less. That's 4 complete beats. A beat equals one foot tap.

The next note you see is a HALF NOTE. **NOW**, if a Whole Note receives 4 beats, how many beats will a half note receive? What is half of **4**? 2 That's right! Do you see what we're doing? We're just dividing in half!

RHYTHM CONT.

The next note is a QUARTER NOTE. If a whole note receives 4 beats, a half note receives 2 beats, how many beats will a quarter note receive? 1 is the correct answer!

So far:

WHOLE NOTE	4 BEATS
HALF NOTE	2 BEATS
QUARTER NOTE	1 BEAT

If you are having trouble remembering these numbers, think of Money.

1 WHOLE DOLLAR	4 QUARTERS
$\frac{1}{2}$ DOLLAR	2 QUARTERS
$\frac{1}{4}$ DOLLAR	1 QUARTER

Ah Yes, now it's easier to remember. Okay, Get those under your belt and tackle these next:

$\frac{1}{8}$	ONE EIGHTH NOTE	$\frac{1}{2}$ BEAT
$\frac{1}{16}$	ONE SIXTEENTH NOTE	$\frac{1}{4}$ BEAT
$\frac{1}{32}$	ONE THIRTY SECOND NOTE	$\frac{1}{8}$ BEAT
$\frac{1}{64}$	ONE SIXTY FOURTH NOTE	$\frac{1}{16}$ BEAT
$\frac{1}{128}$	ONE - ONEHUNDREDTWENTY EIGHTH NOTE	$\frac{1}{32}$ BEAT
$\frac{1}{256}$	ONE - TWO HUNDRED FIFTY SIXTH NOTE	$\frac{1}{64}$ BEAT

RHYTHM CONT.

And it can keep going but that would be ridiculous. As you can see, notes are just divisions of other notes. There are quite a number of combinations of these notes, but I only wanted to show you what they look like and their value. It will be up to you to mathematically figure out what a combined measure would sound like.

Just as there are notes that designate how long to hold a note, there is a notation to tell you how long NOT to hold anything. These are called RESTS. Their chart is on the Supplement Page. Just think of each note having a rest of the same value ie. Whole Note- Whole Rest- 4 Beats, Half Note- Half Rest- 2 Beats and Quarter Note- Quarter Rest- 1 Beat and you can keep going Eighth Note and rest, Sixteenth Note and rest etc. etc. etc.

You "Hold" a Rest for just as long as you hold a note. Remember, when you "Play" a rest, do just that. DO NOT let something ring through the rest. When you rest you must "Play" SILENCE. Mute anything that may ring

There are deviations to note and rest duration. They are the DOT and the TIE. These are easily defined. The dot will be found directly to the right of the note that it is to affect. It only affects the duration not the pitch.

RHYTHM CONT.

The dot works like this; If you have a dotted half note, in other words, a half note with a dot directly to the right of it, it receives 3 beats. The way that you get this is, the dot receives one half the duration of the note that it affects. So, a dotted whole note would receive 6 beats, because a whole note gets 4 beats and the dot gets $\frac{1}{2}$ of that which would be 2, so $4+2=6$.

Try a dotted quarter note, the quarter note receives 1 beat, the dot receives $\frac{1}{2}$ of that which would be $\frac{1}{2}$ beat, so $1+\frac{1}{2}= \underline{1\frac{1}{2}}$ Beats. Get it? Good I hope you will try the rest of the notes that are on the Supplement Page.

The TIE does just that, it ties two or more note together. And when it does you pick only the first note, and hold it for the total of them

RHYTHM CONT.

I mentioned TIME SIGNATURE before, now's the time to address it.

At the beginning of a song you'll always find the Time Signature, it looks like a fraction. (See Supplement Page) Think **of this** fraction as 2 separate numbers. If you see $\frac{4}{4}$, think of it as 4 and $\frac{1}{4}$. **The** top number 4 means that there are 4 beats in 1 measure (remember measures?) that is all that you tap your foot for. 4 times for each measure that goes by.

The bottom number or $\frac{1}{4}$ means that the $\frac{1}{4}$ (quarter note) receives one of those beats. Do you understand where I got these numbers? You don't actually see $4\frac{1}{4}$ you see $\frac{4}{4}$, just take the top by itself 4, and then take the bottom number 4, and think of it as the bottom number of the fraction $\frac{1}{4}$.

Okay, in $\frac{4}{4}$ time you play 4 quarter notes in a measure, because the quarter (bottom number) receives one beat, and there are 4 (top number) beats in 1 measure. There are other time signatures like $\frac{3}{4}$. This means there are 3 beats in a measure and the quarter note gets one beat. Get it? Good. Now take $\frac{7}{8}$, what happens here? Seven beats (top number) in a measure, and the $\frac{1}{8}$ (eighth note) receives one count. You see that the quarter note doesn't always receive the one beat, although that is the most popular signature, it does not always happen that way.







RHYTHM CONT.

I need to mention that when the eighth note receives one beat you must base all of the other notes on this. In other words, if one eighth note = 1 beat, then 2 eighth notes (or 1 quarter note) gets 2 beats. 1 half note which equals 4 eighth notes will receive 4 beats. Do you understand this? All of the notes are related to each other in the same way, no matter what the time signature is. It just depends on the time signature to let you know which note receives one beat. It will always take two half notes to equal a whole note, two quarters to equal a half, two eighths to equal a quarter and so on.

