# Harmonicas for Health

## A Guide to Breathing Better

Mary Jane Gormley

Larry Vesely RRT

Indiana University Health Bloomington Hospital
Bloomington, Indiana

*About the authors*

Mary Jane Gormley:

I have been at various times an early but reluctant piano player, a typist, a calligrapher (twenty years of street fairs), and a copy editor; for much of my life I was a singer in choirs, and four years ago I took up the harmonica for health reasons and have found playing it to be a delight, even though my enthusiasm far outruns my talent. Earlier books are *Calligraphy: The Italic Alphabet for Right- and Left-Handed Writers* (1982, 1983) and *Mémère's Christmas Stockings: Knitting Patterns* (1999, for Gormley family members).

Larry Vesely RRT:

As a respiratory therapist working in Cardiopulmonary Rehab, I am always encouraging my patients to improve their ability to breathe and stay as healthy as possible. For years, therapists have been using two techniques with their patients suffering from pulmonary disease; pursed-lip breathing and abdominal breathing. It just so happens that both of those techniques are utilized when playing the harmonica. And yet, playing the harp is just so much more fun than blowing out an imaginary candle.

I learned the value of playing a wind instrument in a time when I was going to college earning a degree in music therapy (before changing to respiratory care). I reviewed a research study that compared the health level of members in a professional orchestra. The researchers measured the number of sick days of those who blew into an instrument to make music as opposed to the number of sick of those who did not. The results were that musicians who played woodwinds or brass instruments had far fewer sick days than those playing strings or percussion. Obviously there must be some value in playing an instrument that requires a workout of your lungs. And it stands to reason that other fields that benefit from lung workouts would include singers and athletes.

My history as a musician precedes my history as a respiratory therapist by 20-some years. I am mainly a keyboardist but have dabbled in many instruments over the years. My introduction to harmonica started when I was working a music store and it was encouraged to learn to play as many of the instruments even if it was only rudimentary knowledge. That was way back in the late 70's. However it wasn't until the last couple of years I began to seriously hone my skills at blues harp and I'm still honing. All I can say is; practice, practice, practice!!! It's a never-ending process.

# Harmonicas for Health

## A Guide to Breathing Better

Mary Jane Gormley

Larry Vesely RRT

Indiana University Health Bloomington Hospital
Bloomington, Indiana

Cardiopulmonary Rehabilitation
IU Health Bloomington Hospital
601 West Second Street
P.O. Box 1149
Bloomington, Indiana, 47402

To receive additional copies of this book, please send a check or money order for $10 (US) per copy (postage included to USA addresses), made out to HEARTEAM, to Harmonicas at the above address.

# Contents

# Introduction

This book is derived from the "Harmonicas for Health" program in the Cardiopulmonary Rehabilitation Department at IU Health Bloomington Hospital, Bloomington, Indiana. The program arose from a collaboration; one of us (MJG), a severe COPD (chronic obstructive pulmonary disease) patient, recalled that parents of children with asthma were encouraged to have them play wind instruments—and she thought that she might be able to manage a harmonica. She then discovered that the other of us (LV), a respiratory therapist with the department, *really* played harmonica, in bands that people pay to hear. They developed this program together. It meets monthly.

We are enormously grateful to Susie Carter, R.N., head of the Cardiopulmonary Rehabilitation Department at IU Health Bloomington Hospital, for encouraging our program and seeing that these books are printed, and to Williams Brothers Healthcare Pharmacy of Bloomington, Indiana, for supplying hundreds of harmonicas for this program and a second one (held at the Endwright Center in Ellettsville, Indiana). Dexter Gormley's technical expertise has been crucial to the making of this book.

Mary Jane Gormley
Larry Vesely RRT

*Bloomington, Indiana*
*July 2009*

The homegrown appearance of this book is due to MJG's lack of familiarity with some of the finer points of formatting. By our next edition, she will know more.

## We can breathe better

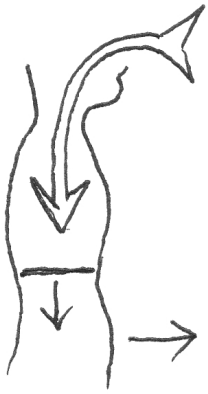
Effective breathing is important for our health, but we don't do it well. Even marathon runners can improve their endurance and reduce the strain on their leg muscles by training their breathing to be more efficient.[1] If athletes at that level aren't already breathing as well as anyone possibly could, where does that leave the rest of us?

And why are we so bad at it?

By age thirteen, we have developed twice the lung capacity we'll ever need; there is so much, we can be careless with it for years before we have used up the surplus. By the time we notice we are getting short of breath, we have developed a couple of lazy habits. We breathe more with the chest and shoulder muscles than with the much more effective abdominal and diaphragmatic muscles used in "belly breathing," and we do not use anywhere near our full lung capacity. Those habits aren't harmful; they just don't let us get the most out of each breath. There's a lot more oxygen out there than we usually take in.

We can retrain, like the marathon runners. Newborns breathe efficiently, and we can learn how to do that again. Watch them breathe: Their little *bellies* are going in and out, not their chests and shoulders. We need to relearn that; we once did that too.

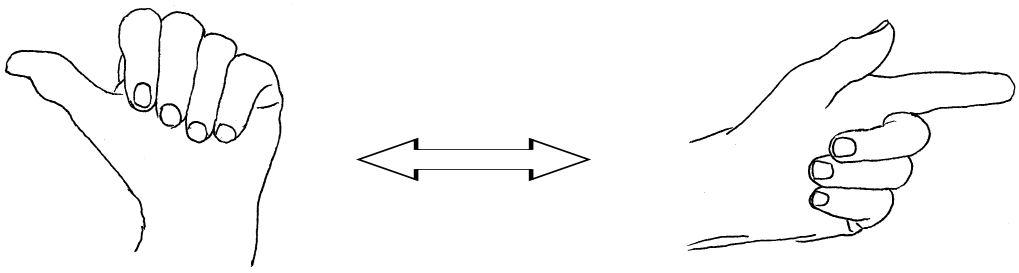
Diaphragmatic breathing, abdominal breathing, or belly breathing:

| Inhaling: | | Exhaling: |
|---|---|---|
| Air is drawn in |  | Air goes out |
| because diaphragm flexes (flattens) | | because diaphragm relaxes (curves up) |
| which pushes belly out | | which lets belly come back in |

Try putting one hand on your lower abdomen, on or below your belly button; take in a big slow deep breath and push that hand out. When you have taken in all the air you can, hold for a

[1]Gina DeMillo Wagner, "Lung Power," *Runner's World,* Jan. 2009, pp. 46–47.

count of two. Then begin to blow out, pulling the abdominal muscles in (the hand moves back toward your backbone); point the other hand to something way out in front of your face to emphasize that you are exhaling, and keep blowing out until the lungs are as empty as you can get them. Hold for a count of two. Breathe in again; the top hand comes back with the thumb pointing at the shoulder to emphasize the *in*halation, and the lower hand goes out again. Keep the shoulders relaxed.



Do that for several long, slow breaths, using the hand movements. Notice the seesaw effect, one hand in and the other out, taking turns. Belly breathing, done slowly and thoroughly, involves almost the entire volume of the lungs. Set a pace you can sustain. You are taking in considerably more oxygen than you normally do. Not too fast! You are not used to this. If you get light-headed, you are starting to hyperventilate; slow down.

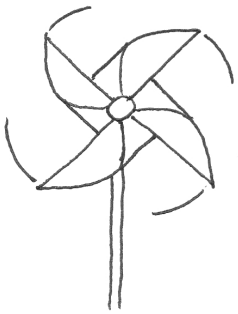
This type of breathing draws air deep into the lungs, into areas that may not have had new air in a while. Emptying the stale air out more completely leaves more room for fresh air on the next inhale. Further, you are giving your lungs (and everything below them) a bit of a massage with all that deep movement. If you start coughing, that's great. The movement is loosening up congested mucus in the lungs and moving it out to where it can be coughed up.

To compare the effectiveness of belly and chest breathing, try this: Take in a huge breath, expanding the abdominal area and letting the chest and shoulders area expand too; exhale by using *just* the abdominal/diaphragmatic muscles to empty out as much as you can. *Then,* blow the rest out with the chest and shoulder muscles; there won't be much. And those chest and shoulder muscles are what we use most.

The diaphragmatic/abdominal breathing (belly breathing) and being aware of our breathing is a part of many meditation and relaxation programs, such as yoga, and it is highly effective. Try it when stuck in traffic, and do it as often as you can remember. Put up reminders around the house. Retraining takes time.

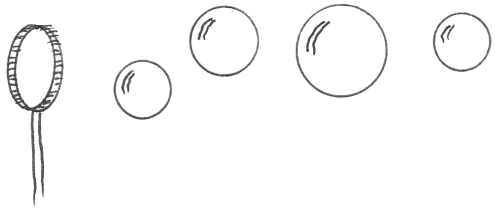
**Relearning to breathe: blowing pinwheels and blowing bubbles**

Retraining our breathing can take many forms, and many of them use our new breathing techniques to accomplish something else entirely, such as blowing pinwheels and blowing bubbles.



Remember full breaths in, hold; long breaths out, hold; and keep the shoulders relaxed. To help relax the shoulders, hunch them up hard and then release them.

Blowing pinwheels: Take in a huge breath and hold it, as we have been doing; then blow out at the pinwheel in a way that will get it to do what you want. How fast can you make it go? How slow? How long? Who can do it the longest? Can you keep it going without stopping? Try a number of things—you are becoming more aware of just how you breathe.

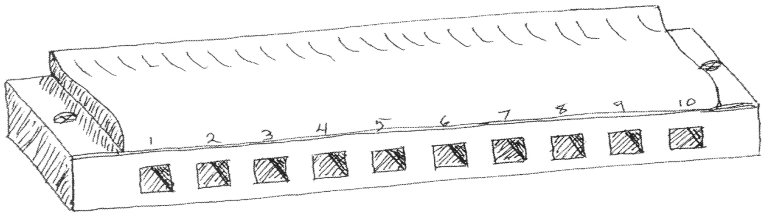


Blowing bubbles: You remember this. A bottle of bubble stuff has a wand with a hole in it; you dip it into the bubble stuff, pull it out, and blow through the hole to make bubbles. Try making a few slow big bubbles or lots of fast little bubbles, deciding ahead of time what you would like and controlling your breathing to accomplish what you've chosen.

See if you can blow a bubble partially, to about three inches in diameter, and *keep* it there, neither blowing so hard that it sails off on its own nor blowing so gently that it collapses back to a flat film. That requires a *lot* of breathing control.[2]

**Retraining with harmonicas**

We can do all the breathing exercises we have been doing and many others with a harmonica and make music at the same time—both inhaling and exhaling.




The most readily available and least expensive harmonica is the ten-hole diatonic in the key of C. They start at just a few dollars up to perhaps $20 or $30 in music stores and guitar accessories stores (or on line).[3] Even the cheaper

[2]Described by Mark Mangus, RRT, in his regular column in the *Pulmonary Paper,* May–June 2007, p. 5.

