

## Everything You Always Wanted To Know (but were afraid to ask) About SCALES

### WHAT IS A SCALE?

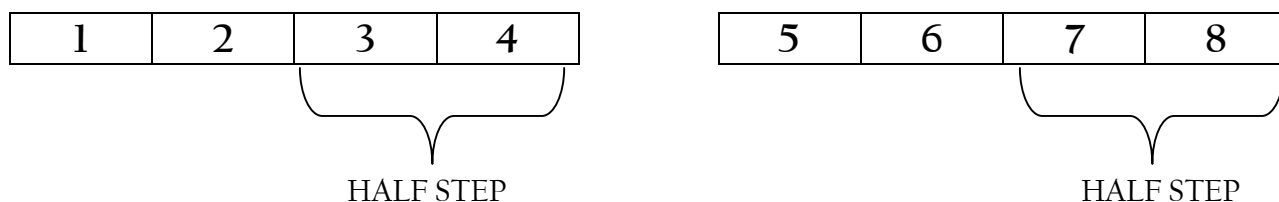
SCALES are a collection of pitches that form a specific pattern. They are made up of two basic units of measurement: **WHOLE STEPS** and **HALF STEPS**.

$$1 \text{ WHOLE STEP} = 2 \text{ HALF STEPS}$$

When we combine whole and half steps together, we can create different patterns that make our scales. The pattern for a major scale is actually quite simple if you break it down!

### THE MAJOR SCALE

The **MAJOR SCALE** is a collection of eight notes that fit a particular pattern of whole and half steps. It helps to think of them in two identical parts. The numbers represent the pitch of the key that we're in. These groups of four notes are called "**TETRACHORDS**" (tetra = "four")



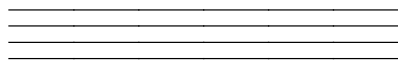
Notice that from 1 – 2 – 3 and 5 – 6 – 7 we use a **WHOLE STEP**, but from 3 – 4 and 7 – 8 we use a **HALF STEP**. This is the basic formula for any major scale.

If we apply this to the musical alphabet (A-B-C-D-E-F-G) we have to know two very important facts:

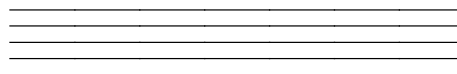
There are two "**NATURAL HALF STEPS**" that occur between E – F and B – C.

*Find E, F, B, and C on this staff and label them:*

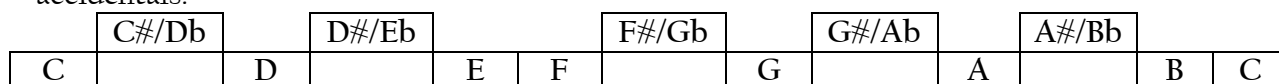
TREBLE



BASS



Whenever you find these lines and spaces, you know that there is no half step in-between them! For the other lines and spaces, we have one half step between them. This give us our "accidentals."



C# and Db, D# and Eb, F# and Gb, G# and Ab, and A# and Bb are called "**ENHARMONIC PITCHES**". They **SOUND** the **SAME** but are **WRITTEN DIFFERENTLY**.

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Now that we understand the pattern, we can use any starting note and create the same relationship with 3-4 and 7-8 as half-steps. Let's start on C, because that puts our natural half-steps in the right columns:

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

What would happen if we choose to start on a different note? Let's use F this time.

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

Looking for our pattern, we see that a problem occurs between 3-4. We now have a whole step in-between! It looks like 7-8 are still OK. Because there needs to be Half-Step in column 3-4, we need to use the "enharmonic" note. Let's use Bb:

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

Now everything works! We can hear that both TETRACHORDS have our original pattern.

Let's try another starting note – how about G?

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

We see that TETRACHORD 1 works great – B-C is a natural half-step. There's trouble brewing between 7-8 though. Let's add a SHARP to column seven to fix the problem.

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

This process helps us determine KEY. A key tells us the starting note and collection of pitches that make up any given scale. For example, the key of D has D in column 1 and the correct pattern follows it. This pattern we're seeing is one of the coolest phenomena in music – it's called the **CIRCLE of FOURTHS**. Here's how it works:

Every time you start a new scale from 4, you need to **LOWER** the 4<sup>th</sup> note with a **FLAT**.  
Every time you start a new scale from 5, you need to **RAISE** the 7<sup>th</sup> note with a **SHARP**.

If you keep going through, keeping the sharps or flats you added, you will eventually hit every key!

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Fill in the chart, starting with C. This will show you how the pattern works!

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>TETRACHORD 1</b>				<b>TETRACHORD 2</b>			
<i>Count up to column 4 – this becomes “1” of the new key. Add a FLAT on next “4”</i>							
C							
F							
B $\flat$							
E $\flat$							
A $\flat$							
D $\flat$							
C $\flat$							
<i>Count down to column 5 – this becomes “1” of the new key. Add a SHARP on next “7”</i>							
C							
G							
D							
A							
E							
B							
F $\sharp$							
C $\sharp$							

Here's another way of looking at the pattern:

										Number of Flats →		
						(5)	(6)	(7)				
(0)	(1)	(2)	(3)	(4)	D $\flat$	G $\flat$	C $\flat$					
C	F	B $\flat$	E $\flat$	A $\flat$				E	A	D	G	
					C $\sharp$	F $\sharp$	B	(4)	(3)	(2)	(1)	
					(7)	(6)	(5)					

← Number of Sharps

## *Everything You Always Wanted To Know (but were afraid to ask)*

### *About SCALES*

#### WHY ARE SCALES IMPORTANT?

Scales are our musical alphabet – the “rosetta stone” for unlocking harmony, form, and every other element of musical composition. They are present in every piece, sometimes existing in different patterns (thirds, arpeggios, skips, etc.)

