

Major-thirds tuning for guitar

David Lamkins, 2021

Introduction

Major-thirds tuning is a regular tuning for guitar. Regular because, unlike standard tuning, all string-to-string intervals are the same.

The problem to be solved

As a guitar player, you're aware that chord shapes vary depending upon whether they cross the G-to-B discontinuity on a standard-tuned guitar. All of the string-to-string intervals on a standard-tuned guitar are perfect fourths, except for the major-third of G-to-B. What this means is that a chord shape on the E through G strings must shift up by a fret as it crosses the G-to-B discontinuity.

In practice, this discontinuity requires you to learn three shapes for every chord: one for the case where all notes are played on the E through G strings, another for the case where the top note is played on the B string and yet another for the case where the two top notes are played on the B and E strings.

If you're like me, your early approach to learning guitar was informal. You probably started by memorizing chord shapes and learning to play melodies by rote. The complexities introduced by the discontinuity were seen as just more patterns to learn.

When playing a four-note-per-string chromatic scale, notice how the first note played on each string is separated from its neighboring first notes by a major third interval. That first-note frontier forms a mostly-diagonal line, apart from the flat spot where the line joins the B-to-G major third interval.

The frontier of major thirds along a (jagged) diagonal suggests a tantalizing way to visualize the fretboard. Imagine that the lowest played note is the root of a closed-form chord. Follow the contour of the major-thirds frontier line to add the third and fifth; that's an augmented triad. Lower the augmented 5th; now you have a major triad. Now lower the major third for a minor triad. Now lower the fifth again; that's a diminished triad. That's a nice simple rule by which you can construct triads. Inversions follow naturally, too: for the first inversion, pull the root to the string above the fifth, maintaining the root's relative position to the contour of the frontier. Then pull the third to above the root for the second inversion. Try it.

Visualizing that contour and its relationship to the triadic notes can be challenging to do in the moment. You have to force yourself to ignore the nice vertical fret lines and think instead of a diagonal (mostly) that slants across the fret lines. (I suspect that jazz guitar players transpose a tune to every key in order to work out all the key-dependent chord shapes ahead of time and get them into muscle memory.)

This way of visualizing chords on a standard-tuned guitar breaks down completely when attempting to add a seventh as the top note of a chord, unless you can play a chord that spans six or seven frets.

The solution: Major-thirds tuning

Now that we understand how to construct closed-form triads on a guitar in standard tuning, let's consider major-thirds tuning. Each string is a major third interval apart from its neighbors. The frontier of major thirds is no longer an irregular diagonal, but rather follows the fret line. An augmented triad is just the notes of three adjacent strings all played on the same fret. You can work through the other three triad types as we did in standard tuning: lower the fifth for a major triad, then the third for minor and the fifth once more for diminished. Major and minor triads span two frets; diminished, three.

That's already a big improvement over standard tuning: the four kinds of triads played in major-thirds tuning span from one to three frets. The same triads played on the E through G strings of a standard-tuned guitar span from three to five frets. The difference, of course, is due to the shape of the major-thirds frontier: each string crossed on a standard-tuned guitar adds one fret of span.

In major-thirds tuning, it's easy to add a seventh (or ninth) on top of a triad; all of these notes are within two or three frets of the frontier. All closed-form seventh chords are played within a span of two or three frets. The biggest stretch is a diminished triad plus a major ninth; this spans five frets.

Closed-form sus chords (both 2 and 4) are likewise an easy reach in major-thirds tuning, spanning just three frets.

Still no free lunch; sorry...

Is there a downside to major-thirds tuning? Yes; in fact there are several. First, you're not going to find a lot of pedagogical material. In fact, what you're reading now may be one of a literal handful of articles regarding how to play a guitar tuned in major-thirds.

Second, you'll probably want to get your guitar set up properly for major-thirds tuning. You can certainly treat major-thirds as an alternate tuning; no string changes by more than two semitones from standard. Once you commit to major-thirds tuning, adjusting string gauges to restore per-string tension to be comparable to your favorite strings in standard tuning will make the guitar more comfortable to play. But you'll always be creating string sets from singles; I don't foresee the day when string manufacturers market sets specifically for major-thirds guitar.