[3]Two of many general on-line sources are Harp Depot <www.harpdepot.com> and Musician's Friend <www.musiciansfriend.com>. Further information about them and manufacturers' sites is given below in the end section, "What Harmonica(s) Next?," p. 34.

ones are fine as starter harmonicas, and they are entirely adequate for relearning to breathe. At that price you can outfit your entire household and also keep one in the glove compartment, one on the nightstand, etc. Should you lose it or run over it, no huge loss. And you can upgrade any time.

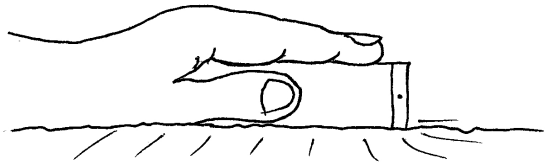
**Before you begin**

Your harmonica and you will be healthier and happier if you keep three things in mind:

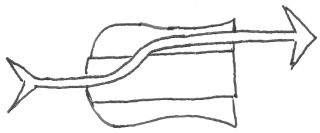
Keep it **clean.** The harmonica goes between your lips, so handle it with *really* clean hands (most of the infections we pick up are from touching things or people and then putting our hands on our faces), and have ready a clean surface, even just a paper napkin, to put it down on. Rinse out your mouth if you've just eaten or if you've been drinking something sugary.

It likes to be **warm** when you play it. That reduces the amount of moisture from your breath that condenses inside it. Hold it in your hands for a few minutes before you play, or keep it in a pocket. That also makes it easier to play and improves the tone.

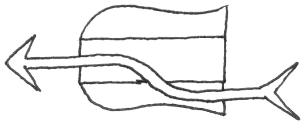
Keep it as **dry** as possible. Look straight ahead or a little up while playing to keep a lot of saliva from ending up inside the harmonica. The warmth helps. During brief breaks, do the *lap whap:* With a finger along the solid back and the ten little playing holes downward, whap the harmonica down onto your thigh several times. (If you're in shorts, a paper napkin would help there too.) That gets a lot of moisture out.



When you're ready to put it away (this is not putting the cart before the horse; your first ski lesson is how to stop), do lots of lap whaps; follow them with several draws (inhales) through the playing holes the entire length of the instrument, all up and down, and then turn it over to draw air through the *upper* chamber of the back. That is where the blown air goes, and the front draw won't get new air into it.



Path of air for blow notes



Path of air for draw notes

You have now filled the whole harmonica with dry room air. Leave it out to air dry, unless you keep it in something soft and absorbent, such as a cloth glasses case, or wrap it in a cotton handkerchief.

Along with those three yes-yesses, there are three no-nos:

**No sharing.** A harmonica is personal, like a toothbrush, and not for passing around. If someone else wants to play, get another harmonica! That's more fun too.

**No hair dryers** for drying it off. The blast of air is too vigorous for the delicate reeds inside. A gentle fan would be OK.

**No holding it under running water** to clean or rinse it. Again, that's too rough on the reeds. (Serious cleaning is covered later: see below, "Maintaining harmonicas," p. 29.)

A Web site full of useful information is *Wilbur's Beginning Harmonica Info: The Harmonica and How It Helps Your Lungs* <http://www.hoerl.com/Music/harmon4.html>.

## Starting out on the harmonica

(Did you really read "Before you begin"?)

The edge with the ten holes is toward your mouth. Try blowing through some of them; the low notes should be to the left.

Each of the ten holes provides two notes, one when you blow into it and the other when you draw (inhale) out of it. You can use groups of holes at the lower (left) end of the instrument to make two chords:

1 2 3 4 means blow into holes 1, 2, 3, and 4 all together (called the tonic chord or I);
(1 2 3 4) means draw from holes 1, 2, 3, and 4 all at once (dominant or V chord).

Those two chords, tonic and dominant, are the main chords guitar players use to accompany folk songs. You can be your own rhythm section.

**Harmonica exercises**—deep breathing, relaxed shoulders

The eight brief exercises that follow can eventually be done in five or six minutes. You will be doing your breathing and yourself a big favor if you run through them once or twice a day.

**1a)** (1 2 3 4), draw in slowly and steadily through the first through fourth holes (dominant chord), at a *constant volume,* to fill the lungs fully; hold that for a count of two.

**1b)** 1 2 3 4, blow out slowly and steadily through the same holes (tonic chord), again keeping the *volume constant.* Empty the lungs as completely as you can and hold that for a count of two.

Repeat 1a-b at a steady pace for a total of four complete in-out breaths.

You can check the deep breathing by putting a hand on your abdomen again; it moves *out* as you draw *in* and *in* as you blow *out*. Do not let the shoulders hunch up.

Do the ***lap whap*** every time you pause for a bit, to keep moisture from collecting in the harmonica (see above, "Before you begin," third point, p. 4).

**2)** Do another series of four deep breaths, in then out, with the holds between, this time *changing the volume,* soft-loud-soft, loud-soft-loud, or any combination or variation you'd like. Decide ahead of time what you would like to hear, and breathe to make it happen. That is great for breath control.

**3)** *Whistle* (without the harmonica), and notice what you do with your jaw and tongue to get lower notes. You pull the tongue back toward the throat and drop the jaw, which makes a much larger empty chamber. We can do this through the harmonica! You will hear a real change in the tone. Breathe through the harmonica in the same holes and rhythm as you did for our first two exercises; on the draw, draw the tongue toward the back of the mouth and drop the jaw, as you did to whistle a lower note, and then move tongue and jaw back to normal, all on the same inhale, then hold. See if you can keep the two parts of the sound the same length. Do the same on blow, then hold.

On the next breath, can you do it twice? Then, third breath, three times? Try to keep the sound changes equal in length, and try not to run out of air. That requires serious attention to rationing your breath, and you are also learning a harmonica-playing technique. Done fast, there is a tremolo or vibrato effect. Four breaths total.

Those three exercises (without the actual whistling) can be done one right after another, twelve in-out breaths at the same pace with variations. The fourth is something different:

**4)** Divide the draw note (still holes 1–4 all together) into *four separate* little draws, draw-draw-draw-draw, all on the same breath as fast as you can (no holds with this one); do the same for blow, for twenty full in-out breaths in all. It might help to put your hand on your abdomen again. You will be able to feel the four separate parts of each inhale (hand goes out) and exhale (hand comes in). You could do the twenty breaths all on the same holes, but moving a little up and down the harmonica every four breaths, for example, could help you keep count as the sound changes a bit.

A major challenge is to ***play fewer holes*** than the whole mouthful of four that we have been using for the chords. Two common methods of cutting down to just the holes you want to use are *tongue blocking,* in which the tongue pokes out and covers the extra holes, and the *pucker,* in which the lips make just a tiny hole to blow or draw through.

A third method (of many others) and one that seems easiest of all is the *tilted embouchure,* in which the far side of the harmonica, the side away from your mouth, is tipped up toward the nose, so that you are pressing the playing holes *down* into the lower lip. The top lip covers most of the top cover.[4]

To see how it works, put the harmonica to your lips level, as we have been doing for the chords, and then, as you blow or draw, gradually tilt the far side up; fewer and fewer holes will play, down to one. You may need to wet your lips to let the harmonica tilt.

[4] David Barrett with Dennis Bucko, M.D., *Harmonica for Fun and Health* (Pacific, Mo.: Mel Bay, 2005), upper photos on front cover and p. 7. Some images from the introduction are shown on <http://www.harmonicamasterclass.com/pulm.htm>, and they may be helpful.

**5)** *The train* uses just two holes at a time. First, for a train whistle, draw in hard on holes (5 6).

Slowly, starting the train, draw holes (1 2) twice on the same breath, draw-pause-draw-pause, then blow 1 2 the same way, at a steady pace that keeps speeding up. Do that draw-blow pair three more times; then do the same by pairing holes 2 and 3, continuing to increase the speed. After four of those sets, move up to holes 3 and 4. Do four of those as fast as you can, then start moving back down to 2 and 3 and then 1 and 2, slowing down as you go. When you have chugged to a stop, after a total of twenty full in-out breaths, you can do another train whistle.[5]

**6)** A *single-note* exercise, changing back and forth between two adjacent notes (blow and draw gives you a total of four notes), is a great harmonica-playing technique. It requires a seriously tilted embouchure. Try holes 6 and 7; draw through them "together" while moving the harmonica from side to side, and the notes will actually take turns as the lips travel back and forth with it. (Hold.) Blowing will do the same with the other notes for those two holes. (Hold.) After 6 and 7, try holes 5 and 6, then 4 and 5, and finally 3 and 4. That will give your four full breaths each way, all the way full and all the way empty. Keep the shoulders relaxed.

**7)** Another "single"-note exercise is actually a *slide* across several notes. You may need to wet your lips to let the sliding work. Draw in on hole (1) and then slide up to hole (7), playing all the notes between them along the way and trying for just one note at a time; then blow all intermediate notes while sliding back down to 1 (or perhaps up to 10). Next draw, go from (1) to (6). Total four full breaths again, with holds; there are many variations here, and they are all good harmonica-playing techniques. As you become more adept, try to aim for a specific note at the end of the slide.

**8)** The last and perhaps most important exercise mimics the *chest percussion* that respiratory therapists use to loosen up stubborn congestion that has settled in the lungs of their patients. Therapists pat firmly with cupped hands all around the rib cage, which vibrates the air throughout the lungs and shakes loose a lot of congestion. This harmonica exercise also sends vibrations throughout the lungs, and it can release a lot of mucus and congestion and help move it to where it can be coughed out.

This is quite different from the above exercises; we keep up the pressure (in or out) while interrupting the flow of air sharply by "saying" t-t-t-t or k-k-k-k or using complete tongue blocking right against the harmonica. It rattles stuff out all up and down—and that's good! Do this many times. You will find it useful to know when you get a rotten cold or pneumonia.