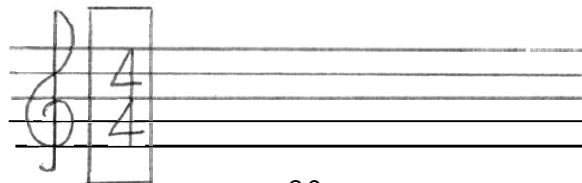
So, let me ask, can you have $2/_{17}$ time? NO! you can have 2 beats in a measure but, there is no seventeenth note to receive one beat. Remember the bottom number has to be the name of a note:

		$?/_{1}$	whole note gets one beat
		$?/_{2}$	half note gets one beat
		$?/_{4}$	quarter note gets one beat
		$?/_{8}$	eighth note gets one beat
		$?/_{16}$	sixteenth note gets one beat
		$?/_{32}$	thirty second note gets one beat
$?/_{256}$	$?/_{128}$	$?/_{64}$	etc. etc. etc.

SUPPLEMENT PAGE A

	=	Whole Note		=	Whole Rest
		4 Beats			4 Beats
	=	Half Note		=	Half Rest
		2 Beats			2 Beats
	=	Quarter Note		=	Quarter Rest
		1 Beat			1 Beat
	=	Eighth Note		=	Eighth Rest
		$\frac{1}{2}$ Beat			$\frac{1}{2}$ Beat
	=	Sixteenth Note		=	Sixteenth Rest
		$\frac{1}{4}$ Beat			$\frac{1}{4}$ Beat
	=	Thirty Second Note		=	Thirty Second Rest
		$\frac{1}{8}$ Beat			$\frac{1}{8}$ Beat
	=	Sixty Fourth Note		=	Sixty Fourth Rest
		$\frac{1}{16}$ Beat			$\frac{1}{16}$ Beat
	=	One Hundred Twenty-		=	One Hundred Twenty-
		Eighth Note $\frac{1}{32}$ Beat			Eighth Rest $\frac{1}{32}$ Beat
	=	Two Hundred Fifty-		=	Two Hundred Fifty-
		Sixth Note $\frac{1}{64}$ Beat			Sixth Rest $\frac{1}{64}$ Beat

Time Signature -



KEYS

Keys could be compared to different types of "accents". If you think of all of Music as the English language, think of the different keys as different accents, like a Southern Accent, a New York Accent, a Texas Accent, and so on.

There are twelve keys, and what a key does is let the player know what notes the writer used and this in turn lets **he/she** know which notes to use and also which notes not to use.

The Key is the same as the Major scale idea. If the key is A Major, you would use the A Major scale, if the key is **F#** Major you would of course use the **F#** Major Scale, and so on. You find out what key a song is in at the Key Signature. The Key **Signature** is located at the beginning of the piece right next to the Time Signature. The Key Signature is made up of either Sharps (**#**), or **Flats(b)**, in a particular order. You may also see a Key Signature with no sharps or flats, this would mean that all of the notes were natural. Remember that when a Sharp or a Flat is used, it affects the note it is next to, in either sharpening it (increasing its pitch) or flattening it (decreasing its pitch).

KEYS CONT.

Remember when we discussed scales, and we talked about sharps and flats, we said that the accidental (sharp or flat) affected the note that it sat next to. That's true but, also remember that when the measure that it was in was through, the accidental was cancelled.

Well, could you imagine a song that had all **F,C,G,D** and **A** sharps, and what that paper would look like? This is why we have Key Signatures. The Key Signature is located only at the beginning of the song and it is up to the player to remember which notes are affected.

Although the seasoned player usually just learns to recognize the fretboard in a particular key, so there is no conscience effort to remember which notes are affected . The player sees the Signature and then visualizes the fretboard in only that key. This of course comes with much time and practice. It won't happen overnight.

Also, in the Key Signature, just as in the Major Scale, you may have sharps or flats but never both. If you use a sharp to affect a note, you must use all sharps to affect any other notes, same with flats. The only exception to this rule is if the key changes, which can happen. You will see a new Key Signature if the key changes though, they won't just assume that you know that the key is changing.

KEYS CONT.

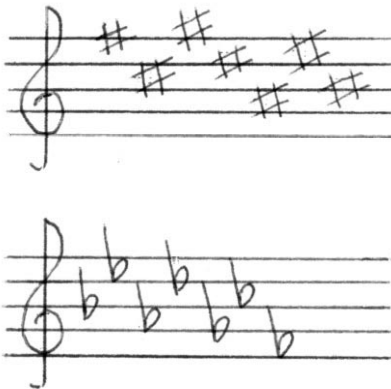
Once you know what notes are sharpened or flattened, you can construct its $1S-\frac{1}{2}S$ pattern to find out its Major Scale, which of course would also be its key. You can either do this all the time, or memorize the number of sharps or flats that appear in what key. Now, I mentioned that the accidentals occur in a particular order, the order for Sharps is:

F C G D A E B

The order for Flats is:

B E A D G C F

Notice that the orders are exactly opposites of each other. They appear in a particular order also :



*Notice that the line or space that the note sits on goes directly through the middle of the accidental.

KEYS CONT.

