


What Is Tempo?

What Is Tempo? There's a pulse that connects all music. This universal communication tool is more than just rhythm, harmony and melody-in fact, none of the matter without a tempo.



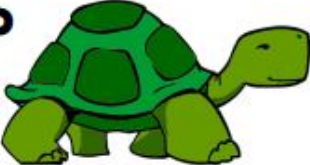



Tempo is one the simplest concepts to grasp in music theory, but it's 1 of the most difficult to actually play.

Musicians will spend their entire lives attempting to play and find the tempo.

In this article let's explore all the different ways of approaching tempo so you can master the concept in your own music.

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TEMPO

| | |
|---|--|
|  <p>Largo very slow (40-60)</p> |  <p>Moderato medium (106-120)</p> |
| <p>Adagio slow (66-76)</p>  | <p>Allegro quickly and bright (112-124)</p>  |
|  <p>Andante at a walking pace (76-106)</p> | <p>Presto very fast (166-200)</p>  |

[toc]

What Is Tempo?

Tempo is the speed at which a little bit of music is played. There are three primary techniques tempo is communicated to players: BPM, Italian terminology, and modern language.

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Tempo vs. Time Signature

Since it refers to the number of beats per minute and not the amount of beats per way of measuring music, tempo is quite different from time signature.

Tempo and rhythm are intertwined and rely on each other very closely, but tempo should be thought of as the canvas or structure where rhythms exist.


You can imagine time signature as interacting with the tempo in the sense that the bottom number in enough time signature determines the pulse and the way the pulse is subdivided.

Time signatures, rhythms and syncopation are how artists take a factual, measurable number like BPM and sculpt it into musical information-essentially creating art with the fabric of time!

Tempos are sort of psychedelic when you consider it!

What Is Beats Per Minute (BPM)?

This method involves assigning a numerical value to a tempo. "Beats per minute" (or BPM) is self-explanatory: it indicates the number of beats in a single moment. For instance, a tempo notated as 60 BPM means that a beat sounds exactly once per second. A 120 BPM tempo will be twice as fast, with two

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defeats per second.

In terms of musical notation, a beat almost always corresponds with the piece's time signature.

- In a time signature with a 4 on the bottom (such as 2/4, 3/4, 4/4, 5/4, etc.), a beat will correspond with quarter notes. So in a 4/4 time, every four defeats will take you through a full measure. In 5/4 time, every five beats will need you through a measure.
- In a time signature with an 8 on the bottom (such as 3/8, 6/8, or 9/8), a tempo beat typically corresponds having an eighth note.
- Sometimes tempo beats correspond with other durations. For instance, if you need to count the right path through a measure of 12/8, you could choose a tempo that represents eighth notes (where 12 tempo beats get you through one determine) or perhaps a tempo that represents dotted eighth notes (where 4 tempo beats would allow you to get through the measure).


BPM is the most precise way of indicating fast tempo or slow tempo. It's found in applications where musical durations must be completely precise, such as film scoring. It's also used to create metronomes that are used on the highest level professional recordings. In fact, some people utilize the term "metronome marking" to spell it out beats per minute.

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What Are the Basic Tempo Markings?

Musical terminology makes regular use of the following tempo markings:

- **Larghissimo**—very, very slow, almost droning (20 BPM and below)
- **Grave**—slow and solemn (20–40 BPM)
- **Lento**—slowly (40–60 BPM)
- **Largo**—the most commonly indicated “slow” tempo (40–60 BPM)
- **Larghetto**—rather broadly, and still quite slow (60–66 BPM)
- **Adagio**—another popular slow tempo, which translates to mean “at ease” (66–76 BPM)
- **Adagietto**—rather slow (70–80 BPM)
- **Andante moderato**—a bit slower than andante
- **Andante**—a popular tempo that translates as “at a walking pace” (76–108 BPM)
- **Andantino**—slightly faster than andante
- **Moderato**—moderately (108–120 BPM)
- **Allegretto**—moderately fast (but less so than allegro)
- **Allegro moderato**—moderately quick (112–124 BPM)
- **Allegro**—perhaps the most frequently used tempo marking (120–168 BPM, which includes the “heartbeat tempo” sweet spot)
- **Vivace**—lively and fast (typically around 168–176 BPM)

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- Vivacissimo—very fast and lively, even faster than vivace
- Allegrissimo—very fast
- Presto—the most popular way to write “very fast” and a common tempo in fast movements of symphonies (ranges from 168–200 BPM)
- Prestissimo—extremely fast (more than 200 BPM)

How Is Tempo Used in Music?

Tempo is a key element of the musical performance. Inside a piece of music, tempo can be just as important as melody, harmony, rhythm, lyrics, and dynamics. Classical conductors use different tempos to greatly help distinguish their orchestra's rendition of a classic item from renditions by other ensembles. However, most composers, all the way from Mozart to Pierre Boulez, provide a lot of tempo instructions in their musical scores. So when it comes to film underscore, certain tempos are crucial when setting certain moods.