Next, the range of your instrument will be reduced; the amount by which the range is reduced increases with the number of strings.

Finally, some iconic chords are more difficult to play in major-thirds tuning. Stacked fifths ("Message in a Bottle"; Abercrombie's "Timeless") require a five-fret span across three adjacent strings in standard tuning. In major-thirds tuning, the same stacked fifths require a five-fret span across four strings with one string skipped or (for plectrum players) deadened.

Getting started

I strongly suggest that you retune one of your six-string guitars to major thirds so that you'll be able to follow along. Assuming you're starting in standard tuning, raise your sixth string to F#, raise your fifth string to A#, leave the fourth string tuned to D, lower the third string to F#, lower the second string to A# and lower the first string to D.

Your six-string guitar will end up tuned to these pitches.

semitones from std:	+2	+1	0	-1	-1	-2
pitch:	F#[2]	A#[2]	D[3]	F#[3]	A#[3]	D[4]
string:	6	5	4	3	2	1

Major-thirds tuning reduces the range of your six-string guitar by four semitones. If it's important to you to have the six-string instrument's full range, you'll need to switch to a seven-string guitar and set it up with string gauges appropriate to the new tuning.

The same reasoning applies if you're already playing an extended-range guitar. If your standard tuning is simply extended through the lower strings, you'll lose proportionally more instrumental range as strings are added. A seven-string guitar will have six semitones less range than it does in standard tuning. An eight-string guitar will have ten semitones less range. A nine-string guitar will have thirteen semitones less range.

The good news is that, even though you're sacrificing some part of the instrument's range, you get to choose which part of the range is retained. It really doesn't matter what you pick for the pitch of the lowest (or highest) string.

There are only four spellings of major-thirds tunings.

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

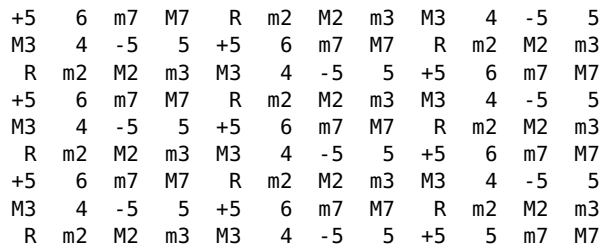
You can choose any of the three notes of a given spelling as the lowest note of your instrument. Just cycle through the notes in that row from left to right for each additional string. For example, I retuned my 8-string instrument from standard to major-thirds as an alternate tuning using these pitches.

semitones from std:	+3	+2	+1	0	-1	-2	-2	-3
pitch:	A[1]	C#[1]	F[2]	A[2]	C#[3]	F[3]	A[3]	C#[4]
string:	8	7	6	5	4	3	2	1

The regularity of major-thirds tuning means that all grips are movable. Transposition is a simple matter of moving horizontally by semitones or vertically by major thirds; the regularity of chord shapes makes transposition much easier than in standard tuning.

Fretboard layout

Let's look now at how the fretboard is laid out in major-thirds tuning. This is pretty much the Rosetta Stone of major-thirds guitar; you could discard the rest of this tutorial and, so long as you understand scale and chord construction, learn major-thirds guitar entirely from the following diagram. From this point forward, my contribution will be to provide insight and interpretation.



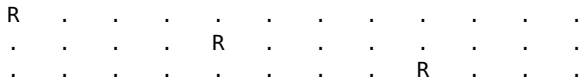
The chart represents twelve fret positions on a nine-string guitar. Pitches on the diagram ascend left-to-right and bottom-to-top.

It's important to note that a position on the chart does not represent any particular string or fret; you can overlay this on your actual fingerboard any way you like. For example, let's say that you've picked a particular note on the guitar as being the root of a chord. You can look at any R on the fretboard map and see its relationship to all of the surrounding notes; the pattern is completely regular no matter your starting point.

Important intervals

Let's start by looking at some important intervals. The terms up and down refer to pitch; not physical direction.