Let me give you the chart of Keys in order with the number of sharps or flats that are contained in them:

C	C D E F G A B C	0 Sharps
G	G A B C D E F# G	1 Sharp
D	D E F# G A B C# D	2 Sharps
A	A B C# D E F# G# A	3 Sharps
E	E F# G# A B C# D# E	4 Sharps
B	B C# D# E F# G# A# B	5 Sharps
F#	F# G# A# B C# D# E# F#	6 Sharps
C#	C# D# E# F# G# A# B# C#	7 Sharps
Cb	Cb Db Eb Fb Gb Ab Bb Cb	7 Flats
Gb	Gb Ab Bb Cb Db Eb F Gb	6 Flats
Db	Db Eb F Gb Ab Bb C Db	5 Flats
Ab	Ab Bb C Db Eb F G Ab	4 Flats
Eb	Eb F G Ab Bb C D Eb	3 Flats
Bb	Bb C D Eb F G A Bb	2 Flats
F	F G A Bb C D E F	1 Flat
C	C D E F G A B C	0 Flats

*Notice that there are 16 different keys and I said that there were only 12. Well, if you look at 1) B - Cb 2) F# - Gb 3) C# - Db you will notice that the tones sound the same even though they are spelled differently.

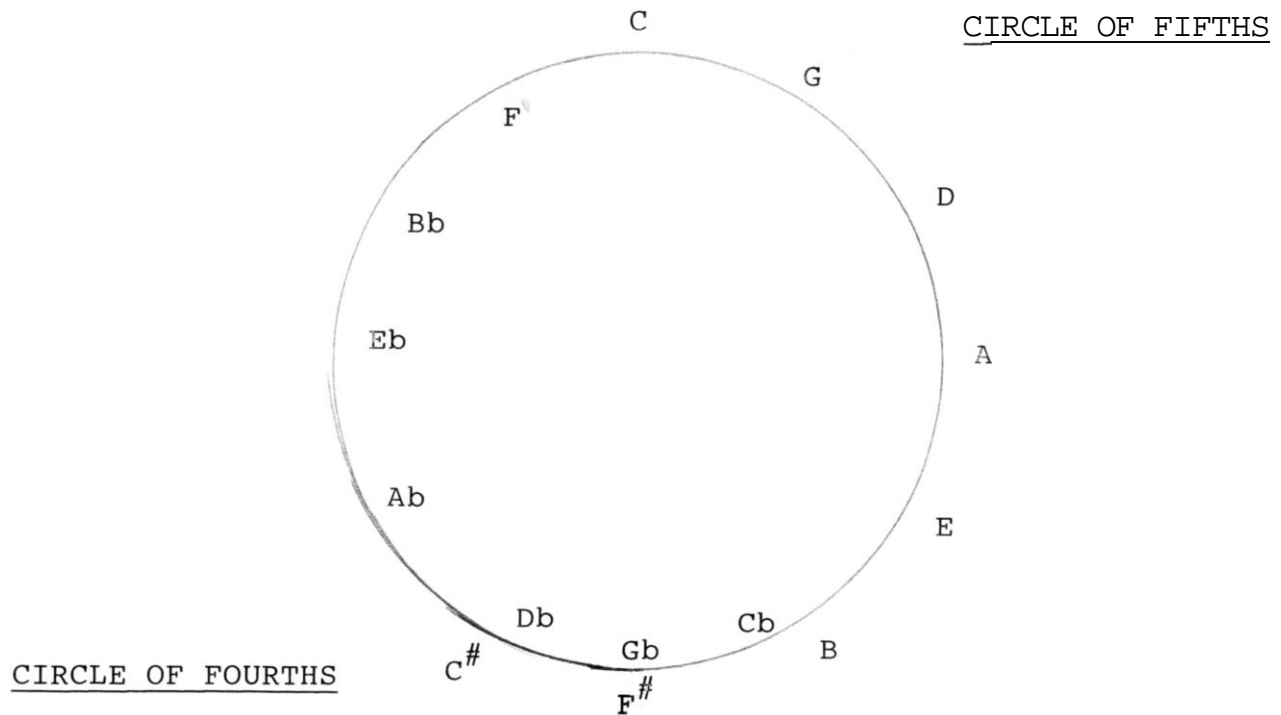
KEYS CONT.

Looking at the chart you will notice that between the keys there is only a one note change.

From **G (G A B C D E F# G)** to **D (D E F# G A B C# D)**, the notes are the same except that the C is sharpened, that is only a half step change. And that happens all the way through the keys (remember that there are 3 keys with twins, don't count them separately) This common pattern of changes makes a common Interval Pattern between the keys, that interval is a fifth. There is a fifth between the root of 1 key and the root of the key that occurs when only a $\frac{1}{2}$ step change is made to the original key. This same pattern goes on between keys and is commonly referred to as the Circle of Fifths. You must remember that when you take one key and alter **its 1S $\frac{1}{2}$ S** pattern somewhere by $\frac{1}{2}$ step, You change the 1S $\frac{1}{2}$ S pattern. Thus the Major Scale must change because to have a Major Scale, you need to follow the 1 1 $\frac{1}{2}$ 1 1 1 $\frac{1}{2}$ step pattern. The root change between the 2 keys will be 0 0 1 2 3 4 5 6 7 8 9 10 11

KEYS CONT.

ment. If there is a clockwise movement there must be a counterclockwise movement, there is. This movement is called the Circle of Fourths. It is called this because the distance between the keys is a fourth. Also if the clockwise movement is upward then the counterclockwise movement must be downward, it is. Using the chart, if you begin with C at the top of the page and move down, you would move in fifths, if you begin with C at the bottom of the page and move up, you will move in fourths. Here is the chart that is commonly known as the Circle of **Fifths/Fourths**:



KEYS CONT.