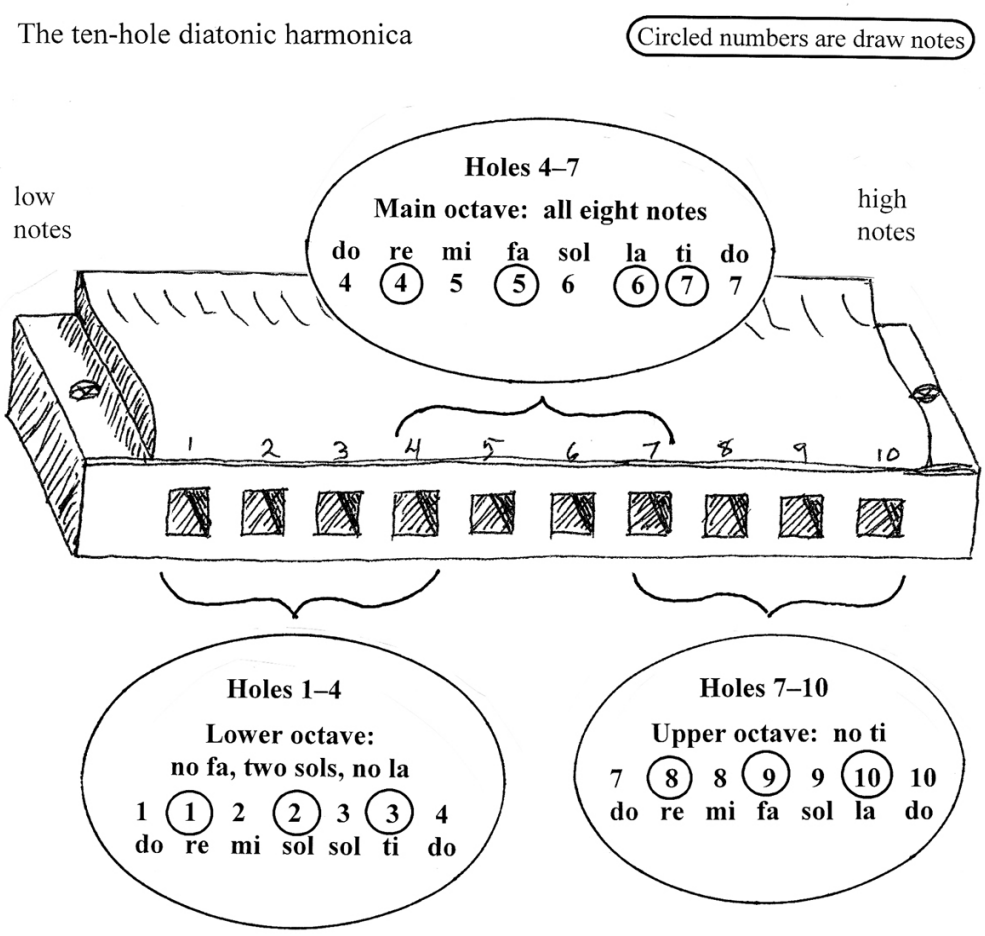
Assorted chest percussion instruments can partly substitute for the work of respiratory therapists, and they cost up to $12,000. Aren't our harmonicas more and more of a bargain?

---

[5]A Web site with audio exercises you can play along with—at different speeds—is <http://www.jschaman.com/>, choose "Harmonica Exercise for Lung Program" (H.E.L.P.), then choose "Harmonica Audio Examples."

## Expanding your repertoire

Numbers are the playing holes on the ten-hole diatonic harmonica; 1, the lowest, is to the left, and 10, the highest, is to the right. Each hole gives two notes, one when you blow into it and the other when you draw air out of it.




There are three octaves (eight-note sets), with some gaps. The octaves are anchored top and bottom by the blow notes in holes 1, 4, 7, and 10, the tonic notes of the key of your harmonica (for example, if your harmonica is in the key of C, those are all Cs; if it is in G, they are Gs).

Holes 1 through 4 are the lowest octave, mainly for the chords we have been using—hence the unusual note arrangement. The main octave is played in holes 4 through 7, and that's the only complete eight-note octave. The upper octave is played in holes 7 through 10, and it's missing only one note. Holes 4 and 7 are shared by two octaves; each is the top note of the octave below it and the bottom note of the octave above.

The do-re-mi note-naming system is handy for lining up the eight notes of an ordinary major scale in order, lowest to highest, without using their letter names. There is no need whatever to learn it, though. It's important to be able to *hear* where you are in the scale, because the ten-hole diatonic harmonica comes in different keys. To play something you already know in a different key, pick up a harmonica in that key, and play it exactly the same way; it's like moving the capo on a guitar.

**Do-re-mi . . .**

Those are the first three notes of the major scale in any key. They are written

| | | |
|---|---|---|
| 4 | do | blow into the fourth hole |
| (4) | re | draw air out of the fourth hole |
| 5 | mi | blow into the fifth hole |

We can set that up with the two notes of each hole together, the draw note under the blow; underlining the anchor or tonic notes of the scale can help you keep track of where you are.

| | |
|---|---|
| 4 5 | do mi |
| (4) | re |

To find one note, you can cover the other holes with your fingers to hear how it sounds; then play the same note without the finger blocks. Tilting the far side of the harmonica up cuts down on the number of notes at one time. Play 4 (4) 5, do re mi, a few times up and down.

The first lines of several songs can be played with just do-re-mi.

4 (4) 5 4 4 (4) 5 4
Frè- re Jac- ques, Frè- re Jac- ques
Are you sleep- ing, are you sleep- ing[6]

4 (4) 5 4 5 4 5
Doe, a deer, a fe- male deer

5 (4) 4 5 (4) 4
Three blind mice, three blind mice

5 (4) 4 (4) 5 5 5
Ma- ry had a lit- tle lamb (or:
Mer- ri- ly we roll a- long)

4 4 4 (4) 5 5 5 (4) 4 (4) 5 4
Een- cy ween- cy spi- der went up the wat- er- spout

[6]A hyphen between syllables tells you that each syllable gets its own note.

**. . . and more: fa-sol-la-ti-do**

You have mastered three notes; you're ready for more! You know many of the songs below; they are set up so you add only one new note at a time. The first lines of each song are notated.

Add 6, sol; you will now have four notes:

| 4 | 5 | 6 | | do | mi | sol |
|---|---|---|---|---|---|---|
| (4) | | | | re | | |

With those four, you can play all of "Mary Had a Little Lamb."

Mary Had a Little Lamb (or, Merrily We Roll Along)

| 5 | (4) | 4 | (4) | 5 | 5 | 5 |
|---|---|---|---|---|---|---|
| Ma- | ry | had | a | lit- | tle | lamb, |
| lit- tle lamb, lit- tle lamb; | | | | | | |
| Mary had a lit- tle lamb, | | | | | | |
| its fleece was white as snow. | | | | | | |

Add (5) (fa):

| 4 | 5 | 6 | | do | mi | sol |
|---|---|---|---|---|---|---|
| (4) | (5) | | | re | fa | |

Oh When the Saints Come Marching In

| 4 | 5 | (5) | 6 | 4 | 5 | (5) | 6 | 4 | 5 | (5) |
|---|---|---|---|---|---|---|---|---|---|---|
| Oh | when | the | saints | come | march- | ing | in, | oh | when | the |
| saints come march- ing in, oh how I | | | | | | | | | | |
| want to be in that num- ber when the | | | | | | | | | | |
| saints come march- ing in. | | | | | | | | | | |

Go Tell Aunt Rhody

| 5 | 5 | (4) | 4 | 4 |
|---|---|---|---|---|
| Go | tell | Aunt | Rho- | dy, |
| go tell Aunt Rho— dy,[7] | | | | |
| go tell Aunt Rho- dy the | | | | |
| old gray goose is dead. | | | | |

[7]A dash after a word or syllable means that it gets more than one note.

Add (6) (la): 4 5 6 — do mi sol
(4)(5)(6) — re fa la

Twinkle, Twinkle Little Star (A-B-C-D-E-F-G)

4 4 6 6 (6)(6) 6
Twin- kle, twin- kle lit- tle star,
how I won- der what you are;
up a- bove the world so high,
like a dia- mond in the sky,
twin- kle, twin- kle lit- tle star,
how I won- der what you are.

O Susanna!

4 -(4) 5 6 6 (6) 6 - 5 4 4 (4) 5 5 (4) 4 (4) 4 -(4)[8]
I— come from Al- a- bam— a with my ban- jo on my knee; I'm—
going to Loui- si- an— a my true love for to see.
O Su- san- na! Oh, don't you cry for me, for I
come from Al- a- bam— a with my ban- jo on my knee.

It rained all night the day I left, the weath- er it was dry; the
sun so hot I froze to death, Su- san- na, don't you cry.

Michael, Row the Boat Ashore

4 5 6 5 6 (6) 6 5 6 (6) 6 5 6
Mi- chael, row the boat a- shore, al- le- lu- ia; Mi- chael,
row the boat a- shore, al- le- lu— ia.

Sis- ter, help to trim the sail, al- le- lu- ia; sis- ter,
help to trim the sail, al- le- lu— ia.

Jor- dan Riv- er is deep and wide, al- le- lu- ia; milk and
hon- ey on the other side, al- le- lu— ia.

[8]A hyphen between notes shows that they go to the same syllable.

Add ③ (low ti): 4 5 6 do mi sol
③④⑤⑥ ti re fa la

Polly-Wolly-Doodle

4 ④ 5 5 4 4 ④ 5 5 4 4 ④
Oh, I went down south for to see my Sal, sing- ing
Pol- ly Wol- ly Doo- dle all the day; my—
Sal- ly is a— spunk- y gal, sing
Pol- ly Wol- ly Doo- dle all the day. Fare thee
well, fare thee well, fare thee
well my fair- y fay, for I'm
going to Loui- si- an- a for to see my Su- sy- an- na, sing
Pol- ly Wol- ly Doo- dle all the day.

He's Got the Whole World

6 6 5 6 5 - 4 6 ⑥ 6 6 6 5
He's got the whole world— in his hands, he's got the
whole wide world in his hands. He's got the
whole world— in his hands, he's got the
whole world in his hands.

My Country, 'Tis of Thee

4 4 ④ ③ 4 ④
My coun- try, 'tis of thee,
sweet land of lib- er- ty,
of thee I sing.
Land where my fath- ers died,
land of the Pil- grims' pride,
from eve— ry— moun- tain- side, let—
free- dom ring.

The Fox Went Out on a Chilly Night

6 6 5 5 5 5 5 4 4
The fox went out on a chil- ly night,
prayed for the moon to give him light, for he'd
man- y a mile to go that night be-
fore he reached the town- o, the town- o, the town- o; he'd
man- y a mile to go that night be-
fore he reached the town- o.

Add 3 (low sol): 3 4 5 6 sol do mi sol
(3) (4) (5) (6) ti re fa la

Eency-Weency Spider

4 4 4 (4) 5 5 5 (4) 4 (4) 5 4
Een- cy- ween- cy spi- der went up the wa- ter spout;
down came the rain and washed the spi- der out.
Out came the sun and dried up all the rain, so the
een- cy- ween- cy spi- der went up the spout a- gain.

Alouette

4 (4) 5 5 (4) 4 (4) 5 4 3
A- lou- et- te, gen- tille A- lou- et- te,
A- lou- et- te, je te plu- me- rai. [second time: end]
Je te plu- me- rai la tête, je te plu- me- rai la tête;
et la tête, et la tête, A- lou- ette, A- lou- ette,
O——— [back to beginning . . . ]

Clementine

4 4 4 3 5 5 5 4 4 5
O my dar- ling, o my dar- ling, o my
dar- ling Clem- en- tine, you are
lost and gone for- ev- er, dread- ful
sor- ry, Clem- en- tine.

Down in the Valley

3 4 (4) 5 4 5 5 6 6 (4)
Down in the val- ley, the val- ley so low,
hang your head o- ver, hear the wind blow.
Hear the wind blow, dear, hear the wind blow;
hang your head o- ver, hear the wind blow.