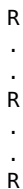
A unison on an adjacent string is either four frets down and one string up or four frets up and one string down.



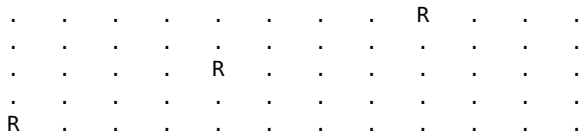
An octave is twelve frets up or down the same string, as is always the case.



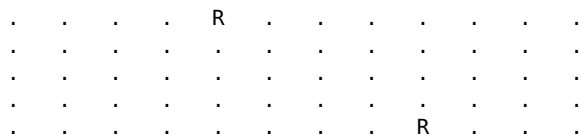
An octave is also three strings up or down across the same fret.



Combining the cross-string unison and octave patterns, we see that an octave is also four frets and two strings down or four frets and two strings up.



There's also an octave four strings up and four frets down, or vice versa. (This is a combination of the octave and unison moves.)



It's handy to know where your fifths are, too.

```

5 . . . .
. . . . 5
. R . . .
5 . . . .
. . . . 5

```

Intervalic moves follow regular patterns.

```

. X X . . X . X X . . X
half-step whole-step step-and-a-half

X . . . . X . . . . X . . .
half-step whole-step step-and-a-half

```

Note names

```

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

```

This pattern represents twelve frets across three strings. It repeats in all directions. Match the repeated pattern to the open string tuning and you'll be able to name the notes on the fretboard.

Closed-form triads

Here are the four kinds of triads.

```

+5      5 .      5 .      -5 . .
M3      . M3     m3 .     . m3 .
R        . R      . R      . . R
augmented major minor diminished

```

Again, in first inversion.

```

R        . R      . R      . . R
+5      5 .      5 .      -5 . .
M3      . M3     m3 .     . m3 .
augmented major minor diminished

```

And in second inversion.

```

M3      . M3     m3 .     . m3 .
R        . R      . R      . . R
+5      5 .      5 .      -5 . .
augmented major minor diminished

```

Note that inversions are always created by taking the bottom note of the chord and moving it up three strings along the same fret, or by taking the top note of the chord and moving it down three strings.

Non-tertian chords

Here are the sus chords and flat-five chords.

```

. 5 .      5 . .      -5 . .      -5 . .      -5 . . .
2 . .      . . 4      . . 3      2 . .      . . . 4
. . R      . R .      . . R      . . R      . . R .
sus2      sus4      flat-five      sus2b5      sus4b5

```

First inversion sus chords and flat-five chords.

. . R	. R .	. . R	. . R	. . R .
. 5 .	5 . .	-5 . .	-5 . .	-5 . . .
2 . .	. . 4	. . 3	2 . .	. . . 4
sus2	sus4	flat-five	sus2b5	sus4b5

Second inversion sus chords and flat-five chords.

2 . .	. . 4	. . 3	2 . .	. . . 4
. . R	. R .	. . R	. . R	. . R .
. 5 .	5 . .	-5 . .	-5 . .	-5 . . .
sus2	sus4	flat-five	sus2b5	sus4b5

One shape per triad

Let's look again at the triad shapes, this time as they'd lay out across the fretboard.

+5	5 .	5 .	-5 . .	
M3	. M3	m3 .	. m3 .	
R	. R	. R	. . R	
+5	5 .	5 .	-5 . .	
M3	. M3	m3 .	. m3 .	
R	. R	. R	. . R	
+5	5 .	5 .	-5 . .	
M3	. M3	m3 .	. m3 .	
R	. R	. R	. . R	
augmented	major	minor	diminished	
. 5 .	5 . .	-5 . .	-5 . . .	
2 . .	. . 4	. . 3	2 . . . 4
. . R	. R .	. . R	. . R .	
. 5 .	5 . .	-5 . .	-5 . . .	
2 . .	. . 4	. . 3	2 . . . 4
. . R	. R .	. . R	. . R .	
. 5 .	5 . .	-5 . .	-5 . . .	
2 . .	. . 4	. . 3	2 . . . 4
. . R	. R .	. . R	. . R .	
sus2	sus4	flat-five	sus2b5	sus4b5

Note that every triad type has its own shape which repeats for every group of three strings. All of the inversions follow from these shapes.