One particularly notable tempo is the “heart rate tempo,” that is a musical speed that roughly aligns with the beating pulse of a human heart. Although heartrates change from person to individual, most fall in the range of 120 to 130 BPM. Analysis has shown that a disproportionate number of hit singles have already been written within this tempo range.

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How to find the tempo?

Space and time aside, finding the tempo is a lot more difficult-and it's definitely the most crucial section of understanding and using tempo.

Keeping up and playing around with that rigid, unforgiving, deterministic measure of time requires a lifeperiod of skill plus practice.

Here's a few things to keep in mind when approaching tempo in your music.

Find a metronome

The metronome was invented in the 1800s and contains been used as a way to help musicians continue beat ever since.


Today metronomes are very easy to find when compared to classic wind-up metronomes of days past.

Your best bet would be to get an app, Google it or utilize the metronome in your DAW-which is clocked to MIDI and glues everything together.

Practice to a metronome

Practicing to a metronome mthey be the equivalent of eating your vegetables, taking vitamins and weight lifting.

It's difficult, it takes discipline, it's not super fun-but it

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will make you a much, much better musician.

Even the most seasoned professionals will turn the metronome on during their private practice sessions.

The metronome is like a mirror, it shows where all your imperfections lie also it gives you a reference point for where you can reach.

Playing to the metronome is indeed important, if you want in order to be a serious musician you need to practice to one.


When you practice with a metronome you'll discover how difficult it really is to play at slower speeds.

A slower tempo is often very difficult for musicians to internalize because the space between beats is more pronounced.

Hot tip: If you play with a group, learn to perform your songs to a metronome at various tempos. Achieving this will provide you with a greater level of control when playing live and without a metronome.

Look at your watch

Looking at your watch is an excellent solution to identify a tempo if you're curious what the tempo of a song is, or desire to find the tempo before kicking off a track.

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Just look at the clock and count the number of beats throughout a specific interval.

For example, if you count 40 beats during a 30-second interval the song is played at 80 BPM.

Memorize a few songs

In the movie Whiplash, the conductor asks the drummer to play a specific tempo, with the expectation that the drummer should know exactly how to kick off a song at 130 BPM.


In reality, this is not an expectation that any band leader should place on any musician.

Humans are not robots and you also can't expect anyone to play a particular BPM on command.

But, with practice, humans are great at approximating a tempo on command.

One great way to master this skill is by memorizing the tempo and beat of a handful of memorable songs that are well-known for following a certain tempo.

Here's a few which come to mind.

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Circle of Fifths


About the Circle of Fifths

The term *fifth* refers to an interval between notes. Consider all the notes in the key of C, namely C D E F G A B C. Now number the notes going up the scale and you get C=1, D=2, E=3, F=4, G=5, A=6, B=7 C=8. The term up a fifth just means the note numbered 5, or G. Up a fourth just means the note numbered 4, or F, etc.

If we think about the key of G major scale instead of C major, the notes are 1=G, 2=A, 3=B, 4=C, 5=D, 6=E, 7=F#, 8=G. Up a fifth from G is the note numbered 5 in the G scale, which is D; up a fourth is the note numbered 4, or C.

This is really simple—there's nothing mysterious about it. These terms like a fifth, fourth, third, seventh, etc. just talking about where the note falls in the scale if you number starting at the root note in the scale.

Now if we number the notes going down the C scale we have C=1, B=2, A=3, G=4, F=5, E=6, D=7, C=8. If we pick the note down a fourth from C we get the note numbered 4, in this case G. Notice that up a fifth yields a G, and down a fourth also yields a G. This is a general principle: up a fifth is the same as down a fourth. Well, what about vice versa? Up a

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forth in C major is an F, and down a fifth is also an F. Yep, it's another general principle: up a forth is the same as down a fifth.

We've seen that up a fifth in C is G, and in G is D. What if we keep going? The major scale for the key of D is D=1, E=2, F#=3, G=4, A=5, B=6, C#=7, D=8, so up a fifth is the note numbered 5, which is A. For the key of A we get E, for E we get B, for B we get F#, which is the same note at Gb. Traditionally we go to flat names at this point, up a fifth from Gb is Db, then Ab, Eb, Bb, F, and C. We're back at C, and we've covered all 12 notes in the scale. This is great! We don't get back too early—before all the notes have been used—and each note appears one time in the circle of fifths—there are no duplicates.

This is where the idea of the circle of fifths comes from.. the mathematical relationship that allows us to go up in fifths and get each note exactly once before we get back to the beginning. Of course, we can also go up in fourths and have the same relationship, since up a forth is the same as down a fifth—the notes just come out in reversed order. This circle of key names is symmetrical, and really only a circle of fifths if you go clockwise. It's a circle of 4ths if you go counterclockwise. But by convention and tradition, the circle of key names is called the circle of fifths.