Streets of Laredo

6 6 -(5) 5 (5)- 6 (5) 5 (4) 4 (3) 3 3
As I— walked down— the streets of La- re- do, as
I walked out in La- re- do one day, I
spied a young cow- boy wrapped up in white lin- en, wrapped
up in white lin- en as cold as the clay.

'Tis the Gift to Be Simple

3 3 4 4 (4) 5 4 5 (5) 6 6 (5) 5 (4) 4
'Tis the gift to be sim- ple, 'tis the gift to be free, 'tis the
gift to come down where we ought to be; and
when we find our- selves in the place just right, 'twill
be in the val- ley of love and de- light.
When true sim- pli- ci- ty is gained, to
bow and to bend we— shan't be a- shamed; to
turn, turn, will be— our de- light, til by
turn- ing, turn- ing we come round right.

Add 7 (high do): 3 4 5 6 7 sol do mi sol do
(3) (4) (5) (6) ti re fa la

On Top of Old Smoky

4 4 5 6 7 (6) (6)
On top of old Smo- ky, old
Smo- ky so low, I
lost my true lov- er, come a'-
court- ing too slow.

Jacob's Ladder

5 5 5 5 6 6 6 5
We are climb- ing Ja- cob's lad- der,
we are climb- ing Ja- cob's lad- der,
we are climb- ing Ja- cob's lad- der,
sol- diers of the cross.

Big Rock Candy Mountain

5 (5) 6 6 (5) 5 (5) 6 6 (5) 5 -(5)
On a sum- mer's day in the month of May, a—
bur- ly bum came hi- king, down a
sha- dy lane through the su- gar cane; he was
look- ing for his li- king. As he
roamed a- long he sang a song of a
land of milk and hon- ey, where a
bum can stay for man- y a day, and he
won't need a- ny mon- ey. Oh, the
buzz- ing of the bees in the cig- a- rette trees, and the
so- da wa- ter foun- tain, at the
lem- on- ade springs where the blue- bird sings, on the
Big Rock Can- dy Moun- tain.

Billy Boy

5 -(5) 6 6 6 7 5 (5) 6 6 (6) 6 5 -(5)
Oh—, where have you been, Bil- ly Boy, Bil- ly Boy? Oh—,
where have you been, charm- ing Bil- ly? I have
been to seek a wife, she's the dar- ling of my life; she's a
young thing and can- not leave her moth- er.

Add (7) (ti) and (8) (high re): 3 4 5 6 7 — sol do mi sol do
(3) (4) (5) (6) (7) (8) — ti re fa la ti re

Morning Has Broken

4 5 6 7 (8) (7) (6) 6 (6) 6
Morn- ing has bro- ken, like the first morn- ing;
black- bird has spo- ken, like the first bird.
Praise for the sing- ing, praise for the mor- ning,
praise for them spring- ing fresh from the world.

Add 8 (high mi) and (9) (high fa):

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 7 | 8 | | sol | do | mi | sol | do | mi |
| (3) | (4) | (5) | (6) | (7) | (8) | (9) | | ti | re | fa | la | ti | re | fa |

Rock-a-Bye Baby

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | 6 | 8 | (8) | 7 | | 5 | 6 | | 7 | (7) | | | | |
| Rock- | | a- | bye | | ba- | | by | in | | the | tree- | | top; | | |
| when | | the | wind | | blows, | | the | cra- | | dle | will | | rock. | | |
| When | | the | bough | | breaks, | | the | cra- | | dle | will | | fall, | and | |
| down | | will | come | | ba- | | by, | cra- | | dle, | and | | all. | | |

Add 9 (high sol):

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | sol | do | mi | sol | do | mi | sol |
| (3) | (4) | (5) | (6) | (7) | (8) | (9) | | | ti | re | fa | la | ti | re | fa |

She'll Be Coming Round the Mountain

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | 6 | 7 | | 7 | | 7 | 7 | (6) | | 6 | | 5 | | 6 | 7 | | 7 | (8) |
| She'll | | be | com- | | ing | | round | the | moun- | | tain | | when | | she | comes, | | she'll | be |
| com- | ing | | round | | the | | moun- | tain | | when | | she | comes; | | she'll | be | | | |
| com- | ing | | round | | the | | moun- | tain, | | she'll | | be | | | | | | | |
| com- | ing | | round | | the | | moun- | tain, | | she'll | | be | | | | | | | |
| com- | ing | | round | | the | | moun- | tain | | when | | she | | comes. | | | | | |

A helpful Web site for melodies is *Jim's Giant Harmonica Songbook* <http://www.volcano.net/~jackmearl/songs>; it has hundreds of songs notated in full for the ten-hole diatonic harmonica by Jim Outz, and they can be printed out. Draws have minus signs.

You now have fourteen separate notes, plus the two chords you started with. You are well on your way. The chords can be used to accompany someone else playing the notes of the songs, and they can be a great rhythm section.

*All* the blow notes are part of the tonic chord; blowing 1 2 3 4 all together, low do–low mi–low sol–do, will sound great with *any* emphasized blow note.

The draw chord, the dominant, is a bit trickier. Those same four holes drawn, (1 2 3 4), give you low re–low sol–low ti–re, and they will sound good with any emphasized note of the same name. In numbers, those notes are (1) low re, (2) low sol, (3) low ti, (4) re, 6 sol, (7) ti, (8) high re, and 9 high sol. (The sol notes belong to both tonic and dominant chords.)

## Branching out

**Starting notes for some songs** (with the first line if it's different from the title)

Blow 3

O Shenandoah
The Farmer in the Dell
Halleluiah! I'm a Bum (Oh, why can't I work)
One More River to Cross (Old Noah built himself an ark)

Blow 4

Here We Go Round the Mulberry Bush
Row, Row, Row Your Boat
Doe, a Deer—from *The Sound of Music*
Donkey Riding (Were you ever in Québec)
Here We Come A-Wassailing

Blow 5

Jingle Bells (chorus)
Ode to Joy by Beethoven
Finlandia by Sibelius
Skaters' Waltz
Sleep, Baby, Sleep

Blow 6

London Bridge Is Falling Down
Happy Birthday
Red River Valley (From this valley they say you are going)
The Young Voyageur (From the wilds of the North)
Amazing Grace
Auld Lang Syne (Should auld acquaintance be forgot)
My Bonnie Lies over the Ocean
Aura Lee (As the blackbird in the tree)

Blow 7

Old MacDonald Had a Farm
Green Grow the Rushes, Ho (I'll give you one, ho)
Yankee Doodle
Joy to the World
Bicycle Built for Two (Daisy, Daisy)

Blow holes 3, 4, 5, and 6 will play most bugle calls (Reveille, Taps, etc.). To hear several, go to <www.usscouts.org/mb/mb032.asp> and click on "Bugling Merit Badge Page."

**Rounds**

In rounds, all players play exactly the same thing but start in at different times. The first player or group of players plays the first line; when the first group starts the second line, the second group starts the first line, and so on.

These are written out in full because each player has to be aware of what the others are doing.

Frère Jacques (Are You Sleeping)

```
      4   (4)   5     4     4   (4)   5     4
1.  Frè- re    Jac-  ques, Frè- re    Jac-  ques,
1.  Are  you   sleep- ing,  are  you   sleep- ing,

      5   (5)   6     5   (5)   6
2.  dor- mez  vous?  dor- mez  vous?
2.  Bro- ther John?  Bro- ther John?

      6   (6)   6   (5) 5     4     6   (6)   6   (5)  5     4
3.  Son- nez  les   ma- ti-   nes,  son- nez  les   ma-  ti-   nes,
3.  Mor- ning bells are ring- ing,  mor- ning bells are  ring- ing,

      4     3     4     4     3     4
4.  din,  din,  don;  din,  din,  don.
4.  ding, ding, dong; ding, ding, dong.
```

Row, Row, Row Your Boat

```
      4     4     4   (4)   5
1.  Row,  row,  row  your  boat

      5   (4)   5     (5)   6
2.  gent- ly  down  the   stream;

      7     7   7   6     6   6   5     5   5   4     4   4
3.  mer-  ri- ly, mer- ri- ly, mer- ri- ly, mer- ri- ly,

      6   (5)   5   (4)   4
4.  life  is    but  a    dream.
```

Three Blind Mice

5 ④ 4 5 ④ 4
*1.* Three blind mice, three blind mice,

6 ⑤ ⑤ 5 6 ⑤ ⑤ 5 6
*2.* see how they run, see how they run; they

7 7 ⑦ ⑥ ⑦ 7 6 6 6 7 7 7 ⑦ ⑥ ⑦
*3.* all ran af- ter the far- mer's wife, who cut off their tails with a

7 6 6 6
carv- ing knife. Did

7 7 7 ⑦ ⑥ ⑦ 7 6 6 6 ⑤ 5 ④ 4
*4.* you ev- er see such a sight in your life, as three blind mice?

Sweetly Sings the Donkey (first two lines are the same as those of Eency-Weency Spider)

4 4 4 ④ 5 5 ④ 4 ④ 5 4
*1.* Sweet- ly sings the don- key at the break of day.

5 5 5 ⑤ 6 6 ⑤ 5 ⑤ 6 5 6
*2.* If you do not feed him, this is what he'll say: hee-

5 6 5 4 3 3 3 3 4
*3.* haw, hee- haw hee- haw, hee- haw, hee- haw, hee- haw.

Oh, How Lovely Is the Evening

4 ④ 5 4 ⑤ 5 5 -④ 4 ⑤ 5 5 -④ 4
*1.* Oh, how love- ly is the e— v'ning, is the e— v'ning,

5 ⑤ 6 5 ⑥ 6 6 -⑤ 5 ⑥ 6 6 -⑤ 5
*2.* when the bells are sweet- ly ring- ing, sweet- ly ring- ing;

4 4 4 4 4 4
*3.* ding, dong, ding, dong, ding, dong.

Why Doesn't My Goose

4 4 4 4 3
*1.* Why does- n't my goose

5 5 5 5 5 4
*2.* sing as well as thy goose,

6 6 6 6 6 7
*3.* when I paid for my goose

6 (5) 5 (4) 4
*4.* twice as much as thou?

Dona Nobis Pacem (Grant us peace)

4 - 3 5 (4) - 3 (5) 5 - (4) 4 4 (3)
*1.* Do— na no— bis pa— cem, pa- cem,

(6) - 6 - (5) 5 - (4) 6 - (5) 5 5 - (4) - 4 - (3) 4
do— na— no— bis pa— cem.

6 6 6 - (5) 5 5 (4)
*2.* Do- na no— bis pa- cem,

(6) (6) 6 6 6 - (5) - 5 - (4) 4
do- na no- bis pa— cem.

4 (3) 4 - (4) 5 - (5) 6 3
*3.* Do- na no— bis pa- cem,

(5) (5) 5 5 (3) - (4) - 6 - 3 4
do- na no- bis pa— cem.

**The minor scale**

To this point we have been playing songs in the major scale, that is, the one whose central octave (eight notes) is all the notes played in holes 4–7, or the do-to-do scale. We can play only the songs that do not need the la that is missing from the lower octave and ones without accidentals (off-scale notes such as "a-*bove* the fruited plain" in "America the Beautiful" and the second note of "ro-*oad* " in "Look Down, Look Down That Lonesome Road"). The only ways to deal with accidentals are to skip them, learn to "bend" notes, or get a chromatic harmonica, which allows playing all the in-between notes by pushing in a slide.