Again, remember that these maps can be overlaid upon any portion of the actual fingerboard.

Open-voiced triads

By skipping strings, you can create open-voiced triads. These are distinguished by having voices separated by two intervals of a third. You can construct open-voiced triads spelled in the following ways, substituting two or four for three in the case of the sus triads.

- root - five - three
- three - root - five
- five - three - root

It's interesting to note that the spelling of an open-voiced triad is reversed from the spelling of the comparable closed-voice triad.

Create an open-voiced triad from any closed-voice triad by moving its middle note up or down by an octave (three strings along the same fret).

Drop-voicing

A drop-voiced chord is created from a closed-voice chord by dropping one or more notes of the chord by an octave.

For example, a drop-1 chord lowers the highest note by an octave. Drop-1 chords are not generally described as such, since the resulting form is just a different closed-voice inversion of the chord.

Other drop voicings result in chords that have one or more intervals larger than a third. Drop voicings are quite common (indeed, necessary) on a standard-tuned guitar, although they are infrequently described as such except when systematizing drop voicings for jazz pedagogy.

In major-thirds tuning, drop-voiced chords are used for color rather than of necessity.

Here are drop-2 voicings applied to root-position triads. The second voice from the top is dropped an octave by moving the fretted note three strings lower. Note that this is the formulation described above for open-voiced chords.

+5	5 .	5 .	-5 . .
.
R	. R	. R	. . R
.
M3	. M3	m3 .	. m3 .
augmented	major	minor	diminished

A drop-3 voicing is created by lowering the third note from the top by an octave. Here's what that looks like for root-position triads. This is actually a bit more of a reach than on a standard-tuned guitar.

+5	5 .	5 .	-5 . .
M3	. M3	m3 .	. m3 .
.
.
.
R	. R	. R	. . R
augmented	major	minor	diminished

You can also drop more than one voice at a time. Here are the drop-2 and -3 voicings for root-form triads.

+5	5 .	5 .	-5 . .
.
.
.
M3	. M3	m3 .	. m3 .
R	. R	. R	. . R
augmented	major	minor	diminished

If you compare the above drop-voiced forms to the corresponding root-position triads, you'll see that the pattern is consistent; you can apply the same pattern to inversions of the triads and to sus chords. Likewise, the identical approach can be applied to extended chords containing a 7th or 9th (see below); the highest note is always considered the "1" voice regardless of its function.

7th and add9 chords

A seventh- or ninth-degree note adds additional color to a triad. This diagram illustrates how extensions relate to a root-form triad.

6	m7	M7	.	.	M9
.	-5	5	.	.	.
.	M2	m3	M3	4	.
.	.	.	R	.	.

Here are common seventh-chord spellings. Note that the 6 is commonly spelled as bb7 in this context.

```
dim7   R m3 -5 6
m7b5   R m3 -5 7
m7      R m3 5 m7
m/maj7  R m3 5 7
7       R M3 5 m7
maj7    R M3 5 7
```

A major ninth may be added on top of any triadic form, tertian or not. Fully voiced ninth chords (which also include a seventh) are not generally playable in major-thirds tuning.

Only root-position seventh and add9 chords can be played on four adjacent strings. When raising the lowest voice by an octave (for inversions), the moved note will conflict with the highest note; simply shift the moved note one more string up and four frets lower. Similar unison equivalence may be used (one string lower and four frets higher) to avoid skipped strings in drop voicings.

