

# HOW MUSIC WORKS



## How Music Works: Scales, Keys, Intervals & Chords

Do you feel lost when the subject of scales or what notes make up a chord come up?

These things are the building blocks of music, harmony and soloing.

For the next few sessions, we'll be doing a short series on How Music Works.

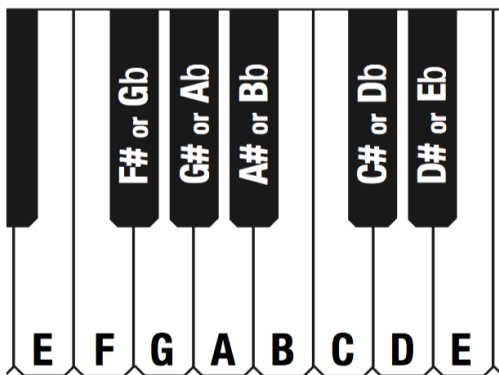
You'll learn...

- What Notes are in Any Major Scale
- How to Tell the Key of Any Song
- Major and Minor Intervals
- What Notes are in Any Major, Minor, Diminished, or Augmented Chord

## Half-Steps & Whole Steps

A HALF-STEP is the distance from any note to the very next note. A WHOLE STEP is two half-steps put together.

On a guitar, each fret is a half-step apart. On a piano, each key, whether white or black, is a half-step apart from the next key.



Even though some white keys on a piano are next to each other, often they will have a black key in between them.

The distance from the first white key to the in-between black key is a half-step. From a white key to another white key, with a black key in between, is a whole step.

**The only naturally occurring half-steps are between E to F and B to C.**

Naturally occurring means that without using sharps or flats the intervals of E to F and B to C are the only adjacent pairs that are half-steps. Between these two intervals there is only a half-step difference. All of the other pairs of adjacent notes, without sharps or flats involved, are whole steps.

On our keyboard there are no black keys between E - F and B - C. On a guitar, each of these two pairs of notes are side by side with no note in between them.

# Major Scales

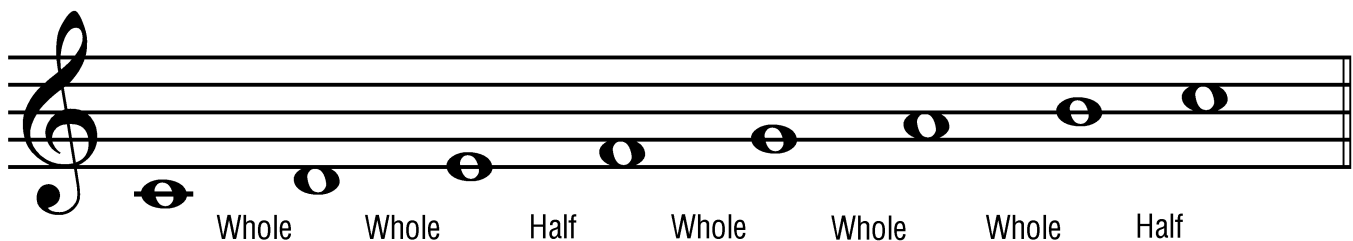
Scales are the alphabet of music – the very building blocks of every solo, chord progression and song.

Major scales are built on a specific pattern of half-step and whole-step intervals.

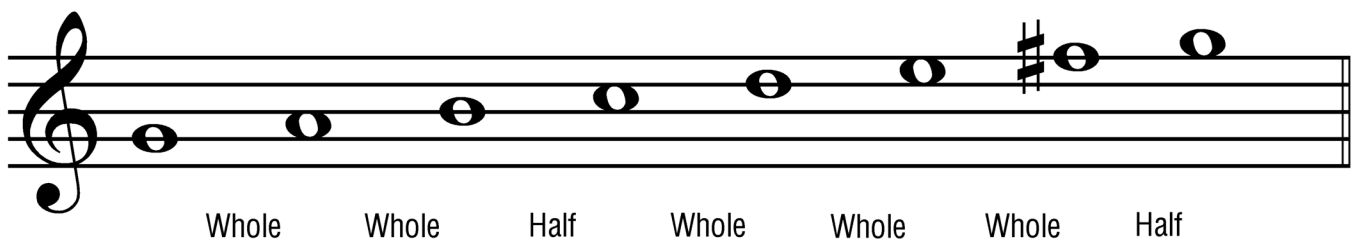
The pattern for a major scale is **Whole-step, Whole-step, Half-step, Whole-step, Whole-step, Whole-step, Half-step**.