An interesting thing about the circle of fifths is that as you

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step clockwise, the number of sharps in the key signature increases by one. Since the circle is symmetrical, as you step counterclockwise the number of flats in the key signature increases by one.

And, for diatonic harmonica players the circle of fifths is great for figuring out positions, harp keys, and the key of the music.

- When playing first position, you are playing in the key of the harp.
- If you want to play a particular key in 2nd position, pick the harp key 1 step counterclockwise from the music key.
- If you are playing in 2nd position, just look one step clockwise from the key of the harp to determine the key of the music.

This technique works regardless of what position or key you are playing in. To play in a key using third position, pick the harp key that is 2 steps counterclockwise. If you want to know what key you are playing in when you're playing 3rd position, just look 2 steps clockwise from the key of the harp.

Given the key of the harp, each step clockwise on the circle of fifths is the key of the music for the next higher position.

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Given the key of the music, each step counterclockwise on the circle of fifths is the key of the harp to use for the next higher position.

To figure the music key and position for any diatonic harmonica key, just number the harp key as 1, and consecutively number the other keys stepping clockwise around the circle. You don't need a big table. Just the Circle of 5ths.

We often play I, IV, V chord progressions in blues, country, rock, pop, and classical music. If you pick a key/root chord from the circle, the chord *one step clockwise is the 5th*, the chord *one step counterclockwise is the 4th*. So, it's easy to figure out I IV V by looking at the circle.

Most western music uses chord progressions from the Circle of 5ths, and mostly the chords are in the range from tonic plus 1 step (i.e. clockwise: the 5th) to the tonic minus 4 steps (i.e. counterclockwise). And, most often songs resolve by stepping directly clockwise back to the tonic. Examples help. Let's pick the key of C as the root, or tonic. Looking at the circle, the chords from C - 4 to C + 1 are Eb, Bb, F, C, and G. You want to find a good sounding chord progression? Well, try some of these, which just follow the above 2 rules: stay in that range, and step clockwise back to the tonic.

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Examples: C, F, C, G, F, C

Well, that's cheating. It's "just" a blues progression. The blues form is the most basic progression that follows the rule!

Okay, lets extend it: C, F, C, G, Bb F C or how about C Eb Bb F C G C etc.

For improvisation, thorough familiarity with the Circle of Fifths is almost indispensable.


By the way, I never have to dig through a box to find the harp key I want. I keep my harps arranged according to the circle of fifths. I think this is a really good idea—extremely useful when jamming to music and trying to find the right key and position. Changing position is just a matter of picking the harp to the right or left.. you don't have to think about it. If the harp you try isn't right in any position you're comfortable with, it's easy to skip 2 or 3 to the right or left and get a harp where none of the keys in your comfortable positions overlap. This way, I usually find the right key within 3 or 4 tries at most. And, with your harps arranged this way the circle of fifths becomes well ingrained, second nature, and it's much easier to pick a particular key harp than when I had them arranged in "sequential" order (C, D, E..).

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Chord Substitution

A common technique found in a lot of different kinds of music is to substitute the relative minor chord for the major chord found in the circle of fifths. The relative minor chords are a (minor) 3rd lower than their relative majors, and the relative minor circle of fifths is rotated 4 steps counterclockwise from the major keys. Consider the IV V I chord progression. It's a very common, ordinary "pop" sounding progression. Now, substitute the relative minor of the major IV chord in place of the IV chord. The 4 (IV) chord's relative minor is a (minor) 3rd less than major chord, or $4-3=1$ note higher than the root I chord, which is the minor ii chord. The resulting chord progression is ii V I. (Minor chords are written as lower case roman numerals instead of upper case as for major chords.) The ii V I progression is the most common chord progression found in jazz!

Think about the triads built on the notes of the major scale, for example the key of C. The first 3 triads are C E G, D F A, and E G B, which are the C major, D minor, and E minor chords. Look at the circle of fifths for minor keys and find the relative major keys for Dm and Em, the ii and iii chords in the key of C. The relative major for the ii chord is the IV chord, and for the iii chord is the V chord. The I IV V progression is just the first three chords of the scale with the relative major chords substituted for the minor chords!

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Familiarity with the circle of fifths and chord substitutions will greatly enhance your understanding of music and your ability to improvise and write music. *The more you dig into it, the more sense it will make!* The great thing is, if you understand just a few basic concepts, everything falls into place and much of the confusion about music theory is demystified.