Quartal chords

Quartal chords are also playable in closed form over a span of three or four frets. Inversions and open-voiced chords are constructed in the usual manners.

```

. . m7      . . . M7      . . . M7
. 4 .      . 4 . .      . . +4 .
R . .      R . . .      R . . .

perfect-perfect    perfect-augmented    augmented-perfect
```

Quintal chords

Quintal chords, formed by stacking fifth intervals, are playable in closed form across five strings. Some of these formulations are harmonically equivalent to the parenthetically-named chords.

```

M2 . .      m2 . . .      m3 .
. . .      . . . 5 .      . .
. 5 .      . . 5 .      5 .
. . .      . . . .      . .
. . R      . . . R      . R

perfect-perfect    perfect-diminished    perfect-augmented
(sus2)                (minor)

m3 .      M2 . .
. .      . . .
. +5      . . +5
. .      . . .
. R      . . R

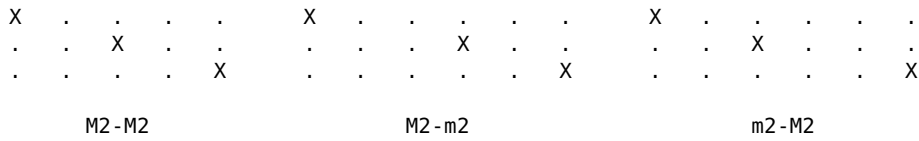
augmented-perfect    augmented-diminished
(major)

m2 . . .      M2 . .
. . .      . . .
. -5 . .      -5 . .
. . . .      . . .
. . . R      . . R

diminished-perfect    diminished-augmented
(sus2b5)
```

Clusters

A cluster is any sequence of three or more consecutive notes from a scale sounded simultaneously. This applies to both chromatic and diatonic scales. You'll be able to play just a few three-note cluster forms in major-thirds tuning.



The cluster forms containing a minor-second are played over a six-fret span. Depending upon the scale of your instrument and the size and flexibility of your hands, these forms may be unplayable except on upper frets.

A m2-m2 cluster spans seven frets and is likely unreachable without using a picking-hand finger to fret the highest or lowest note.

Scales

Scales are relatively easy to learn in major-thirds tuning. All scales in all starting positions can be played entirely within a four-fret span across four adjacent strings.

Diatonic

Here are the constructions of diatonic scales. These all span twelve semitones.

```

major          w w h w w w h
natural minor  w h w w h w w
harmonic minor w h w w h t h
melodic minor  w h w w w w h

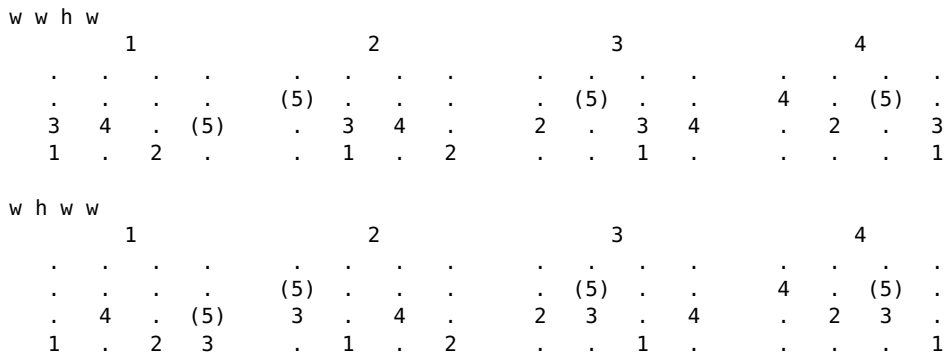
```

Intervals are labeled h, w and t, corresponding to a semitone, two semitones or three semitones, respectively.

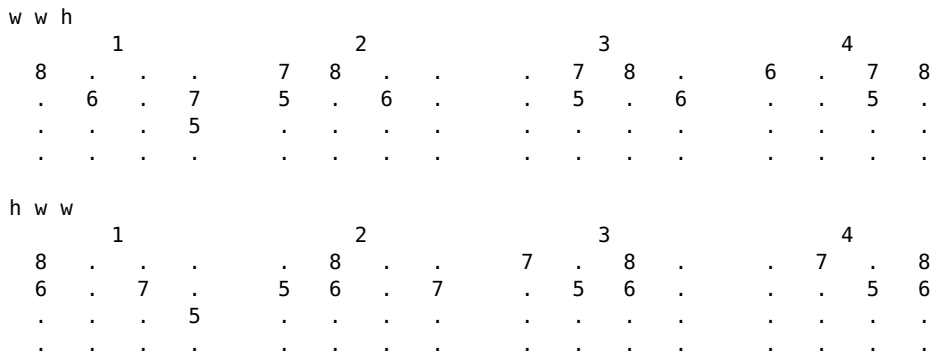
There are only five patterns altogether; two of four intervals and three of three intervals. There are four possible starting positions: the index, middle, ring and pinky finger which are conventionally labeled 1, 2, 3 and 4. The combination of five patterns and four starting positions gives us just twenty patterns.