On every ten-hole diatonic harmonica in a major scale, however, there is also a *natural minor* scale. It uses all the same notes as the major scale, but it is anchored on different notes—las rather than dos. The natural minor scale:

la ti do re mi fa sol la
(6) (7) 7 (8) 8 (9) 9 (10)

All the other notes on the harmonica are also part of the natural minor scale; the difference is the anchor notes. Playing through the notes above, la up to la and back down to where you started, will let you hear a scale quite different from that of the major scale we already know (do to do)—but familiar nonetheless.

We can play songs in the natural minor. (There are other minors, harmonic and melodic, which differ in some of the higher notes of the scale.)

When Johnny Comes Marching Home Again

(6) 5 (6) (6) (6) (7) 7 (7) 7 (6) 6 5 6 5
When John- ny comes march- ing home a- gain, hur- rah!, hur- rah!, we'll
give him a heart- y wel- come then, hur- rah!, hur- rah! The
men will cheer—, the boys will shout, the lad- ies they— will all turn out, and we'll
all feel gay when John- ny comes march- ing home.

Summertime

8 7 8 (8) 7 (8) 8 7 (6) 5 8
Sum- mer time, and the liv- ing is ea- sy; the
fish are jump- ing, and the cot- ton is high.
Oh, your dad- dy's rich, and your ma- ma's good look- ing, so
hush, lit- tle ba- by, don't you cry—.

God Rest Ye Merry, Gentlemen

(6) (6) 8 8 (8) 7 (7) (6) 6
God rest ye mer- ry, gen- tle- men, let
noth- ing you dis- may; re-
mem- ber Christ our Sa— vior was
born on Christ- mas day to
save us all from Sa- tan's pow'r when
we were gone a- stray.
Oh—, tid- ings of com— fort and joy,
com- fort and joy, oh—
tid— ings of com— fort and joy.

Other songs in the natural minor scale, with their starting notes:

Blow 5: Coasts of High Barbary (Look ahead, look astern, look the weather and the lee)

Draw 6: Working on the Railway (In eighteen hundred and forty-one, I put my corduroy britches on)
O Come, O Come Immanuel

Blow 8: The Wraggle-Taggle Gypsies (There were three gypsies a-come to my door)

One well-known Christmas song is a hybrid. The verses are in the natural minor (la to la), and the choruses are major (do to do).

We Three Kings

8 (8) 7 (6)(7) 7 (7) (6)
We three kings of O- ri- ent are,
bear- ing gifts we tra- verse a- far,
field and foun- tain, moor and moun— tain,
fol- low- ing yon- der star.

(7)-(8) 7 7 7 6 7 (6) 7
O— star of won- der, star of night;
star with roy- al beau- ty bright;
west- ward lead- ing, still pro- ceed- ing,
guide us to the per- fect light.

We have found two rounds in the natural minor scale.

Have You Seen the Ghost of John?

(6) 6 (6) 7 -(7) (6) 6 (6)
*1.* Have you seen the— ghost of John?

7 (7) 7 8 (8) 7 (7) (6)-(7)- 7 -(8)
*2.* Long white bones and the rest all gone—

8 (10) - 9 8 (8) 8
*3.* Ooo, oo— oo oo oo,

8 8 (8) (8) 7 7 (7) (6) 6 (6)
*4.* Would- n't it be chil- ly with no skin on?

Hey, Ho, Nobody's Home

(6) 6 (6) (6) (6) 5 5
*1.* Hey, ho, no- bod- y's home, no

(6) (6) (7) (7) 7 7 7 7 (7)
*2.* meat nor drink nor mon- ey have I none;

8 (8) 8 (8) 8 -(8)- 8 -(8) 7 -(7)
*3.* still, I will be mer— ry—,

(6) 6 (6) (6) (6) 5
*4.* hey, ho, no- bod- y's home.

**Blues harp** (Blues harmonica)

In this section, we will change the word harmonica to the word harp in the blues fashion (shades and jaunty hats are optional). There is a way to play a blues scale using the diatonic harmonica. It's called using the cross harmonica technique.

When playing harmonica in the previous sections, we generally started by blowing on hole 4. That is the first note of the scale (also called the tonic or do). You play a major scale by using a series of blowing and drawing on holes 4–7 to produce the series of notes do–re–mi–fa–sol–la–ti–do. If you have a harmonica in the key of C, you will play a C major scale; a G harmonica, using the same technique over the same holes, will produce the G scale, and so on. When I (LV) first started playing harmonica, this was the technique I naturally learned to play. And although I learned to play the notes and eventually songs, it all sounded like Bob Dylan (no offense, Bob). I wanted to play blues harp! It wasn't until I sat down in an old car on a hot summer day with a guy called Bumblebee Bob (he was a guitarist for the Chicago Slim Blues Band) that I had my epiphany; you concentrate on drawing in rather than blowing out! Ahhhh….

So the first thing I was taught was the idea of cross harp. Let's walk through the whole key of G blues scale on your C harp. Your first or tonic note playing blues harp is drawing in the second hole (sol). When playing a harmonica in C, drawing in on that hole will produce the G note, the first note (sol) of the G blues scale. You are also able to produce a G note by blowing out on the third hole, but concentrate on producing that G by drawing on the second hole. Your next note is drawing on third hole (B or ti). Next is blowing out on the fourth (C or do), then drawing in on the fourth hole (D or re), continuing up the scale by blowing out on the fifth (E or mi), drawing in on the fifth hole (F or fa), and finishing by blowing on the sixth to produce the G octave (or sol) above the original G.

| G | G | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| (2) | 3 | (3) | 4 | (4) | 5 | (5) | 6 |
| sol | sol | ti | do | re | mi | fa | sol |

Two things are going to stand out. The first is that there is no la in this scale. Nothing's perfect in life! However, the beauty of the harp is that as you become more accomplished, you will learn techniques to play many of the missing notes in the scale as well as techniques to color and enrich your playing. To achieve some notes that are missing, there are certain reeds that allow you to bend the note depending on where they are in the harp. To play the missing la, draw in on the third hole by dropping your jaw and drawing in hard. At first, especially on a new and fairly "stiff" harp, there may be hardly any movement of the tone downward at all (flattening of the note), but in time as you practice and break in the harp, you will start to bend the note downward. How far that note bends depends on what note you want to play, and that takes control and listening to your playing.

The second thing to stand out is the pitch of the seventh note (fa) on the blues scale in relationship to the seventh note (ti) on the major scale. The blues scale fa is a full step (whole tone) down from the octave sol, whereas the ti on the major scale is only a half step (half tone or semitone) down from the octave do. It's bluesy sounding. In fact, the blues scale comes from the flattening of the fa (the seventh note in the scale) *and* the flattening of the ti (or third note in the scale). Blues players will vacillate between playing the ti as a major scale note and playing the flatted ti as a minor scale note, depending on the feeling they are trying to convey. Even playing the ti slightly flattened gives that bluesy feel. In my humble opinion, when I think of playing blues harp, I think of mimicking the human voice, which is always varying and "playing" with the pitch, tone, intensity, speed, and "coloring" of the notes.

Let's go back to the octave of the G (blowing out on the sixth hole). To play the next octave (8–note scale), follow the sequence below:

| G | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 6 | (6) | (7) | 7 | (8) | 8 | (9) | 9 |
| sol | la | ti | do | re | mi | fa | sol |

Playing the higher octave gives you the elusive la, which is good because drawing on the seventh hole or ti is a tough one to bend as are all the draw notes above the sixth hole or la. It's actually easier to play a song in the higher octave that requires a precise la than the lower octave, which as you now know requires bending the third hole or the ti a whole step down. I'm still struggling to do that consistently!

There are additional notes below the lower octave as well as above the higher octave, which will give you partial octaves in each direction; however, there is a note missing in both directions, which means you will have to pick and choose your notes carefully or try bending to fill in the gap. Take a look at the full ten-hole diatonic harmonica scale to get an idea of the notes.

| C | D | E | G | G | B | C | D | E | F | G | A | B | C | D | E | F | G | A | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | (1) | 2 | (2) | 3 | (3) | 4 | (4) | 5 | (5) | 6 | (6) | (7) | 7 | (8) | 8 | (9) | 9 | (10) | 10 |
| do | re | mi | [sol | sol | ti | do | re | mi | fa | [sol] | la | ti | do | re | mi | fa | sol] | la | do |

[ blues scale, lower octave [ ] blues scale, upper octave ]

Learning to play a blues rhythm is in some ways easier than learning to play single notes in the blues scale, and it builds your confidence. I base this rhythm on your typical three-chord, twelve-bar (or measure) blues song. What's all that? First off, a great many blues songs are composed of just three chords; the I or tonic chord (which starts on the first note of the scale), the IV chord (which starts on the fourth note of the scale), and the V chord (which starts on the fifth note of the scale). In the case of the G blues scale, the I chord is the G, the IV is the C, and the V is the D.

The first chord is the G or I chord (tonic chord) which starts on the first tonic note of the key. If you are playing a C harmonica, it becomes the G blues harp (cross harp). Then your tonic note is the G (drawing on the second hole). If you draw in on the second, third, and fourth holes (sol, ti, re, or G, B, D), you make the G chord.

The second chord is the C or the IV chord. Find the fourth hole and blow. That's your C. When you blow through the fourth, fifth, and sixth holes (do, mi, sol, or C, E, G), you make the C chord.

The third chord is the D or the V chord, but it's a variation. Draw in on the fourth hole (re) and add the fifth and sixth holes as you draw in. You are playing the re, fa, la or D, F, A notes. Played on a harp, that's actually a D minor (which is part of a G7 but it works for blues) but called the V. Once again, there's that major/minor dissonance that adds to the flavor of the blues. Listen to some old blues recordings and you'll often hear the rhythm instruments playing the V chord as a major chord with the harp playing the V with that minor sound. It's all good! There! You are now ready to lay down a rhythm.

By using two- or three-note chords, you can provide a rhythm for a singer or solo instrument, which brings us to the classic twelve-bar blues song. What that means is that the song's verse consists of groups of twelve bars or measures, of which each bar is 4 beats or 6 beats depending on the song (in most cases). The example we will use will be 4 beats to a bar. In the first four bars, play the I or G chord by drawing on holes 2, 3, and 4 while trying to play a syncopated rhythm (think "Dah–bi Dah–bi Dah–bi Dah–bi") drawing in as you count the beats 1234, 1234, 1234, 1234, or four bars of four beats each. Now blow out on the IV or C chord on holes 4, 5, and 6 with the same rhythm and timing for two bars, 1234, 1234, or two bars of four beats each. Next go back to drawing on holes 2, 3, and 4 for two bars, 1234, 1234, still using the same rhythm. Now it gets interesting! Now you play the V or D chord by drawing on holes 4, 5, and 6 for one bar, 1234, then blow out on holes 4, 5, and 6, making the C chord for one bar, 1234, and finish back on the G chord drawing in on holes 2, 3, and 4 for two bars, 1234, 1234, all using the same rhythm—before you start again for the next verse of a lead (solo). There are countless variations on this theme, but we all have to start somewhere. Buy some blues records or CD's, and check out blues harp instruction books and especially UTube.