So far, all we've talked about are Major Keys. There are, of course, Minor Keys-And, if there are Minor Keys, there must be Minor Key Signatures, well sort of. There are only 12 Key Signatures, but, there are 12 Major Keys and 12 Minor Keys. This leaves us 12 Key Signatures short. A Minor's key signature does not look like A Major's, it happens to look like C Major's. A Minor is said to be the RELATIVE MINOR of C Major. The Relative Minor key uses the Key Signature of its Relative Major. So, we need a chart of all of the relative keys together. But first I will tell you how to figure out which Minor and Major Keys are relative. If you take a Major Scale (which would be of the Major Key of the same name) let's use C Major:

C D E F G A B C

Find the sixth scale degree, A and that is the root of the Relative Minor Key. Now try F Major:

F G A B \flat C D E F

Find the sixth, D. So, D Minor is the Relative Minor of F Major. Get It? Good!

Let's try it in reverse, the key is **F#** Minor. Now to figure out its Relative Major go up $1\frac{1}{2}$ steps.

F# to G = $\frac{1}{2}$ G to A = 1 so, **F#** to A is $1\frac{1}{2}$ steps (minor third interval) away. Therefore A Major is the relative Major of **F#** Minor.

KEYS CONT.

Here is the chart of Major Keys and their Relative Minor Keys. Also, just go backwards from the Minor Keys to get their Relative Majors:

<u>MAJOR KEY</u>	<u>RELATIVE MINOR KEY</u>
C	A
G	E
D	B
A	F#
E	C#
B	G#
F#	D#
C#	A#
Cb	Ab
Gb	Eb
Db	Bb
Ab	F
Eb	C
Bb	G
F	D
C	A

*Don't forget that 1) B - Cb 2) F# - Gb 3) C# - Db are pretty much the same keys just spelled differently.

CHORD CONSTRUCTION

Before we get into this chapter, you must make sure that you understand Scales and Intervals, do you? Quick, what is the 1S $\frac{1}{2}$ S pattern for a Major Scale? 1 1 $\frac{1}{2}$ 1 1 1 $\frac{1}{2}$, good! In the key of C, what is the interval distance between C and F? A Major 4th Great! How about between C and Gb? Not a Major 5th (that would be C - G), a Diminished 5th, correct. All right you do know what you are talking about.

Now, let's talk about some terms. Interval is the distance between 2 notes. An Interval is not a chord it is a distance. The smallest chord possible is a TRIAD.

A Triad is a three (**tri**) note chord. You need at least 3 notes for a chord, but how do you know which ones to use? Well, a rule that you may not know about but you need for chord construction is: All chords are built in Thirds. That simply means this; take the root C, root is the base for ths chord, the chord is named for the root. Okay, C is our root, for your reference, here is the C Major Scale:

C D E F G A B C

C is the root, what is a third up from there? Don't worry whether it is Major or minor just tell me a third away. C is a first D is a second so E is the third. C to **E**, okay what is a third up from E? E is a first, F

CHORD CONSTRUCTION CONT.

is a second so G is the third. So, the C Major Triad is spelled C-E-G.

Now, I realize that we said C is the root, which it is we are spelling a C — chord, some type of a C chord. In our first interval we used C as the first D as the second, and E is our third, correct. We need to find a third up from E, so we used E as our base for the interval, but why? If C is our chord root, shouldn't we have used C? Well, we are building a chord and the rule is that you build a chord in thirds. That means a third on top of a third on top of a third. So, if we only used C as our base for measuring third intervals, we would keep coming up with C to E. We'd never come up with anything else! What you do is find a third up from C, which is E, then find a third up from E, which is G. If we wanted to keep going we would find a third up from G, which would be B. So , our chord is spelled C E G B. We found all of our notes in the chord by using the rule of building in thirds. To find out what scale degrees w've used, let's compare the notes of the chord to the C Major Scale.

C	D	E	F	G	A	B	C
1		3		5		7	

Do you notice something, We've used every other note.

CHORD CONSTRUCTION CONT.

This is the short way to construct a chord. Instead of sitting there thinking this is a third of that and that is a third of this, we can just use every other note.

Here's the guide again:

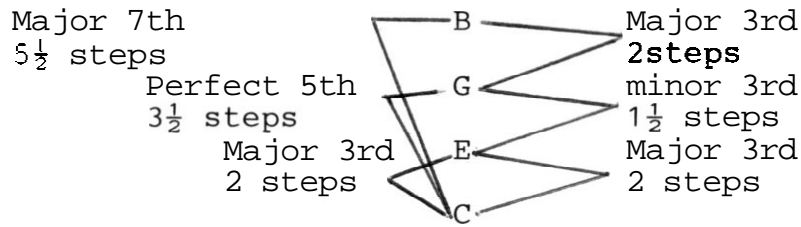
C	D	E	F	G	A	B	C
1		3		5		7	

Use our second method (every other note)

C E G B See it works!

Let's now analyze this chord. First let's find out what kind of third C to E is. C to E is 2 whole steps so, it is a Major third. (if you need help refer to the chart on Intervals in the Interval Chapter) Now, we've got two ways to measure this next interval, let's first measure from our third E. E to G is $1\frac{1}{2}$ steps or a minor third. The second way to measure is from C to G. C is a first, D is a second, E is a third, F is a fourth, and G is the fifth, so C to G is a fifth. C to G is $3\frac{1}{2}$ steps, so that makes it a Perfect Fifth. And finally, G to B, the distance is 2 whole steps, or a Major third. Also, we can measure the distance between C and B. This interval is a 7th. $5\frac{1}{2}$ steps makes it a Major 7th. So, after all of this analysis (I feel like a therapist) Here is what we know:

CHORD CONSTRUCTION CONT.