The following diagrams are meant to be combined based upon the starting finger. Always use a four-interval pattern and a three-interval pattern from the same column. The numbers represent scale degrees.

These are the four-interval patterns. The fifth degree is shared with the three-interval patterns.



These are the three-interval patterns.



h t h															
1			2			3			4						
8	.	.	.	7	8	.	.	.	7	8	.	.	.	7	8
6	.	.	7	5	6	.	.	.	5	6	.	.	.	5	6
.	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.
.

You can also view the above as four-note patterns covering scale degrees 1-4 and 5-8; the interval between the 4 and 5 is a whole step.

Major

Here's the major scale in full to illustrate how the patterns combine.

w w h w w w h															
1			2			3			4						
8	.	.	.	7	8	.	.	.	7	8	.	6	.	7	8
.	6	.	7	5	.	6	.	.	5	.	6	4	.	5	.
3	4	.	5	.	3	4	.	2	.	3	4	.	2	.	3
1	.	2	.	.	1	.	2	.	.	1	.	.	.	.	1

Natural minor

Here's the natural minor scale in full to illustrate how the patterns combine.

w h w w h w w															
1			2			3			4						
8	.	.	.	.	8	.	.	7	.	8	.	.	7	.	8
6	.	7	.	5	6	.	7	.	5	6	.	4	.	5	6
.	4	.	5	3	.	4	.	2	3	.	4	.	2	3	.
1	.	2	3	.	1	.	2	.	.	1	.	.	.	.	1

Harmonic minor

Here's the harmonic minor scale in full to illustrate how the patterns combine.

w h w w h t h															
1			2			3			4						
8	.	.	.	7	8	.	.	.	7	8	.	.	.	7	8
6	.	.	7	5	6	.	.	.	5	6	.	4	.	5	6
.	4	.	5	3	.	4	.	2	3	.	4	.	2	3	.
1	.	2	3	.	1	.	2	.	.	1	.	.	.	.	1

Melodic minor

Here's the melodic minor scale in full to illustrate how the patterns combine.

w h w w w w h															
1			2			3			4						
8	.	.	.	7	8	.	.	.	7	8	.	6	.	7	8
.	6	.	7	5	.	6	.	.	5	.	6	4	.	5	.
.	4	.	5	3	.	4	.	2	3	.	4	.	2	3	.
1	.	2	3	.	1	.	2	.	.	1	.	.	.	.	1

Chromatic

chromatic															
1			2			3			4						
8	.	.	.	x	8	.	.	x	x	8	.	x	x	x	8
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1	x	x	x	.	1	x	x	.	.	1	x	.	.	.	1

Diminished

diminished

1				2				3				4			
8	.	.	.	x	8	.	.	.	x	8	.	x	.	x	8
x	x	.	x	.	x	x	.	x	.	x	x	x	x	.	x
.	x	x	.	x	.	x	x	x	x	.	x	.	x	x	.
1	.	x	x	.	1	.	x	.	.	1	.	.	.	.	1

1				2				3				4			
8	.	.	.	.	8	.	.	x	.	8	.	x	x	.	8
.	x	x	.	x	.	x	x	x	x	.	x	.	x	x	.
x	.	x	x	x	x	.	x	.	x	x	.	x	.	x	x
1	x	.	x	.	1	x	.	.	.	1	x	.	.	.	1