Key To Tab

DIATONIC HARMONICA


Blow / Draw

- **1B** – Hole 1 blow
- **2D** – Hole 2 draw

Bends

- **4D'** – Hole 4 first draw bend
- **2B''** – Hole 2 second draw bend
- **10B''** – Hole 10 second blow bend
- **3D'''** – Hole 3 third draw bend

Phrasing

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- **2D 3D** play 2 draw and 3 draw as separate notes
- **2D..3D** run 2 draw into 3 draw (*slur*)
- **3D'..3D** scoop into 3 draw from below (*first draw bend in hole 3*)
- **4D....** sustain 4 draw
- **...4D** play 4 draw after the down beat
- **1D..gliss..4D** glide from 1 draw up to draw 4 (*glissando*)
- **4D..gliss..1D** glide from 4 draw down to 1 draw (*glissando*)

Multiple Notes


- **1B-2B-3B** play 1 blow, 2 blow and 3 blow together
- **2D-3D-4D** play 2 draw, 3 draw and 4 draw together

Splits and Octaves

- **2D-5D** play 2 draw and 5 draw together (4 hole split)
- **1D-4D** play 1 draw and 4 draw together (4 hole split and octave)
- **7B-10B** play 7 blow and 10 blow together (4 hole split and octave)
- **3D-7D** play 3 draw and 7 draw together (5 hole split and octave)

Trills

- **4D-5D~** trill between 4 draw and 5 draw
- **8B-9B~** trill between 8 blow and 9 blow

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Overbends

- **5B+** 5 hole overblow
- **7D+** 7 hole overdraw


Suggested or Passing Notes

(6B 7B) 6 blow and 7 blow can be sounded in passing but are not essential

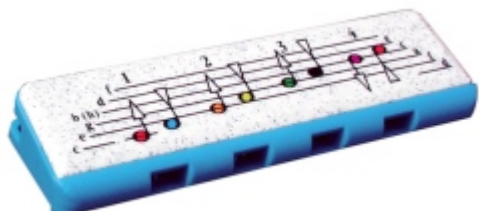
CHROMATIC HARMONICA

A hole number with B or D is played with the slide open (shutter out). The tab will resemble the basic diatonic tab above. So **3D** is 3 draw with the slide open. **12B** is 12 blow with the shutter open.

A hole number with B or D followed by # means play with slide closed (shutter in). For example **3D..3D..3B..2D#** So 3 draw open, 3 draw open, 3 blow open and 2 draw closed. Here the notes are dotted, so they run into each other (*slurred*) as in the diatonic tab above.

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Modes



The Diatonic Scale

Imagine you were given a piano with no black keys. You could still produce a familiar *do re mi* scale and plenty of melodies using the key of C major, as this doesn't require the sharps or flats of the black keys. Your white keyboard would effectively be a *C diatonic* keyboard, offering up the notes of the C major scale in each direction from Middle C. The notes of the C major scale are **C D E F G A B** and **C** again. That's an *eight* note sequence, or *octave*. And it's exactly what's in our 10 hole diatonic C harp between holes 4 and 7. Try it for yourself **4B 4D 5B 5D 6B 6D 7D 7B**. These are our melody, or soloing, notes.

The Chromatic Scale

If we reintroduced the black keys to our piano, it would become a *chromatic* keyboard, offering us the luxury of ascending and descending in half note steps. If we did so between two **C** keys an octave apart, the result would be:

Ascending : **C C# D D# E F F# G G#**
A A# B C

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Descending : C B Bb A Ab G Gb F E
Eb D Db C




That's a *thirteen* note sequence. And, just in case you're wondering, yes **C#** is the same note as **Db** on a chromatic keyboard. This aspect of musical theory is called *enharmonics*; two names for the same note. Knowing exactly how, and exactly when to use each, is complicated theory we will save for a rainy day. On diatonic harmonicas, and on a bandstand however, you'll normally hear the notes of the chromatic scale referred to as follows:

Common use : C Db D Eb E F F# G Ab
A Bb B C

How to crack the modal code

Let's return to our imaginary diatonic, or white key, piano for a moment. To break the routine of the C major scale outline above, we could experiment by ascending and descending between other like-notes an octave apart; **D** to **D**, or **E** to **E** for example. In doing so, we would be entering the magic kingdom of *modal scales*. Tabbing them for the 10 hole harp in sequence from **C**, the result is displayed in the chart below left. Take some time now to play each line left to right and

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A close-up, black and white photograph of several piano keys. The keys are arranged in a row, with the black keys being slightly raised and the white keys being slightly recessed. The lighting creates strong shadows, emphasizing the texture and shape of the keys.




the '*flavour*' of the modal scales you played earlier. They move closer to the start note each time; until they eventually *become* the start note.