This shows us 2 ways to construct the same chord. Using either Major third upon minor third upon Major third, or using C as the base for all of the intervals and constructing a Major third, a Perfect fifth, and a Major seventh. This is a formula for a particular type of chord, that chord is a MAJOR 7TH CHORD. Take any note and construct a chord from there using either of these two formulas, and you will come up with a Major 7th Chord.

If you remember, we started out constructing a triad. If we get rid of the seventh and just use the root, third, and fifth, we've constructed a C MAJOR TRIAD, that chord would simply be called a C Major Chord. To construct any major chord just use the previous formula minus the 7th and you will **get** a Major triad.

There are basically three types of chords; Major, minor, and Dominant. **You've** got the formula for the Major chord, here are the formulas for minor, and Dominant, compare the three formulas to see the differences.

(5)

<u>MAJOR</u>			MINOR			<u>DOMINANT</u>		
Major 7th 5½ steps	7th	Major 3rd 2 steps	minor 7th 5 steps	7th	minor 3rd 1½ steps	minor 7th 5 steps	7th	minor 3rd 1½ steps
Perfect 5th 3½ steps	5th	minor 3rd 1½ steps	Perfect 5th 3 4 steps	5th	Major 3rd 2 steps	Perfect 5th 3½ steps	5th	minor 3rd 1½ steps
Major 3rd 2 steps	3rd	Major 3rd 2 steps	minor 3rd 1½ steps	3rd	minor 3rd 1½ steps	Major 3rd 2 steps	3rd	Major 3rd 2 steps
	Root			Root			Root	

Here are 2 formulas each for Major, minor and Dominant chord building.
 On the left is the formula that you would use if you were using the root as the base and building the different intervals from there. On the right, is the formula for building the chord by stacking different types of third intervals on top of one another.

CHORD CONSTRUCTION CONT.

It would be best to memorize these formulas so that you can build any one of these types of chords. I know that this looks like a lot of information, but you already know how many 1st $\frac{1}{2}$ nd these intervals are, from the Interval chapter. So, all you need to memorize is the order of the intervals. Also, each example has 2 ways of constructing the given chord, either the order of thirds, or what type of a 3rd, 5th, and 7th you would use. Here is a quick summary of that page:

Major 7th Chord

- 1) Major 3rd, minor 3rd, Major 3rd (from root)
- 2) Major 3rd, Perfect 5th, Major 7th

Minor 7th Chord

- 1) minor 3rd, Major 3rd, minor 3rd (from root)
- 2) minor 3rd, Perfect 5th, minor 7th

Dominant 7th Chord

- 1) Major 3rd, minor 3rd, minor 3rd (from root)
- 2) Major 3rd, Perfect 5th, minor 7th

CHORD CONSTRUCTION CONT.

Not too much info, is it? And, if you remember only one formula for each type you've cut this information in half.

If we look at the Major Scale again:

C	D	E	F	G	A	B	C
1		3		5		7	

You'll notice that we've only used half of the available notes (4 out of 7) what about the other 3?

Well, we can't just use them in order, 1, 2, 3, 4 etc., we must use them in a particular order. Here's what we do. We extend the scale into two Octaves.

This looks like this:

C	D	E	F	G	A	B	C	D	E	F	G	A	B	C
1		3		5		7		9		11		13		
								(2)		(4)		(6)		

Look at 9, 11, and 13 on the chart. 9 is D, 11 is F, and 13 is A. well, I thought that D was 2, F was 4, and A was 6, it is but, if we build the chord in thirds, (which we do), we must go all the way through the scale once and start into it a second time (2 octaves) to get to these notes. This is good because these notes sound better an octave higher when they are being played with the notes of the first octave. These notes,

~~Chord~~ d

CHORD CONSTRUCTION CONT.

As the title of this manual says, "Basic Theory", I'm not going to get show any extensions or alterations as thes are more advanced ideas. I just wanted you to see how to construct the three basic types of chords, but I did want you to know that chord **con-**struction can be quite advanced.

HARMONIZING SCALES

HARMONIZING - Creating harmony

To create harmony we build chords. So, when harmonizing a scale, we take each note of the scale and build a chord from it. In the key of C Major, we build a chord (using thirds) from every note of the scale:

C E G B

D F A C

E G B D

F A C E

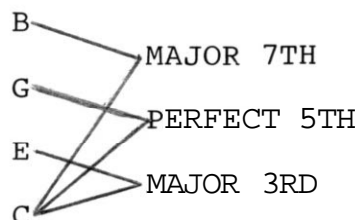
G B D F

A C E G

B D F A

Notice that we used only notes found in the C Major Scale, that is because we are HARMONIZING THE C MAJOR SCALE

Now that we've built a chord off of every note, we must analyze them. We'll need to remember the chord construction formulas for easier analysis. Here we go:

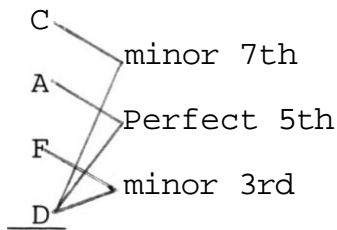


What kind of chord is this? Use the chart to find out

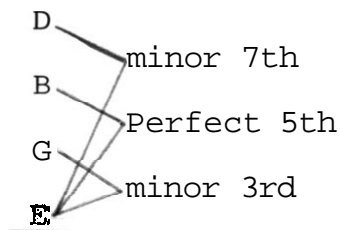
HARMONIZING SCALES CONT.