## Further information

### Harmonica basics: getting the breathing right

We breathe for two main reasons: to get oxygen into our lungs and to get carbon dioxide out. “Inhale the good air and exhale the bad.” When people develop lung disease, either or both of those functions can be difficult. Over the years, we may get into bad habits in the way we breathe that actually impede our ability to breathe correctly and effectively.

As a respiratory therapist (LV), I’ve instructed patients who have lung disease to breathe properly. By enabling them to improve their breathing function, they are more able to get “in” the good air and get “rid” of the bad. The two techniques we teach are pursed-lip breathing and diaphragmatic breathing.

Pursed-lip breathing is instrumental in allowing people with Chronic Obstructive Pulmonary Disease (COPD) to expel carbon dioxide. Because these people may have suffered with chronically inflamed bronchial tubes (chronic bronchitis and/or chronic asthma) throughout their lungs, they have difficulty getting the bad air out effectively. Pursed-lip breathing creates a back pressure in those inflamed bronchial passages by exhaling somewhat forcefully through lips squeezed together as if they are blowing out a candle. Blowing into a harmonica simulates pursed-lip breathing. The resistance created by blowing through the harmonica’s reeds will have the same results.

The other breathing technique is diaphragmatic breathing. It’s a technique that we are all naturally born with but many eventually forgo so as not to accentuate their bellies. If done properly, diaphragmatic breathing allows you to take deep breaths from the lower regions of your lungs. The diaphragm is a thick, mushroom-shaped muscle that generally does the majority of work when breathing.

When you “flex” your diaphragm, tighten it, it moves downward like a bellows pushing the stomach and the liver also downward and outward, rounding out our bellies. It is a very effective way to breathe. Watch an infant breathe: it’s all done with the belly and not the upper chest. Exhaling is done passively. As the diaphragm is allowed to relax, it travels back upward to its curved-up resting position, and air is expelled.

When people have developed emphysema, which is a category of COPD, their lungs have become hyper- or overinflated because of air trapping in their lungs. Not only have they lost much of their ability to exhale their stale air (carbon dioxide), but also, because the air trapping has made their lungs bigger, they have lost much ability to take in the good air (oxygen).

The hyper-expansion of the lungs is pushing the diaphragm down against the abdominal organs even after the lungs have exhaled what they can. There is very little room for

diaphragmatic movement. To compensate, people with emphysema will recruit more upper chest and shoulder muscles to help them breathe. Unfortunately this requires a great deal more energy, exertion, and oxygen, all of which makes people more short of breath, especially when they have performed any activity. Their bellies actually move inward when inhaling because of the incorrect emphasis on inhaling from the upper body.

Learning diaphragmatic breathing requires more time and effort for people to master. Bad habits are hard to change, and unless people have a fairly active exercise regimen, already play a musical instrument requiring blowing (flute, trumpet, etc.), or are avid singers, it will take much practice. Place one hand on the upper chest and one on the belly with your thumb resting below your breast bone (sternum).

Watch yourself in a mirror. The upper hand on the chest should not move when you breathe, nor should your shoulders. The hand on your belly should push *outward* when you breathe *in* slowly, and *in*ward when you breathe *out*. Another way is to sniff quickly to show how the diaphragm drops quickly and then sniff slowly to achieve a diaphragmatic breath. I will even have people envision that they make believe they are sniffing a Thanksgiving feast to help master this technique. Whatever works!

When drawing in on the harmonica, you once again must inhale through the resistance of the reed(s), making your inhalation slow and causing you to recruit that strong diaphragm muscle. Many respiratory devices have been developed over the years to help patients breathe deep, keeping their lungs clear of mucus and utilizing good diaphragmatic control, but none have given its users the pleasure of music tied to the exercise.

By using both blowing and drawing notes on the harmonica and a plethora of techniques to play musical notes (long notes and short, soft vs. loud, repetitive, tremolo, vibrato, etc.), the players will be benefiting their lung functions for a healthier self.

**Maintaining harmonicas**

The best possible way to maintain a harmonica is to pay constant attention to the three points given in "Before you begin," p. 4. Keep it (and your hands and mouth) *clean,* play it *warm,* get it as *dry* as possible. That will help your harmonica last a long time and prevent a lot of problems.

If the harmonica is working fine, leave it alone. If something is amiss, start with the simplest thing that might fix it. The more expensive your harmonica, the less you should try to do yourself; send it back in for repair.

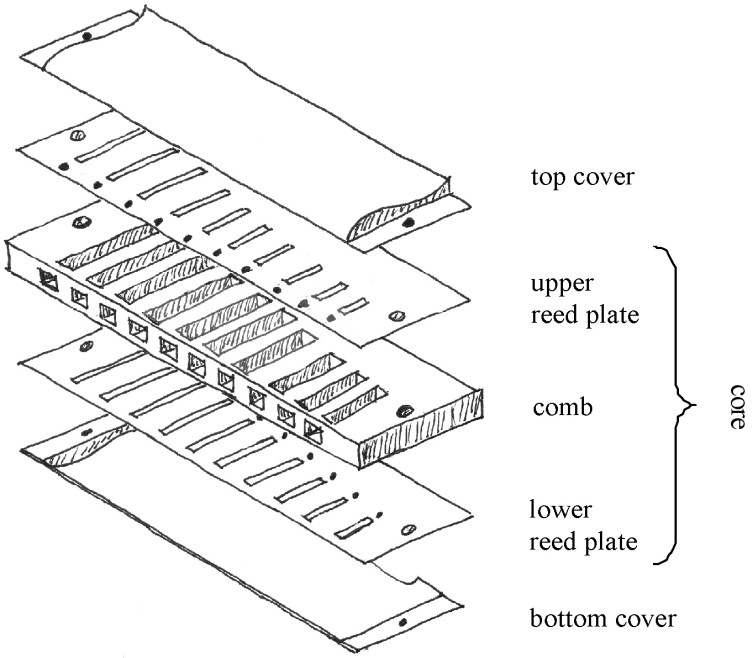
The directions below apply primarily to the everyday ten-hole diatonic without windsavers (valves), small flat strips of usually plastic; one end is glued at the end of a hole in

the reed plate opposite the reed. They are easily damaged. Windsavers regularly come on chromatics, and they are now available on a few ten-hole diatonics. (If it says "valved," it's got them.)

Chromatics are covered later.

*What you can do without getting it wet or taking it apart*

The ten-hole diatonic harmonica, expanded view




If there is an unwelcome object inside a playing hole, you could start with a few lap whaps (see p. 4) in case it could be shaken loose. Next, you could hold the harmonica playing holes down and run it gently across the bristles of a very soft toothbrush, which won't reach in far but just might dislodge the invader. If it doesn't, you could look inside the slots with a flashlight to see exactly where it is. The reeds are always top and bottom of the slots—there are none in the sides. You may be able to use a wooden toothpick to snag the intruder against a side wall and slide it out, and there will be no damage to the reeds or anything else.

If you can't get the object out using those approaches, you'll need to take the harmonica completely apart—covers off, reed plates removed—to get to the spaces in the comb. (See below.)

If you have a stuck reed, it may be possible to unstick it by pushing it slightly away from its reed plate from the front or back edge of the harmonica. Blow reeds are attached under the top reed plate and might be unstuck by reaching under the back of the top cover with a wooden toothpick and pushing very gently down; draw reeds are under the bottom reed plate and can be reached through their playing holes.[9]

[9]That is the reed plate arrangement I have seen on ten-hole diatonics in a wide price range made by Hohner, Seydel, Bushman, Tombo, Blue Steel, and Huang; I assume it is universal.

That's about all you can do without getting it all wet or dismantling it.

*Water*

What to do next depends a lot on the harmonica. If it has a wooden comb, you can't put the whole thing in water; it has to be taken apart (see below) and the sections treated separately.

If it is entirely metal and plastic, however, it could be put in plain warm water (perhaps with a *drop* of hand dishwashing detergent). You can wave it around in the water gently to help loosen stuff up. You might be surprised at what comes floating out. Rinse it by putting it into several changes of clear water, and wave it around again—*not* by holding it under the faucet.

Drain it by shaking out what water you can, doing a lot of lap whaps front *and* back, and then standing it on either of the edges (front or back) on something like a pad of folded paper toweling that can help pull the water out. Then set it on the other edge. Add draws all up and down the harmonica from the front and draws through the top back.

Let it completely dry by standing it on end so air can move right through it. A gentle fan can speed the drying; a hair dryer would be too rough. It is especially important to get it totally dry at this point. Some of the interior parts can rust. Some of the brass-looking components are grabbed up by a magnetic screwdriver—not so brass after all.

*Taking off the covers*

Harmonica companies discourage taking the instruments apart, but sometimes you need to, at least the covers, at least to look. Did it fall in the mud? Have the kids been poking pennies under the covers? Has the dog been walking around with it in his mouth?

The simplest stage is taking off the covers—the two top and bottom pieces held on at the ends by teensy pairs of nuts and bolts or other kinds of fasteners. You may need a set of jewelers' screwdrivers or an eyeglasses repair kit to remove them. It's a good idea to take them off over a tray or bowl so you don't lose any of the tiny pieces. Screw any nuts and bolts together.

The now-uncovered core of the harmonica, which includes the top and bottom reed plates still attached to the comb, has the delicate reeds exposed. Try to avoid touching them. (The covers you have taken off are tough and can be scrubbed some.)

Plastic and metal parts can be gently soaked, rinsed, and carefully dried, as above. If the comb is wooden, it should not be wet, but you can use that soft toothbrush (dry) to brush very gently along the reeds. Brush only *away* from the tiny rivets holding the reeds onto the reed plates and *toward* the loose ends of the reeds.

If you have stuck reeds and the toothpick trick didn't work with the covers on, you can now get a better angle for reeds that are on the inside. For reeds on the outside, you can go gently around their edges with a single-edged razor blade. If you're on the wrong side of the reed plate for what you'd like to do, you will need to take the reed plates off the comb (next section).

To put the covers back on, set the core down with the playing holes toward you and the longer reeds to the left. Top and bottom covers seem to be identical in shape; if you mix them up, they might look funny, but you can play fine. Hole numbers would indicate a top cover. A bread-wrapper twist-tie through the holes in all the pieces at the ends can be used to keep everything lined up. Screw the nuts and bolts (or whatever you have) back together gently; it is unbelievably easy to strip the threads.

Should one of those itty-bitty nuts or bolts wander off, you can use the twist-tie through the holes as a substitute. Works fine, and you can tighten it as much as you wish.

*Taking off covers and reed plates*

The most drastic dismantling is to take the covers off (as above) and then the reed plates. This should be a last resort for the novice! Reassembled harmonicas may not play as well as they did before.

