

Building Major Scales

①

w = whole-step = 2 frets

h = half-step = 1 fret

the formula for creating major scale is

w w h w w w h

so, if start on C, up a whole is D, another whole is E, then half is F and you get...

C ^w D ^w E ^h F ^w G ^w A ^w B ^h C

try it on G and you get

G A B C D E F# G

try it on a "harder" key like A^b and you get

A^b B^b C D^b E^b F G A^b

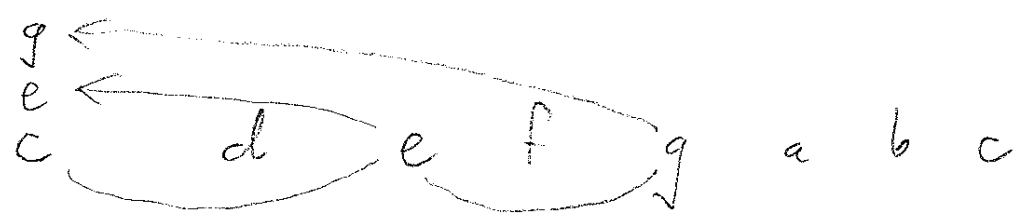
write out all 12 keys on 1 sheet of paper with each key on its own row and making all 8 notes line up vertically with w ↓ w h w w w h at the top as I have done above. The keys are:
C, G, D, A, E, B, F# then F, B^b, E^b, A^b, D^b, G^b

Building Chords

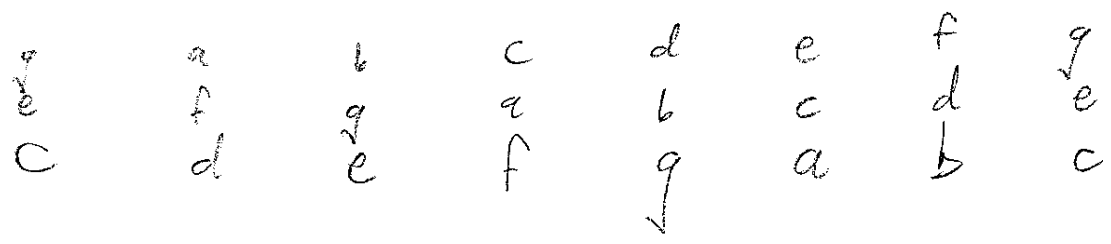
②

take the scales you have written and build chords out of each scale degree as we will do together here in the key of C

- ① take every other note in the scale and put it above each scale note

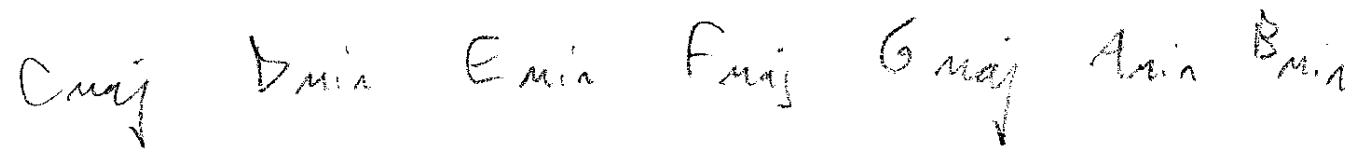


the result should be:



- ② analyze the 3rd of each chord: If the distance between the bottom note & middle note is 2 whole steps, it is called major third, and if it's 1 1/2 steps, it is a minor third. The corresponding chords will be either major or minor.

the result should be:



Remember that the "middle note" as we refer to it above is two scale tones away from the scale tone you're analyzing that's why it's called the third (ex: if C is 1, then E is 3! if D is 1, then F is 3)

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(3) Next, analyze the 5th of each chord. according to the w w h w w w h formula, the distance between a root (scale tone) and its fifth should be 7 half steps:

1 ^w ^ 2 ^w ^ 3 ^h ^ 4 ^w ^ 5

$$\left(\begin{matrix} 2 \\ \text{half} \\ \text{steps} \end{matrix}\right) + \left(\begin{matrix} 2 \\ \text{half} \\ \text{steps} \end{matrix}\right) + \left(\begin{matrix} 1 \\ \text{half} \\ \text{step} \end{matrix}\right) + \left(\begin{matrix} 2 \\ \text{half} \\ \text{steps} \end{matrix}\right) = 7 \text{ half steps}$$

check that the distance between c and g is 7 half steps away. If it is, our chord is indeed called C major as we have written on the previous page. However, if the 5th is not 7 half-steps away for any scale degree, we have to call the 5th "flat" (for 6 half-steps) or "sharp" (for 8 half-steps).

In the case of the key of C, the 3 notes built off of the 7th scale degree "b," the distance between b and f is only 6 half-steps so we have to call this 5th "flat." A minor third and flat fifth = a diminished chord so the proper spelling for a C harmonized scale is

Cmaj	Dmin	Emin	Fmaj	Gmaj	Amin	Bdim
I	II	III	IV	V	VI	VII

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The formula is the same for all keys, namely:

I	II	III	IV	V	VI	VII
maj	min	min	maj	maj	min	dim

Do yourself a huge favor and write out the harmonized scale for all 12 keys. We have already done C and I will help you with the next one G right now.

step 1 - write scale and stack the 3rds (every other note)

d	e	f#	g	a	b	c	d
b	c	d	e	f#	g	a	b
G	A	B	C	D	E	F#	G

step 2 - analyze the 3rd of each chord

d
b > G to b is 2 whole steps = major third

e
c > a to c is 1 1/2 steps = min third etc.

A

step 3 - analyze the fifths

d
b > G to d is 7 half-steps, which they all will be except for the 7th note

c
g > f# to c is only 6 half steps

F#

step 4 the G scale is:

Gmaj Amin Bmin Cmaj Dmaj Emin F#dim

minor harmonized scales

(5)

For minor keys, the 6th note of the major scale becomes the new 1st note of the minor. So in the example of G that we just did

I	II	III	IV	V	VI	VII
G	A-	B-	C	D	E-	F#°

I	II	III	IV	V	VI	VII
E-	F#°	G	A-	B-	C	D

Write out all 12 minor harmonized scales using this new formula:

I	II	III	IV	V	VI	VII
min	dim	maj	min	min	maj	maj

The I of the major and the VI of the major which now becomes the new I are called the "relative major" and "relative minor" to each other. Ex: in key C Am is "relative minor." In key Am, C is the "relative major." Both have the same number of sharps & flats which you will see on the circle of fifths.

The circle of fifths is a hugely handy & powerful way to memorize all the keys.

Circle of Fifths

(6)