What did you come up with? A Major 3rd, a Perfect 5th, and a Major 7th is the formula for a Major 7th chord. So the chord in question is a C Major 7th Chord. (Remember, if you don't want the seventh don't use it. You will come up with a C Major Triad)

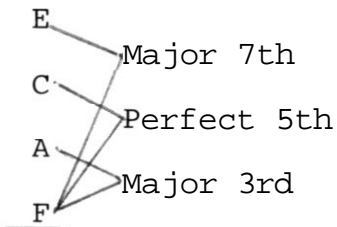
Let's build and analyze the rest of the scale:



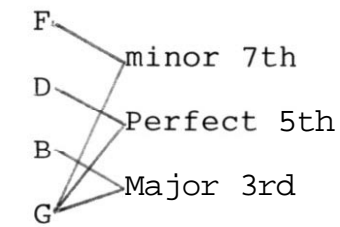
D minor 7



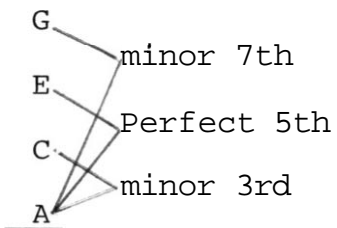
E minor 7



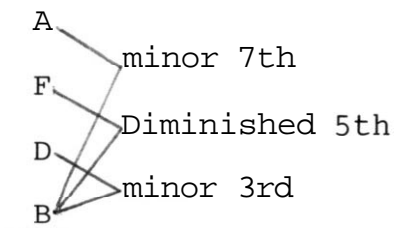
F Major 7



G Dominant 7



A minor 7



A minor 7 ^b 5

HARMONIZING SCALES CONT.

These are the chords that are built from the C Major Scale, using the notes that occur naturally in that scale.

Going one step further, let me tell you that in any key this is the order and the type of chords that are found in that key. If we were in G Major, the chords would be:

G	A	B	C	D	E	F [#]
Maj 7	min 7	min 7	Maj 7	Dom 7	min 7	min 7 ^{b5}

This formula is the same for all Major Scales, **wheather** it's B, F[#], D, E^b and so on. So, the chord types that appear in a Major Scale are:

Maj min min Maj Dom min minor 7^{b5} Maj

Here are some other names for the chords in order:

Maj 7	min 7	min 7	Maj 7	Maj 7	min 7	min 7 ^{b5}	Maj 7
I	ii	iii	IV	V	vi	vii	VIII (I)
TONIC	SUPER TONIC	MEDIANT SUB	DOMINANT	DCMINANT	SUB MEDIANT	LEADING TONE	OCTAVE

HARMONIZING SCALES CONT.

These are terms that you may run into and I just wanted you to see them.

Knowing how to harmonize a scale helps you in many ways. It helps you in songwriting, by letting you know what chords you may use in the key you've chosen to write in. In Lead playing it helps by letting you know what chords can be played under the solo so that you'll know what tones are most important. And in figuring out songs it puts enough restrictions on your choice of chords so that you are not hunting for the next chord for an hour, you've only got so many that you can use.

Now you can use this basic concept in harmonizing any scale. If you go to your scale supplement page, and take any one of those patterns you can build a scale with the tonality of the particular scale type you have chosen. Then, you can Harmonize the chords that pertain to that particular scale. Thus giving you all of the information that you need to write, solo and so on. Just build chords in thirds (every other note) from every note in the scale, analyze the type of third, fifth seventh and see what type of chord you have. Do this to all chords and you will have harmonized an entire scale. Then it is up to you to use it to your own liking.

NOTES ON THE GUITAR NECK

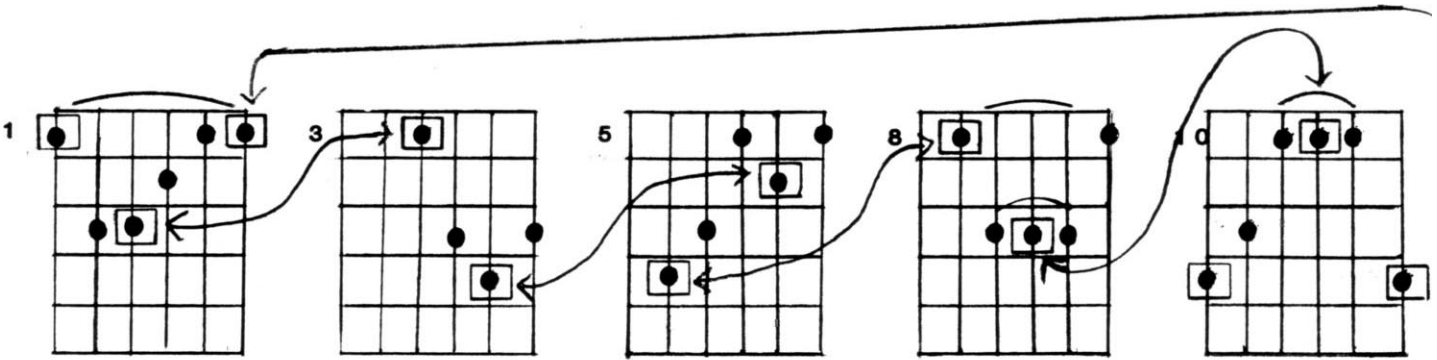
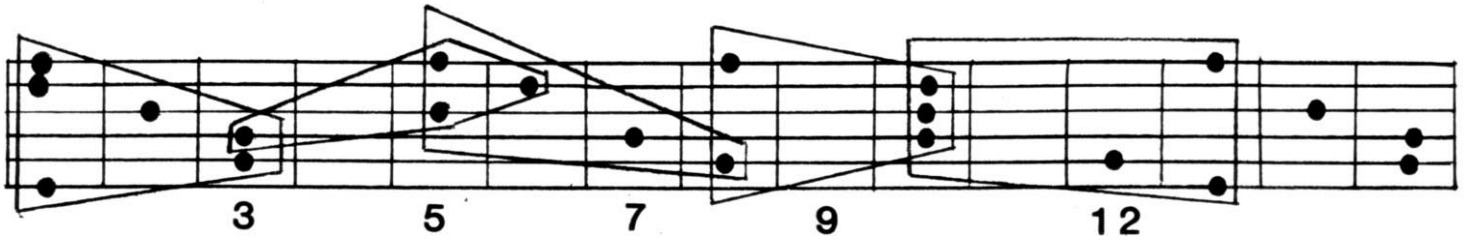
FRETS # 1 - 12