Some reed plates are held on by three to nine long machine screws (bolts without nuts) that go top to bottom through both plates. The heads will be slotted, and the other, threaded ends will stick out of the lower plate—you will be able to see the threads with a magnifying glass. Those can be taken apart and put back together occasionally, and entire reed plates can be replaced. The cores of some other harmonicas are held together by much more permanent fittings, and they are not meant to be taken apart except at the factory.

You will have five separate big pieces—two covers, two reed plates, and one comb—and a lot of little hardware.

Now you have the fragile reed plates, which need even more tender care, and three tougher pieces: the covers and the comb. All plastic and metal parts can be put in water to soak. If the comb is wooden, it can't be soaked, but you can now brush all over it fairly vigorously with the toothbrush, and you can poke through all the slots with the wooden toothpick.

You can try to free stuck reeds as above; now that the reed plates are off the comb, you can do the toothpick or razor-blade treatment from either side.

If there is serious gunk on the reed plates, they can be *very* gently brushed with something soft like that old toothbrush, but remember the direction—*away* from the rivets. The toothbrush can be wet, and, if that's not enough, get foamy (not gritty) toothpaste and froth away.

For reassembly, the comb and the two reed plates go together first. Set the comb down with the ten holes toward you and the longer slots to the left. The two reed plates both have their longer reeds to the left, and the reeds are underneath on both plates. The reed plate with the larger holes for those little machine screws is the blow plate, which goes on top of the comb; the plate with the smaller, threaded holes, the draw plate, goes underneath.

If it's still hard to tell them apart, check the rivets holding the reeds on. The rivets on the blow (top) plate are all lined up in a tidy row along the front of the plate, next to the playing holes. Those on the draw plate are at the back end of the reeds and follow a diagonal line. The machine screws go through the top plate and the comb to screw into the threaded holes in the draw plate below.

Screw in those machine screws *only* until you feel a minimal resistance; it is really easy to strip the threads on the soft brass plates. For attaching the covers, see above.

*Chromatics*

There's a special caution with chromatics. One set of holes is permanently sealed off by the slide; normal room air movement won't ever get in there. It's particularly important to get it all thoroughly dried out when you're through playing, with lots of lap whaps and draws all up and down in both slide positions. No need for the draw from the top of the back—both chambers under the covers are used blowing and drawing, so the front draws will take care of both of them.

The covers and the slide setup come off fairly easily; the reed plates and the comb may be more permanently assembled.

The slide mechanism is probably in several layers. It's held onto the harmonica with two long screws that go through all the parts of the slide mechanism and into the wooden comb of the harmonica, perhaps with two tiny pieces of plastic tubing for the screws to go through. (Should you lose those tiny bits of tubing, find someone on supplementary oxygen; they regularly use and toss out cannulas that have smaller tubes exactly the size you need.) There will be a small wire sticking out of the comb at the right end; that's the spring for returning the slide to the right. You can clean all of the slide parts however you wish—no tender parts there, just don't bend the slide. After the cleaning, you may want to oil the slide itself with something light like sewing-machine or clock oil, lightly, and wipe it off completely afterwards. (Many players don't use any oil.)

If there's something inside the comb, you'd need to have the slide mechanism off, and even at that there's not much room to see or work; the playing holes are smaller, with one above the other. You could do lap whaps and run it across the soft toothbrush with the slide off. Then

you could try the wooden toothpick against the side of a reed slot. Chromatics are likely to have windsavers (or valves), so you need to be extra careful.[10]

For putting the slide setup back together, the slide hole nearest the button (on the right) is on the bottom row. The spring has to poke through the tiny hole in the slide. Screw the screws in only until snug—thread-stripping cautions apply here too.

A stuck reed can be difficult to work on, even with the covers off. There are blow and draw reeds top and bottom with windsavers all around. You can't do the toothpick poke on the windsaver side of the reed unless you can gently lift the appropriate windsaver; the razor blade is all right to use from the side the reed is on.

*Stuck slide*

A slide can gum up and jam, whatever harmonica care procedures you do.

The easiest possible fix is to stand the harmonica on its left (lower notes) end and tap the slide button (at the other end) *gently* with a little hammer or mallet. If that frees it, great.

If not, put some plain water into a dish *no deeper* than 1/8 inch. (Your chromatic mechanism is likely to be 3/16 inch thick, so an 1/8 inch of water won't reach the probably wooden comb.) Hold the harmonica up on its front edge so only its playing holes are in the water. After it's thoroughly wet, try the little hammer or mallet, as above.

There is an intermediate solution that doesn't yet require removing the slide mechanism but can be much quicker—to be used only when you're next on stage and desperate. Hold the harmonica playing holes down, tilted with the button end up higher. Drip water in next to the button so it will slither down the slide and come out the other end. Then tap it again. Be sure as much water as possible has drained out.

Last resort: Take off the slide (see above).

**What harmonica(s) next?**

You have probably started with a ten-hole diatonic in the key of C, perhaps at the low end. Where should you go from here? There are various options, and you are not limited to just one.

[10]See Anneliese "Sissi" Jones, "The Pesky Windsaver," *Harmonica Happenings,* Spring 2009, p. 28.

A higher-end ten-hole diatonic in C might be a good start. Better harmonicas come $20 to $30 (and up), and they do sound significantly classier than the really inexpensive ones.

If you plan to play a lot with other people, especially people who might play in many different keys, you might want to consider popping for a full set of twelve inexpensive ten-hole diatonics, one for every major key (C, C# or Db—same scale notes by either name, D, D# or Eb, E, F, F# or Gb, G, G# or Ab, A, A# or Bb, B—and the next C on the list is the octave of the first, already covered). That way you would be able to play anything no matter what key is needed. A minimal set of twelve starts around $40 or $50; they are not really high quality, but it's a beginning. You could then upgrade one key at a time as you find out which ones get used the most. Each major scale harmonica has tonic and dominant chords, a natural minor scale, and a blues scale on it too. Harmonic or melodic minor scales require bending notes or special harmonicas, which are available.

You could skip the set of twelve and go right to getting the better harmonicas one key at a time as you need them. The keys most used seem to be G, A, Bb, C, D, E, and F, all major, and not in any particular order.

The solo-tuned harmonica is a twelve-hole diatonic with three complete octaves, like that in holes 4–7 on the ten-hole, and no gaps. But its only chord is the tonic.

A more complex harmonica is the chromatic. It's a complete double harmonica. There is a sliding metal strip with two separate sets of holes in it that rides back and forth in front of the double set of playing holes. Pushing the slide in from the right end blocks off one of the sets and opens the other set; that raises by a semitone whatever you are blowing or drawing at the moment. That enables you to play all the intermediate (sharp and flat) notes not available on the ten-hole or the twelve-hole diatonic.

Chromatics are more usually twelve- (than ten-) hole instruments, and those provide three complete octaves in holes 1–4, 5–8, and 9–12; all three octaves, like those on the solo-tuned, work the same way as holes 4–7 on the ten-hole diatonic. It has only a tonic chord. You *can* play every single note in any key, but in practice it's much easier to play in some keys than in others. Those run perhaps $150 and up. They come in several basic keys.

If you prefer playing chords over playing melodies, there is the Vineta, also called a Junior Chord, strictly a chord harmonica, made by Hohner. You can play the tonic/dominant chord combination we have already been using in three different sets: C–G (as on the ten-hole diatonic in C), G–D (ten-hole in G), and F–C (ten-hole in F). They are played the same way: blow for tonic, draw for subtonic. Because of the arrangement of chords, you also have the *sub*dominant chord for two of those three sets: The tonic F is the same as the subdominant for C–G, and tonic C is the same for G–D. They run about $200.

There are serious big-time chord harmonicas, with five complete (major, dominant seventh, minor, augmented, diminished) four-note chords for each of the twelve possible

keys—each note double-reeded, for a total of 384 reeds per instrument. It's actually two harmonicas hinged together at the back, so the player is using either the upper or the lower deck. Those are the two-foot-long harmonicas you see in harmonica bands, and they sell for $2,000 to $2,500.

There is almost no limit to the harmonicas available. They come major, all three kinds of minor, bass, octave, tremolo, every possible variation—and some sources will build a harmonica to your specifications.

Harmonicas are often carried in guitar stores and other music stores. These Web sites are a few of the main manufacturers, in alphabetical order:

Hohner: <http://www.hohnerusa.com>, 1000 Technology Park Dr., Glen Allen VA 23059; (804) 515-1900
Seydel: <http://www.seydelusa.com>, U.S. rep: Rupert Oysler, (828) 262-1088
Suzuki: <http://www.suzukimusic.com/harmonicas>, P. O. Box 261030, San Diego CA 92126-9877; (858) 566-9710; (800) 854-1594

These are dealers:

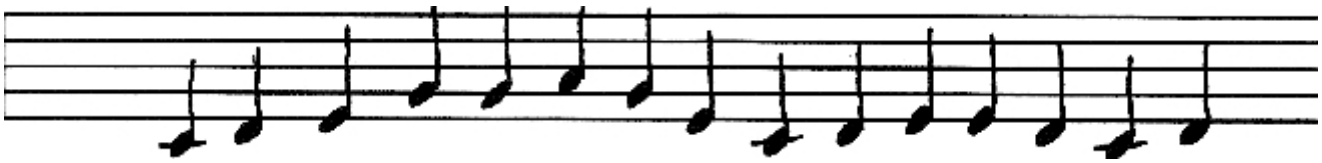
Harp Depot <http://www.harpdepot.com>, 170 Fairfax Rd., Marion OH 43302; (866) 616-4277; (740) 382-0770
Musician's Friend: <http://www.musiciansfriend.com>; (800) 391-8762, (866) 462-9293

**Two minutes on reading music**

Those black blobs on sets of lines? No, you don't have to learn to make sense of them.

Playing by ear is fine for songs you know; you know when the notes get higher and lower, and you already know the beat and the rhythm. But for music you don't know or aren't sure of, standard notation can give you some clues.

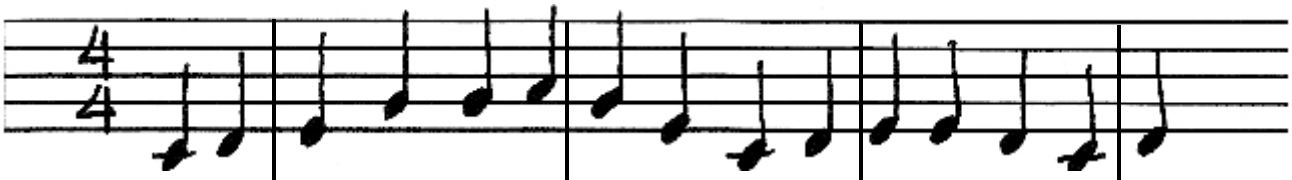
The *notes* are little ovals (solid or open, with or without stems or flags) on a set of *staff lines,* five horizontal lines with four spaces between. Notes can either cover the lines or be between them in the spaces. Notes higher up the page sound higher. Try out this passage (sing or play) from "O Susanna":



I— come from Al- a- bam- a with my ban- jo on my knee . . .