Name and shame

I've used the term '*flavour*' with some forethought. I could have used '*mood*' but I don't want to confuse this with *mode*, so let's stick with the cooking metaphor for now. In which case, just as we've given each tone a letter of the alphabet, so each of the *diatonic recipes* above, or *modal scales*, has a given name:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|-------------------|
| C | T | T | s | T | T | T | s | Ionian |
| D | T | s | T | T | T | s | T | Dorian |
| E | s | T | T | T | s | T | T | Phrygian |
| F | T | T | T | s | T | T | s | Lydian |
| G | T | T | s | T | T | s | T | Mixolydian |
| A | T | s | T | T | s | T | T | Aeolian |
| B | s | T | T | s | T | T | T | Locrian |


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These are ancient Greek names. The Greeks recognised the science, art and magic of music. Indeed, music was actually part of the ancient Olympic Games. The Dorians were one of the four major Greek tribes and came from central Greece – they built temples with plane looking, *Doric*, capitals to their columns. Locrians were a minor tribe from north-west mainland Greece. Two of the other major Greek tribes were the Ionians who settled the Ionian seaboard in what is now Turkey, and the Aeolians, originally from Thessaly in mainland Greece. The Phrygian community was from Asia Minor (Turkey), as were the Lydians of Anatolia. Myxolydian means half, or almost, Lydian, and is a technical afterthought rather than an actual Greek tribe of small stature.

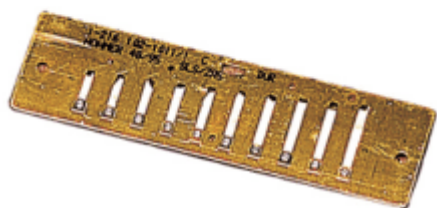
Nouvelle cuisine

Relating each of the modal scales to parts of the known world made the '*flavour*' of the mode more meaningful to the Greek listener. In the post-modern world we might call

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Phrygian the *Spanish* or *Moorish* mode, Lydian the *Scottish* mode, Aeolian the *Klezmer* or *Yiddish* mode and Dorian the *English Folk* mode. Meanwhile, philosophers ancient and modern might describe the 'feeling' or 'mood-changing' effect of each mode in the following way:

| | |
|-------------------|------------------------|
| Ionian | Harmonious or tender |
| Dorian | Serious or melancholic |
| Phrygian | Mystic |
| Lydian | Happy or vibrant |
| Mixolydian | Angelic or youthful |



| | |
|----------------|---------------------|
| Aeolian | Sad or tearful |
| Locrian | Wistful or yearning |

Getting real with it

Now that the underlying theory is clearer, one glaringly important question arises; what practical use is there for musical modes while playing the diatonic harmonica? The answer

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in one word is, *lots!* But first let's translate everything into harp speak.

To start with, it's useful to equate each mode name with a standard key name. We'll then need to agree a useful root note, or start point, for each key; officially called the *point of resolution*. Finally, it helps to find a memorable tune we can use as an *aide memoire* to recall each mode in a practical sense. Using a **C** harmonica, our shortlist might look like this:

| Mode | Key | Root Note(s) |
|--|---------------------|-----------------|
| Memorable tune | | |
| Ionian | C major | 4B, 1B, 7B, 10B |
| <i>When The Saints Go Marching In</i> | | |
| Dorian | D minor | 4D, 1D, 8D |
| <i>Scarborough Fair</i> | | |
| Phrygian | E minor | 5B, 2B, 8B |
| <i>Knights in White Satin</i> (Moody Blues) | | |
| Lydian | F major | 5D, 9D, 2D" |
| <i>Au Claire de la Lune / Skye Boat Song</i> | | |
| Mixolydian | G major | 2D, 6B, 9B |
| <i>Norwegian Wood</i> (Beatles) | | |
| Aeolian | A minor | 6D, 3D", 10D |
| <i>When Johnny Comes Marching Home</i> | | |
| Locrian | B diminished | 3D, 7D |
| <i>She's A Rainbow</i> (Rolling Stones) | | |

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Running around in circles

Some of you may be thinking this is all very user-friendly, but you'd really like to get some engine oil under your fingernails. OK, roll your sleeves up, it's time to haul the whole thing onto the inspection ramp. To truly relate the concept of modes to the 10 hole diatonic harp, we have to embrace a pivotal subject of musical theory. It's one that can quickly cause harp playing eyes to glaze over; *the circle of fifths* (or *positional playing*). Trust me when I say it's really quite simple. If I can get it, so can you. Let's gently set the ball rolling using a **C** harp.

We know we can play any number of straight harp tunes, including *When The Saints Go Marching In*, from **4B** right? We also know this is called *1st Position*. Well, to put it politely, these tunes soon feel pedestrian. We want to rock it up and play like Little Walter! So we find ourselves flipping through the next pages until we come to Cross Harp, where we adopt **2D** as our root and range up and down between it and **6B**. We then start to investigate draw bends.



As we do so, we're probably aware that we're playing in **G** major. We also know this as *2nd Position*.

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But let's revisit what just happened for moment. To reach **G** from **C**, we've ascended 5 degrees, or notes, of the major scale. If we wanted to use posh musical vocabulary, we could call this a *diatonic interval of 5*. We've gone from **C**, through **D** **E** **F** up to **G** in 5 steps. Remember that we include the root note of C as step 1 when we start counting. It's like the working week from Monday to Friday – five days in all. Hold that thought.