Starting on any note, if you follow this pattern you will build a major scale in the note's key.

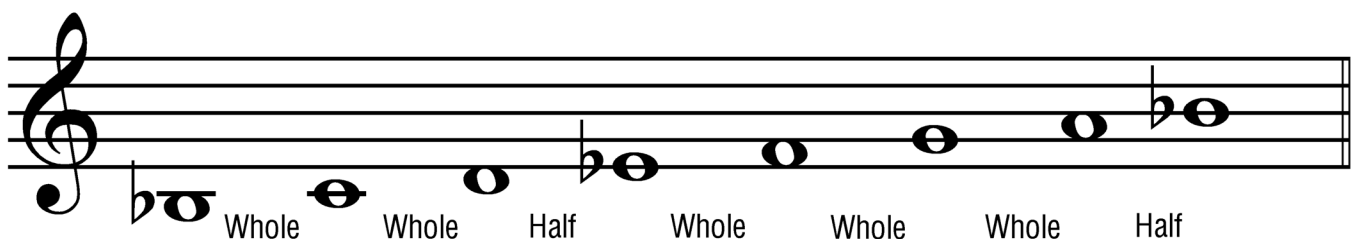
If we started on a C and built up whole-steps and half-steps in the major scale pattern you would get a C major scale.



If we started on a G and built up whole-steps and half-steps in the major scale pattern you would get a G major scale with the added sharp on F# in order to make the pattern work.



If we started on a Bb and built up whole-steps and half-steps in the major scale pattern you would get a Bb major scale with the added flats on Bb and Eb in order to make the pattern work.



# Major Scales Worksheet

Fill in the major scale notes following the whole-step half-step major scale interval pattern. Determine the number of different sharps and flats for each scale. List the sharps or flats used in each scale in the proper order.

Completing this worksheet numerous times helps build the necessary memory recognition of these major scales.

✓ Check your answers with the answer key at the back of the book.

	Whole	Whole	Half	Whole	Whole	Whole	Half	How many sharps (#) or flats (b)?	What are they?
C	<u>D</u>	<u>E</u>	_____	_____	_____	_____	_____	<u>none</u>	_____

The following scales all contain SHARPS.

G	_____	_____	_____	_____	_____	<u>F#</u>	_____	_____	<u>F#</u>
D	_____	<u>F#</u>	_____	_____	_____	<u>C#</u>	_____	_____	<u>F#, C#</u>
A	_____	_____	_____	_____	_____	_____	_____	<u>3#'s</u>	_____
E	_____	_____	_____	_____	_____	_____	_____	_____	_____
B	_____	_____	_____	_____	_____	_____	_____	_____	_____
F#	_____	_____	_____	_____	_____	<u>E#</u>	<u>F#</u>	_____	_____

The following scales all contain FLATS.

F	_____	_____	<u>Bb</u>	_____	_____	_____	_____	_____	_____
Bb	_____	_____	_____	_____	_____	_____	_____	_____	_____
Eb	_____	_____	<u>Ab</u>	_____	_____	_____	_____	<u>3b's</u>	_____
Ab	_____	_____	_____	_____	_____	_____	_____	_____	<u>Bb, Eb, Ab, Db</u>
Db	_____	_____	_____	_____	_____	_____	_____	_____	_____
Gb	_____	_____	<u>Cb</u>	_____	_____	_____	_____	_____	_____

# Major Scales Mixed Worksheet

The order of the scales is mixed between flat and sharp major scales. Fill in major scale notes following the whole-step half-step major scale interval pattern. Determine the number of different sharps and flats for each scale. List the sharps or flats used in each scale in the proper order.

✓ Check your answers with the answer key at the back of the book.