Hear them going up and down together? If notes wander too far off the staff lines, little extra short lines (ledger lines) can be added for the strays. The stems can go up or down from the note heads—whichever direction has more of their length on the staff lines.

*Barlines* are vertical lines that divide the song into *measures,* which have an equal number of beats throughout a song. (Beats are not the same as notes, and the opening measure may not have the full number of beats). The notes right after the barlines have greater emphasis (are louder). The number of beats per measure is notated at the beginning of the first line. 4/4 means four beats per measure. "O Susanna" can be sung in a steady rhythm, to which you can tap your foot or clap your hands. Try to hear the *one*–two–three–four–*one*–two–three–four rhythm:

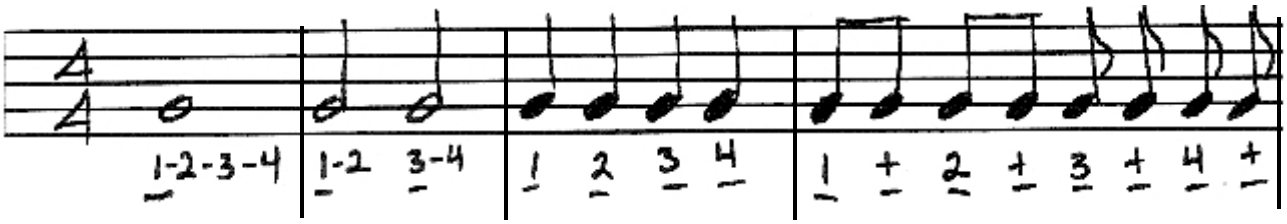


I— come from Al- a- bam- a with my ban- jo on my knee . . .

"Happy Birthday" has three beats per measure, 3/4; "Mary Had a Little Lamb" has two, 2/4.

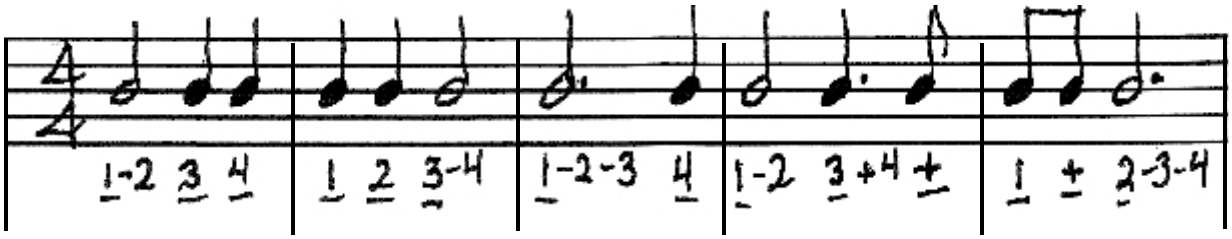
The notes on those staffs are *quarter notes*. They are called quarter notes even if there aren't four to a measure. Additions and subtractions to the quarter note indicate *shorter and*

*longer notes.* The more bits there are on those stems (flags, more flags), the quicker the notes are; missing parts (a hole in the middle of the note head, then no stem at all) make them longer. Each of the measures below has four beats. Count out loud and clap every time there's a new note:

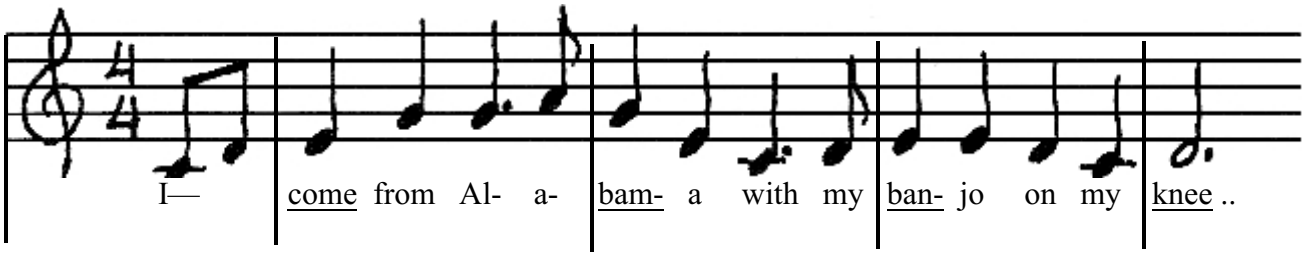



The first three measures show a whole note (count steadily up to 4, clap only on 1), two half notes (clap on 1 and 3), and four quarter notes (clap every count). When you start in on eighth notes, as in the next measure, you need more counts! People often say "and" for the half counts, so you would keep the 1–4 count at the same speed as before and throw in a quick "and"—and a clap—between the numbers, for eight claps in the measure. There are two ways to write eighth notes; both are shown.

The line below also has four beats per measure, different ones. A note followed by a dot counts half again as long.




Here is "O Susanna" with full notation of longer and shorter notes:




Other things can pop up on the staff lines. One is other clefs; the G or treble clef is at the beginning of the last line above, and the next most common one is the F (bass) clef, added below. Rests are next; they come in the same denominations as the notes (whole, half, quarter, eighth, etc.) and indicate silences. The notes and the rests will still add up to the number of beats needed per measure.

Two dots after a double barline show that what follows, up to a matching pair of dots *before* a double barline, gets repeated. (If there is no "opening" repeat indicator, go back to the beginning.)

A dot above or below a note (away from the stem) makes the note very short, even though it still takes up the same amount of time—there is a fill-in silence to the next note. A sideways V in the same location emphasizes the note (louder). A fermata (half circle with a dot underneath) says hang onto that note beyond its time—found often at the end of a phrase or whole piece. Sharps (pound signs) and flats (tippy small b's) raise or lower the written note by a half tone or semitone; a natural (two L's together, one inverted) cancels a previous sharp or flat.

A double barline is the end of the piece! (If it doesn't have double dots with it.)

**Terms defined**

Abdominal breathing—breathing using the abdominal or diaphragmatic muscles instead of the much less effective chest and shoulder muscles.

Accidentals—raised or lowered extra notes in music that are between the notes of the scale being used.

Augmented—a note raised a half tone; augmented *chord,* the tonic chord of a major scale with the fifth note raised a half tone.

Barline—in music notation, a vertical line that indicates the end of one measure and the beginning of another; a note immediately following a barline is emphasized (louder).

Belly breathing—breathing using the abdominal or diaphragmatic muscles instead of the much less effective chest and shoulder muscles.

Blues scale—the sol-to-sol diatonic scale, whose half-tone intervals are between the third and fourth notes and the six and seventh notes.

Chord—three or more musical notes sounded together.

Chromatic harmonica—a double harmonica, one part a half tone higher than the other, that seeks to provide notes missing in the diatonic harmonica; its only chord is the tonic.

Chromatic scale—a scale composed entirely of twelve notes at semitone intervals (thirteen including the octave).

Clef—in music notation, a symbol at the beginning of every set of staff lines indicating the range; the two most used are the G clef (treble clef) and the F clef (bass clef). Music for pianos and such will use both, bracketed together.

Comb—the central piece of a harmonica, to which the two reed plates are attached and then the covers.

Core—the comb of a harmonica with its two reed plates attached.

Covers—the two outermost parts of a harmonica, top and bottom; the easiest parts to remove.

Deep breathing—breathing emphasizing the entire capacity of the lungs.

Diaphragmatic breathing—breathing using the abdominal or diaphragmatic muscles instead of the much less effective chest and shoulder muscles.

Diatonic scale—a scale of seven notes (eight including the octave) in which there are different intervals between pairs of notes, whole and half tones. Compare to the chromatic scale of twelve notes, all a half tone apart, and to the whole-tone scale of six notes, all a whole tone apart.

Diminished—a note lowered a half tone; diminished *chord,* the tonic chord of a major scale with both the third and fifth notes lowered a half tone.

Dominant—the fifth note of any scale; also a term for the triad (chord) using the fifth, seventh, and ninth (octave of the second) notes of the scale, often called V chord

Dominant seventh—a four-note chord based on the dominant (fifth) note of a chord, using the fifth, seventh, ninth (octave of second), and eleventh (octave of fourth) notes.

Do-re-mi-fa-sol-la-ti-do—a way to name the notes in any major scale without assigning letter names to them (see minor scale and blues scale for naming *their* notes).

Flat—a note lowered half a tone; a symbol in music notation that looks like a tilted b, which lowers the note that follows it and all the notes in the same measure a half tone.

Key signature—in music notation, a set of sharps or flats at the beginning of each set of staff lines right after the clef throughout a piece; it indicates sharps or flats to be used, and that also tells you which of two possible keys (one major, one minor) the piece is in.

Major scale—the do-to-do diatonic scale, whose half-tone intervals are between the third and fourth notes and the seventh and eighth (octave) notes.

Measure—unit into which pieces in music notation are divided by barlines; each measure has the same number of counts or beats, and the first note of a measure is emphasized.

Minor scale (natural)—the la-to-la diatonic scale, whose half-tone intervals are between the second and third notes and the fifth and sixth notes.

Natural—a symbol in music notation that looks like two L's joined with one upside-down; it cancels earlier sharp or flat symbols on the same line or space for that measure.

Octave—in diatonic scales, the eighth note, which has the same name (letter or do-re-mi) as the first note. The octave is the most fundamental acoustic harmonic tone of the first note, which is why it sounds the "same." The acoustic frequency of the octave is exactly twice the frequency of the first note. It seems to be called an octave even if it's not really the *eighth* note, as in a chromatic (thirteenth) or whole-tone (seventh) scale.

Reed plate—one of two flat metal plates in a harmonica with reeds attached to it.

Relative major, relative minor—two different keys written out in music notation with the same key signature (sharps and flats) but having different tonic notes; the minor is a tone and a half lower than the major.

Semitone—a half-tone interval between notes, such as mi-fa and ti-do.

Sharp—a note raised half a tone; a symbol in music notation that looks like a pound sign, which raises the note that follows it and all the notes in the same measure a half tone.

Solo-tuned harmonica—a twelve-note diatonic harmonica that provides three complete octaves but only one chord, the tonic.

Subdominant—the fourth note of any scale; also a term for the triad (chord) using the fourth, sixth, and eighth (octave) notes of the scale, often called IV chord.

Time signature—in music notation, a fraction immediately following the key signature at the beginning of the first set of staff lines; its lower number indicates the basic timing note (often the quarter note) used throughout the piece, and its upper number tells how many of them (beats) per measure. For example, 3 over 4 lets you know there are three quarter notes per measure, and the count is a steady 1-2-3, 1-2-3, etc.

Tonic—the fundamental or first note of any scale (a C in the key of C, etc.); also a term for the triad (chord) using the first, third, and fifth notes of the scale, often called I chord. Pieces usually end on the tonic note.

Triad—three musical notes sounded together.

Whole tone—a whole interval between notes, such as do-re, re-mi, fa-sol, sol-la, and la-ti.

Whole tone scale—a scale composed entirely of six notes at whole tone intervals (seven including the octave); there is no dominant or subdominant interval, and its only harmonic is the octave.