Step back baby, step back

Stepping back into modal terms for a moment (and once again if I can do this, you *can* too, so stay with it), we've moved from Ionian (**C**) out of root note **4B**, to Mixolydian (**G**) out of root note **2D**. *Et voila!* It's that simple. We've worked our way from 1st to 2nd position, from **4B** to **2D**, from Ionian to Mixolydian and it's all making sense. Ready for the next step?

If we counted up another interval of 5 from **G**, we'd reach **D** and that would be Dorian mode. Which is 3rd position from **4D**. Hold up the fingers and thumb of either hand and double-check this: **G** **A** **B** **C** **D**. You just used your naturally patented, circle-of fifths, double-checking system. Take it

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with you whenever you play. By the way, to be absolutely accurate, we actually found **D minor**. We won't explain the reason for this right now, as it will interrupt our line of thought. But once you've finished this page, had a massage and finished a cold glass of whatever takes your fancy, you can check it all out here.

Back on message. Position-wise, we can keep going round the circle of fifths using our fingers and thumbs until we eventually return to **C**. In doing so, we will have covered all twelve degrees of the chromatic scale. Or will we? I hear some of you asking 'how come, when counting round in intervals of 5 takes us from **C** to **G**, **G** to **D**, **D** to **A**, **A** to **E**, **E** to **B**, **B** to **F** and finally from **F** to **C**? That's only 7 notes on the keyboard, not 12!'.
 Here's the solution. To be empirically accurate, we need to start counting not in *diatonic intervals*, but in *chromatic intervals*, or half steps only. This way the *chromatic interval* between **C** and **G** is 8 half-step degrees. The *chromatic interval* from **G** to **D** is also 8 half-step degrees. Only now, when we continue to count in this particular way, do we actually cover all 12 degrees of

Better by half

| Harp Key | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | 7 th | 8 th | 9 th | 10 th | 11 th | 12 th |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| C | C | G | D | A | E | B | F# | C# | Ab | Eb | Bb | F |
| G | G | D | A | E | B | F# | C# | Ab | Eb | Bb | F | C |
| D | D | A | E | B | F# | C# | Ab | Eb | Bb | F | C | G |
| A | A | E | B | F# | C# | Ab | Eb | Bb | F | C | G | D |
| E | E | B | F# | C# | Ab | Eb | Bb | F | C | G | D | A |
| B | B | F# | C# | Ab | Eb | Bb | F | C | G | D | A | E |
| F# | F# | C# | Ab | Eb | Bb | F | C | G | D | A | E | B |
| C# | C# | Ab | Eb | Bb | F | C | G | D | A | E | B | F# |
| Ab | Ab | Eb | Bb | F | C | G | D | A | E | B | F# | C# |
| Eb | Eb | Bb | F | C | G | D | A | E | B | F# | C# | Ab |
| Bb | Bb | F | C | G | D | A | E | B | F# | C# | Ab | Eb |
| F | F | C | G | D | A | E | B | F# | C# | Ab | Eb | Bb |

Here's the solution. To be empirically accurate, we need to start counting not in *diatonic intervals*, but in *chromatic intervals*, or half steps only. This way the *chromatic interval* between **C** and **G** is 8 half-step degrees. The *chromatic interval* from **G** to **D** is also 8 half-step degrees. Only now, when we continue to count in this particular way, do we actually cover all 12 degrees of

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the *chromatic scale*; the white *and* black keys of our piano keyboard. Using the piano keyboard image above if necessary, let's check it all out, ascending in 8 half-step intervals from **C**:

C **G** **D** **A** **E** **B** *F#* *Db* *Ab* *Eb*
Bb **F**



Well done! Here you have an absolute DNA blueprint for all twelve positions on a C major diatonic harmonica. You can take this same 8 half-step formula, apply it to any key of diatonic harmonica, and work out its integral twelve positional note names.

At the same time, you can confidently accept that you'll encounter our seven modes as you go (**in bold above**). The modal positions also happen to be the most practical of the twelve options available to diatonic harp players – 1st, 2nd, 3rd, 4th, 5th, 6th and 12th – as the root note is not always hidden in an inconvenient bend. Now, just to round everything off, here are the 7 modes again with their

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root notes and corresponding position on the harmonica, again using a C major harp.

| Mode | Key | Root Note(s) |
|----------------------|---------------|--------------|
| Harp Position | | |
| Ionian | C major | 4B, 1B, 7B, |
| 10B | 1st position | |
| Dorian | D minor | 4D, 1D, |
| 8D | 3rd position | |
| Phrygian | E minor | 5B, 2B, |
| 8B | 5th position | |
| Lydian | F major | 5D, 9D, |
| 2D" | 12th position | |
| Mixolydian | G major | 2D, 6B, 9B |
| 2nd position | | |
| Aeolian | A minor | 6D, 3D", 10D |
| 4th position | | |
| Locrian | B diminished | 3D, |
| 7D | 6th position | |

Welcome to the human race!