Wholetone

wholetone

1				2				3				4			
8	.	.	.	.	8	.	.	x	.	8	.	.	x	.	8
x	.	x	.	.	x	.	x	x	.	x	.	.	x	.	x
x	.	x	.	.	x	.	x	x	.	x	.	.	x	.	x
1	.	x	.	.	1	.	x	.	.	1	.	.	.	.	1

Augmented

augmented

1				2				3				4			
8	.	.	.	x	8	.	.	.	x	8	.	.	.	x	8
x	.	.	x	x	x	.	.	.	x	x	.	.	.	x	x
x	.	.	x	x	x	.	.	.	x	x	.	.	.	x	x
1	.	.	x	.	1	.	.	.	.	1	.	.	.	.	1

1				2				3				4			
8	.	.	.	.	8	.	.	.	.	8	.	x	.	.	8
x	x	.	.	.	x	x	.	.	.	x	x	x	.	.	x
x	x	.	.	.	x	x	.	.	.	x	x	x	.	.	x
1	x	.	.	.	1	x	.	.	.	1	x	.	.	.	1

Pentatonic

minor pentatonic (natural minor w/o 2nd and 6th degrees)

1				2				3				4			
8	.	.	.	.	8	.	.	7	.	8	.	.	7	.	8
.	.	7	.	5	.	.	7	.	5	.	.	4	.	5	.
.	4	.	5	3	.	4	.	.	3	.	4	.	.	3	.
1	.	.	3	.	1	.	.	.	.	1	.	.	.	.	1

major pentatonic (major w/o 4th and 7th degrees)

1				2				3				4			
8	.	.	.	.	8	.	.	.	.	8	.	6	.	.	8
.	6	.	.	5	.	6	.	.	5	.	6	.	.	5	.
3	.	.	5	.	3	.	.	2	.	3	.	.	2	.	3
1	.	2	.	.	1	.	2	.	.	1	.	.	.	.	1

Notation

Now that you have learned to better visualize the fingerboard, thanks to M3 tuning, wouldn't it be nice to have the same kind of simple model to use for notation? I think that some variant of a chromatic staff makes a lot of sense. An octave is written across six lines and six spaces. Note that every other line (or space) denotes an interval of a major third, as does every pair of adjacent strings on the M3 guitar.

Many scholarly proposals have been advanced for the details of chromatic notation systems; I won't add yet another named variation. Rather, I'll note some of my favorite features. I think it makes a lot of sense to style or color staff lines on an alternating basis; that makes it a bit easier to visualize an M3 interval. I'm less sanguine regarding the use of a third distinguished color or style for lines an octave apart; I think it should be relatively easy to internalize the notion of an octave as three M3s, particularly given the styling noted above which gives every other M3 the same style of staff lines.

Personal note

This concludes everything that an experienced guitarist needs to start playing in major-thirds tuning. I hope you'll give it a try. If I've horribly twisted or misstated something, please let me know. I can be reached at <mailto:david@lamkins.net>. If you've enjoyed this paper, please share with your friends.

Learning to play in a major-thirds tuning has been, for me, an eye opener. I began to study guitar and music over twenty years ago. That journey has been both challenging and productive, yet I never really mastered (to my satisfaction) the fretboard of a standard-tuned instrument. Mind you, I learned a lot thanks to ear training and the accumulation of much theoretical and practical knowledge.

Within hours of beginning to play in major-thirds tuning, I began to feel that I finally understood the fretboard. I can't stress enough how much my fretboard visualization has been aided by this tuning; it's almost as if the notes on the fretboard light up, indicating "here are your options". Much of this is due to how naturally tertian harmony lays out. There are many consistencies and symmetries that mesh nicely with a modest knowledge of harmony; this is a tremendous boon to improvisational composition.

References

The late Ralph Patt <http://ralphpatt.com> is the first guitarist known to have adopted major-thirds tuning. He chose a major-thirds tuning while studying atonal improvisation in the early 1960s, and later adopted the tuning for his session work.

Tony Corman <https://tonycorman.com> provides a jazz guitar method book for M3 tuning.

I am indebted to both of these gentlemen for their treatment of the subject.

Look at <http://musicnotation.org> for a nice survey of systems of musical notation.