(FRETS 13 - 24 ARE EXACTLY THE SAME AS 1 - 12)

	E	A	D	G	B	E
0	F	A [#] B ^b	D [#] E ^b	G [#] A ^b	C	F
1	F [#] G ^b	B	E	A	C [#] D ^b	F [#] G ^b
2	G	C	F	A [#] B ^b	D	G
3	G [#] A ^b	C [#] D ^b	F [#] G ^b	B	E	A
4	A	D	G	C	E	A
5	A [#] B ^b	D [#] E ^b	G [#] A ^b	C [#] D ^b	F	A [#] B ^b
6	B	E	A	D	F [#] G ^b	B
7	C	F	A [#] B ^b	D [#] E ^b	G	C
8	C [#] D ^b	F [#] G ^b	B	E	A	D
9	D	G	C	F	A	D
10	D [#] E ^b	G [#] A ^b	C [#] D ^b	F [#] G ^b	B	E
11	E	A	D	G	B	E
12	E	A	D	G	B	E

5 MAJOR CHORD FORMS

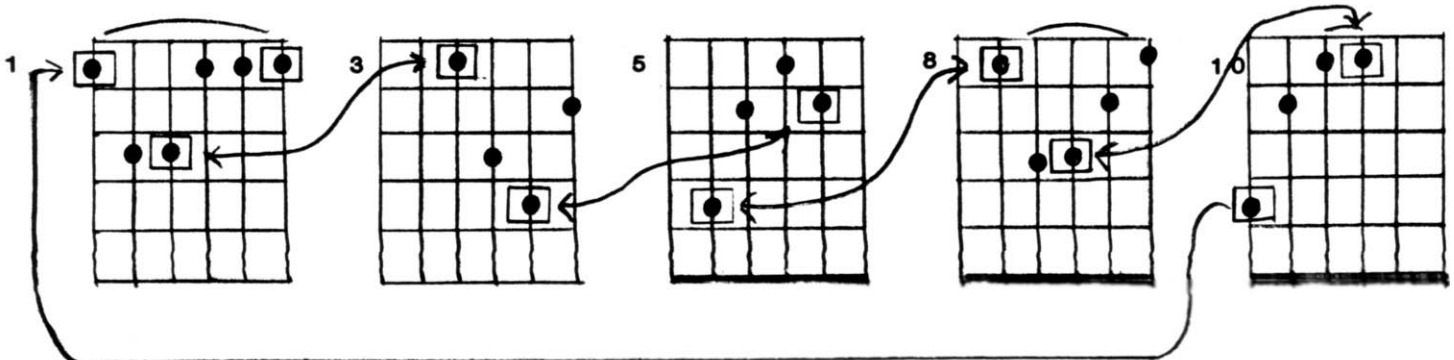
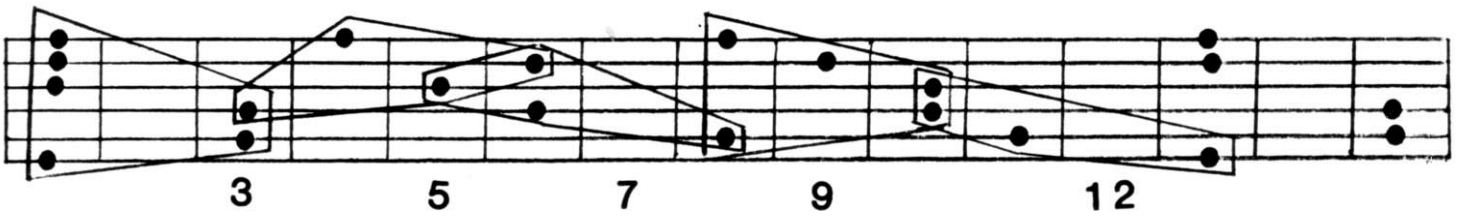
(F MAJOR USED IN EXAMPLE)



□ - ROOT IN BOX

5 MINOR CHORD FORMS

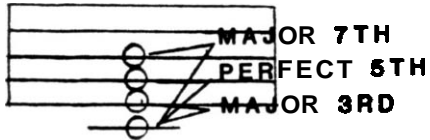
(F MINOR USED IN EXAMPLE)