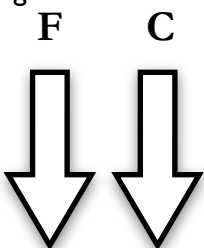
Try to recognize and learn how to APPLY your knowledge of scales so that you truly have ownership of them. It will make you a stronger and more complete musician!

#### TIPS FOR LEARNING SCALES

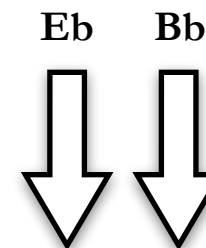
1. Sing and Fing first – say each letter name and visualize where you are on the staff. Finger/Slide/Valve each note deliberately and accurately.
2. Try to find different patterns within your music that resemble scales.
3. Think of each scale in “tetrachords” – find the half-steps.
4. Get to know the CIRCLE OF FOURTHS! This is the basis for key and tonality which leads to understanding of intonation, which leads to better balance, which leads to....you get the picture!

# GO PRACTICE AND HAVE FUN!

# CIRCLE OF FOURTHS



Start on the column for your transposition and read left to right until you get back to your starting key.



Mode	Solfege	Scale Degree	1b	2b	3b	4b	5b	7#	6b	6#	7b	5#	4#	3#	2#	1#	0
Ionian	<i>Do</i>	8	F	Bb	Eb	Ab	Db	C#	Gb	F#	Cb	B	E	A	D	G	C
Locrian	<i>Ti</i>	7	E	A	D	G	C	B#	F	E#	Bb	A#	D#	G#	C#	F#	B
Aeolian	<i>La</i>	6	D	G	C	F	Bb	A#	Eb	D#	Ab	G#	C#	F#	B	E	A
Mixolydian	<i>Sol</i>	5	C	F	Bb	Eb	Ab	G#	Db	C#	Gb	F#	B	E	A	D	G
Lydian	<i>Fa</i>	4	Bb	Eb	Ab	Db	Gb	F#	Cb	B	Fb	E	A	D	G	C	F
Phrygian	<i>Mi</i>	3	A	D	G	C	F	E#	Bb	A#	Eb	D#	G#	C#	F#	B	E
Dorian	<i>Re</i>	2	G	C	F	Bb	Eb	D#	Ab	G#	Db	C#	F#	B	E	A	D
Ionian	<i>Do</i>	1	F	Bb	Eb	Ab	Db	C#	Gb	F#	Cb	B	E	A	D	G	C

Order of Sharps: F C G D A E B  
Order of Flats: B E A D G C F



Enharmonic Keys  
Pick one in each column  
(Red OR Blue Key)

## LEARNING SCALES & CHANGES

### General Procedure:

- Add-a-note to scale degree 5 (1 - 2 - 3 - 4 - 5)
- Tonic Triad (1 - 3 - 5 - 3 - 1)
- Add remainder of the scale (6 - 7 - 8 - 9)
- Practice **chord tones (1 - 3 - 5 - 7 - 9)**
- **Chord tones plus descending scale (1 - 3 - 5 - 7 - 9 8 7 6 5 4 3 2 1)**
- **"Sha-doodle-ah"** on each of the chord tones ascending and descending on all chord tones (1, 3, 5, 7, 9)



Sha-do-dle-ah Dah

- 1 - 3 - 5 - 7 - 9 | 9 - 7 - 5 - 3 - 1
  - 3 - 5 - 7 - 9 - 3 | 3 - 9 - 7 - 5 - 3
  - 5 - 7 - 9 - 3 - 5 | 5 - 3 - 9 - 7 - 5
  - 7 - 9 - 3 - 5 - 7 | 7 - 5 - 3 - 9 - 7
- **Lower Chromatic Half-Step** (Bb: Bb-A-Bb - D-Db-D - F-E-F - A-Ab-A - C-B-C) on all chord tones.
  - Add **minor pentatonics**

### Pentatonics

To construct a **minor** pentatonic, use the pattern **1 - b3 - 4 - 5 - b7** (6 - 1 - 2 - 3 - 4)

To construct a **major** pentatonic, use the pattern **1 - 2 - 3 - 5 - 6**

- **Pentatonic 1:** Start on ii7 [**2 - 4 - 5 - 6 - 1**] in Bb: C, Eb, F, G, Bb
  - **Pentatonic 2:** Go up a **Perfect 5th** [**6 - 1 - 2 - 3 - 5**] in Bb: G, Bb, C, D, F
  - **Pentatonic 3:** Go up a **Perfect 5th** [**3 - 5 - 6 - 7 - 2**] in Bb: D, F, G, A, C
  - **Pentatonic 4:** Go up a **Perfect 5th** [**7 - 2 - 3 - #4 - 6**] in Bb: A, C, D, E, G
- Note: Use only on the last chord (I Chord) of the progression.