If any of this is page unclear, it's probably because you're human, or else you've been playing your harmonica instinctively. The message is, it's time to start playing smart as well as hard, so review the information above and add it to your arsenal. We guarantee it will help shape you into a *musician*. Very soon you'll be surprising those who a*sumed you were 'just the harp player'. Now read and re-read this

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page until you can comfortably do it all yourself. Then tell all your harp friends where you found the inspiration!

Why 3rd and 4th Positions Are Minor



Close encounters of the third kind

This question was asked by a student in our Harpin' By The Sea beginners' workshop; we had touched on positional playing as a way to extend the scope of the diatonic harmonica. And to be honest, it's a fair question. Perhaps we accept the fact too easily, without asking or fully understanding the reason why. But we were a group of beginners. So we decided to explain the finer details after the workshop for those who were interested, rather than risk putting the majority off music

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for life. Here's the result.


If you are unfamiliar with the concept of modes and positions, then I recommend you first check out the post entitled **Modes** (or visit Modes via the Theory menu at the top of the screen) and come back when you're comfortable with everything. It's quick and it won't hurt!

Ground control to Major Tom

| Harp Key | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | 7 th | 8 th | 9 th | 10 th | 11 th | 12 th |
|----------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| C | C | D | E | F | G | A | B | C# | D# | E# | F# | G# |
| D | D | E | F | G | A | B | C | D | E | F | G | A |
| E | E | F | G | A | B | C | D | E | F | G | A | B |
| F | F | G | A | B | C | D | E | F | G | A | B | C |
| G | G | A | B | C | D | E | F | G | A | B | C | D |
| A | A | B | C | D | E | F | G | A | B | C | D | E |
| B | B | C | D | E | F | G | A | B | C | D | E | F |
| C# | C# | D# | E# | F# | G# | A# | B# | C | D | E | F | G |
| D# | D# | E# | F# | G# | A# | B# | C | D | E | F | G | A |
| E# | E# | F# | G# | A# | B# | C | D | E | F | G | A | B |
| F# | F# | G# | A# | B# | C | D | E | F | G | A | B | C |
| G# | G# | A# | B# | C | D | E | F | G | A | B | C | D |
| A# | A# | B# | C | D | E | F | G | A | B | C | D | E |
| B# | B# | C | D | E | F | G | A | B | C | D | E | F |
| C | C | D | E | F | G | A | B | C | D | E | F | G |

So what are *positions* all about?

In the simplest terms, we can take a C major harmonica and use it to play in different keys just by using a different hole as our *root note*, or starting point, each time. Some keys will be more useful than others, but in theory we could start from any natural, sharp or flat note (black or white key on the piano) and find some fun phrases. In doing so we are inadvertently working in different musical *positions*. By way of example, *When The Saints* works well from **4B**, *Juke* works well from **2D**, *Summertime* works well from **4D** and *Au Claire De La Lune* is best played from **5D**. To forge an answer to our original question however, we need to apply some logic and find a workable formula or DNA to explain what's going on. Why? Because it will enable us to express ourselves as

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musicians rather than just harmonica players. And with this comes greater understanding and enjoyment of our instrument and music in general. The solution is where music and maths collide in the form of the *circle of fifths*.



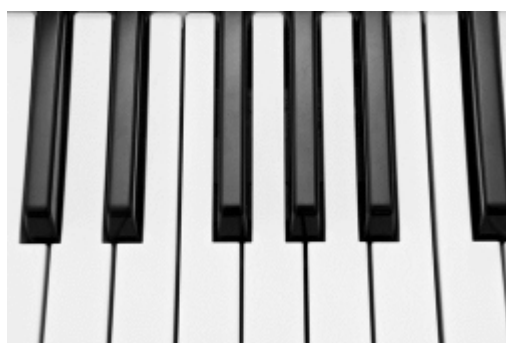
Thumbing a lift

Take out your patented, circle of fifths, double-checking system; you'll find one on the end of each arm. Starting with **C** on the thumb of your right hand, let's move five steps up the musical alphabet; so, **D** is on your index finger, **E** on your middle finger, **F** on your ring finger and finally **G** on your little finger. You've just counted a diatonic interval of 5 degrees from **C** to **G**. Think of it as Monday to Friday if this helps. I know this is technical stuff, but you'd better get used to it. You've just moved from 1st position on a C harp (**C**), to 2nd position on a C harp (**G**). From your thumb to your little finger. From Monday to Friday.

Now let's count up five degrees from **G** to find third position on the same C harp. Thumbs at the ready. Your thumb is now **G**, so your index finger becomes **A**, middle finger **B**, ring finger **C** and your little finger **D**. Getting the hang of it? You could keep this pattern going and eventually work your way round

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twelve different positions. Which is all well and good, but let's just pause with third position for a moment. When we actually play along to a tune in **D**, we find we're clashing badly. And that's because our third position is actually *D minor*, not *D major*.