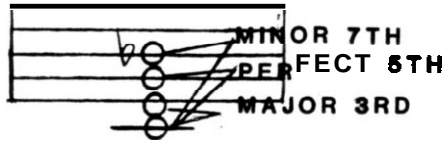
□ - ROOT IN BOX

3 TYPES OF CHORDS

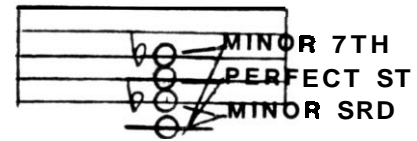
MAJOR 7TH



DOMINANT 7TH



MINOR 7TH

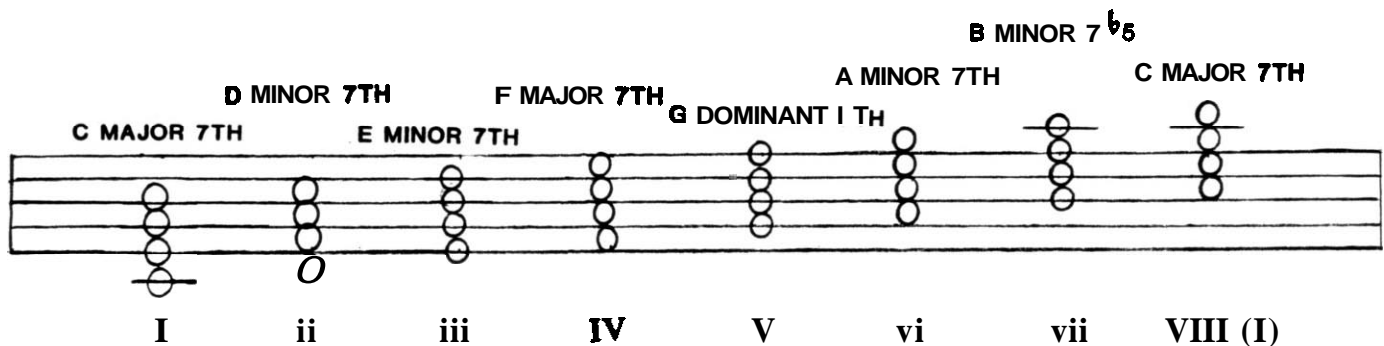


MAJOR 3RD = 2 STEPS MINOR 3RD = 1 1/2 STEPS

PERFECT 5TH = 3 1/2 STEPS

MAJOR 7TH = 5 1/2 STEPS MINOR 7TH = 6 STEPS

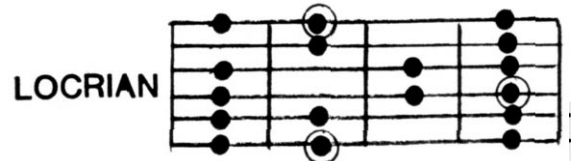
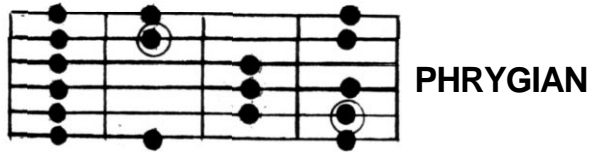
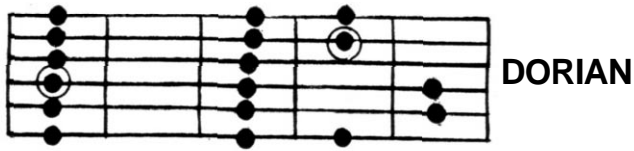
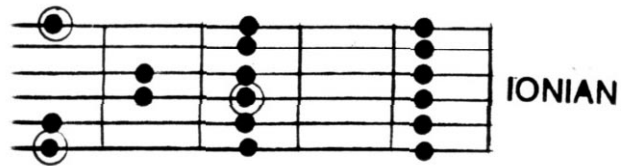
HARMONIZED C MAJOR SCALE



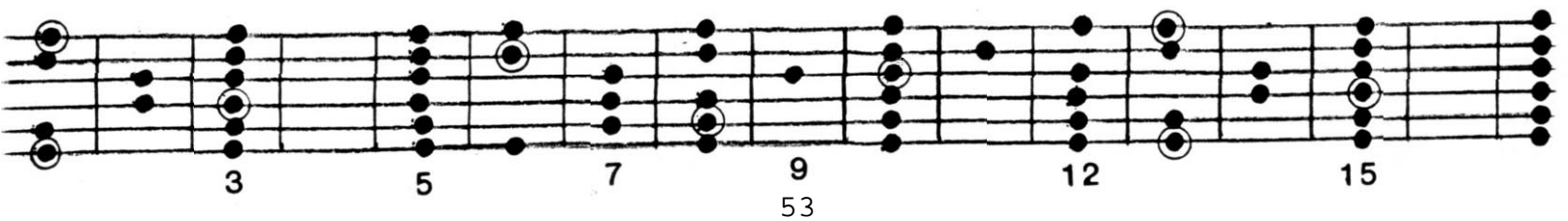
MODES OF THE MAJOR SCALE

(F MAJOR USED IN EXAMPLE)

(ALL ROOTS ARE CIRCLED)



GUITAR NECK VISUALIZATION F MAJOR



Well, this is where I leave. I hope you have learned something about theory. You must realize that each and every thing that we've discussed in this manual, can be elaborated on immensely, and your private instructor can tell you much more in person than I can in this book. Please take advantage of a teacher, there is nothing like a **student/teacher** relationship to spark inspiration. I can't tell you the feeling that I **get** when a student of mine all of a sudden realizes how to solo in key, or writes a chord progression all by themselves. It is an inspiration to me also. A teacher also can help you develop coordination and dexterity quicker and easier than you normally can on your own. Also, one other thing a teacher can do is to maybe open up your musical tastes, so that you can become a well rounded musician. This is a goal that we all as musicians should strive for.

Remember, don't give up, don't lose faith and practice what you don't know, not what you do.

Musically yours,

A handwritten signature in cursive script, appearing to read "Mike Deste", with a long horizontal flourish extending to the right.