Beam me up Scotty

The majority of harp players will accept this and run with it, using third position to accompany minor chords. Fourth position does the same thing. Five up from **D** on a C harp is **A** – you can check this on your hand. The detail however, is it's actually *A minor*. So how can all this be explained? When is a position *major* and when does it go all *minor* on us? Our piano keyboard will help illustrate the answer, which is *intervals*. The relative distance between notes.

Remember that we're playing a *diatonic* instrument in **C**. This is the same as having a piano keyboard with no black keys. If we chose to play the **C** major chord using our right hand, this would not present a problem. We'd place our thumb on **C** (our *root* note), our middle finger on **E** and our little finger on **G**.

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That's three notes in all, or a *Major Triad*. It's a solid musical building block and it sounds complete. In scientific terms, we're using the first, third and fifth *degrees* (notes) of the **C** *major* scale. But you don't have to be scientific if you don't want to be, just blow **1B-2B-3B** together. That's your **C** chord and that's first position done. Just to reinforce things however, let's play the **C** major *arpeggio* – or *broken chord* – as separate notes up and down: **1B 2B 3B 4B 3B 2B 1B**



Now let's move up to **G** from **C** for second position using the *circle of fifths* and follow the same process. To play the **G** major triad on the diatonic (white key only) keyboard, we'd place our thumb on **G** as the *root note* this time, our middle finger on **B** and our little finger on **D**. Once again we'd have a satisfying and complete sound. Try it by playing **2D-3D-4D** together. And again we've used the first, third and fifth *degrees* (notes) of the **G** *major* scale. And that's second position nailed. But again let's reinforce things by playing the **G** major *arpeggio* up and down: **2D 3D 4D 6B 4D 3D 2D**

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Take me to your leader


Are you ready for third position? We move up to **D** from **G** using the circle of fifths and place our thumb on the *root note* of **D** on our diatonic (white key only) keyboard. Our middle finger then falls on **F** and our little finger on **A**. But when we play the chord, it no longer sounds as satisfying and complete as before. It sounds forlorn. This is because it's a *minor triad*. But before we explain this change in full, let's just play the **D** minor *arpeggio*, or *broken chord*, up and down: **4D 5D 6D 8D 6D 5D 4D** Can you hear how **5D** is the 'sad' note? If we were to 'cheer it up', we'd need to sharpen or raise it a half step to make things sound *major* again. This



would turn it into **F#** rather than **F**. But we don't really have an **F#** because we're using a diatonic keyboard remember? White keys only. **F#** is most definitely a black key. So we're *kind of* stuck with what we've got.

Lowering the tone

I say *kind of* for two good reasons. Firstly because those in the know – our advanced players – will tell you that you can find **F#** by *overblowing* hole 5. In Harp Surgery tab this would


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be written as **5B#**. Overblowing is the technique that bends a reed pitch upwards to find a missing note – a topic we'll cover another day. However, you'd be very hard pressed to include an overblow in hole 5 as part of a chord combination. The second reason is that by accepting third position gives us a minor key and finding pleasure in this change, we can turn a negative in to a very big positive. Just listen to Sugar Blue!

Better by half

Now here's the bit you've been patiently waiting for; the underlying explanation for the change from major to minor in empirical terms. We count our intervals *chromatically* instead of *diatonically*. Cue the **J.Arthur Rank** gong and sweaty man. This means re-introducing the black notes of the keyboard, then recalculating the total number of *half steps* between the notes in our triad chords. Back to the drawing board. Starting with 1st position, or **C** on a C harp, we played **C-E-G**. *Chromatically*, that's 5 half steps from **C** to **E**, and 4 half steps from **E** to **G**. Check it out on the piano above. The result of this combination of *chromatic intervals* is a *major* chord.



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Now to 2nd position, or **G** on our C harp. Here we played **G-B-D**. *Chromatically*, that's an *interval* of 5 *half* steps from **G** to **B**, and 4 *half* steps from **B** to **D**. Check it out on the piano above. Again, the result is a *major* chord.

Finally, let's look at 3rd position, or **D** on a C harp. This time we played **D-F-A**. *Chromatically* things have now switched – that's only 4 *half* steps from **D** to **F**, and now 5 *half* steps from **F** to **A**. Check it out on the piano above. The result of this combination of *chromatic intervals* is a *minor* chord. We've effectively 'flattened' or lowered the third degree of the diatonic scale. Which is the basic rule for turning a major key into a minor key. Or a major chord into a minor chord. And that's all there is to it. It's all about the *half-step intervals* between the notes!




G'night John Boy!

As a post script, we mentioned 4th position above, which would be **A minor** on our C harp. So if we know that the **A minor** triad is **A-C-E**, let's see if you can work out the *chromatic intervals* for yourself. We won't actually find this triad chord on the diatonic harp, but the arpeggio would be **6D**

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7B 8B 10D 8B 7B 6D You might find use of **7B-8B** as a *double stop*, or two-note combination, in lieu of the full chord however. Try it now and imagine you've just watched **The Waltons**.

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