	<i>Whole</i>	<i>Whole</i>	<i>Half</i>	<i>Whole</i>	<i>Whole</i>	<i>Whole</i>	<i>Half</i>	<i>How many sharps (#) or flats (b)?</i>	<i>What are they?</i>
C	_____	_____	_____	_____	_____	_____	_____	_____	_____
Bb	_____	_____	_____	_____	_____	_____	_____	_____	_____
D	_____	_____	_____	_____	_____	_____	_____	_____	_____
Ab	_____	_____	_____	_____	_____	_____	_____	_____	_____
E	_____	_____	_____	_____	_____	_____	_____	_____	_____
Gb	_____	_____	_____	_____	_____	_____	_____	_____	_____
F#	_____	_____	_____	_____	_____	_____	_____	_____	_____
Db	_____	_____	_____	_____	_____	_____	_____	_____	_____
A	_____	_____	_____	_____	_____	_____	_____	_____	_____
Eb	_____	_____	_____	_____	_____	_____	_____	_____	_____
B	_____	_____	_____	_____	_____	_____	_____	_____	_____
F	_____	_____	_____	_____	_____	_____	_____	_____	_____
G	_____	_____	_____	_____	_____	_____	_____	_____	_____

# Major Scale Table Worksheet

Fill in the major scale notes on the following table. Remember, the naturally occurring half-steps are between E-F and B-C.

Check your answers with the answer key at the back of the book.

	<i>Whole Step</i>	<i>Whole Step</i>	<i>Half Step</i>	<i>Whole Step</i>	<i>Whole Step</i>	<i>Whole Step</i>	<i>Half Step</i>
<b>C</b>	<b>D</b>						
<b>F</b>		<b>A</b>					
<b>Bb</b>			<b>Eb</b>				
<b>Eb</b>				<b>Bb</b>			
<b>Ab</b>					<b>F</b>		
<b>Db</b>						<b>C</b>	
<b>Gb</b>							<b>Gb</b>
<b>F#</b>						<b>E#</b>	
<b>B</b>					<b>G#</b>		
<b>E</b>				<b>B</b>			
<b>A</b>			<b>D</b>				
<b>D</b>		<b>F#</b>					
<b>G</b>	<b>A</b>						

# The Ultimate Major Scale Mixup

Fill in the major scale notes on the following table. The order of the scales has been mixed up. Each scale will have one note given in a specific place in the major scale pattern. Given the one starting clue you should be able to fill in the rest of the scale by following the major scale pattern.

<i>Whole Step</i>	<i>Whole Step</i>	<i>Half Step</i>	<i>Whole Step</i>	<i>Whole Step</i>	<i>Whole Step</i>	<i>Half Step</i>
				<b>F</b>		
		<b>F#</b>				
						<b>E</b>
<b>B</b>						
						<b>D</b>
		<b>E</b>				
				<b>Db</b>		
		<b>G#</b>				
						<b>F#</b>
						<b>Db</b>
	<b>B</b>					
					<b>D#</b>	
			<b>Db</b>			

# Keys and Key Signatures

When major scales are derived, certain combinations of flats and sharps are created. These specific combinations of flats or sharps in a given major scale key is called its **KEY SIGNATURE**. A key signature will never have both sharps and flats in it simultaneously. The order of the sharps and flats in a key signature come in a predictable sequence. Key signatures are shown after the clef in music.

**The order of sharps is F#, C#, G#, D#, A#, E#. The order of flats is Bb, Eb, Ab, Db, Gb, Cb.**

## Keys and Key Signatures Worksheet

Using your knowledge of major scales, determine the proper key and list the key signature. List the sharps or flats in the key signature in the proper order.

- 1) What key has 4 sharps in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 2) What key has 3 flats in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 3) What key has 2 sharps in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 4) What key has 4 flats in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 5) In the key of Bb, what note(s) are sharped/flatted? \_\_\_\_\_
- 6) In the key of G, what note(s) are sharped/flatted? \_\_\_\_\_
- 7) In the key of C, what note(s) are sharped/flatted? \_\_\_\_\_
- 8) In the key of E, what note(s) are sharped/flatted? \_\_\_\_\_
- 9) In the key of Eb, what note(s) are sharped/flatted? \_\_\_\_\_
- 10) What key has 2 flats in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 11) What key has 5 flats in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 12) What key has 1 sharp in its key signature? \_\_\_\_\_ What is it? \_\_\_\_\_
- 13) What key has 3 sharps in its key signature? \_\_\_\_\_ What are they? \_\_\_\_\_
- 14) If the key signature has an F# and a C# in it, what's the key? \_\_\_\_\_
- 15) If the key signature has a Bb, Eb, Ab, and a Db, what's the key? \_\_\_\_\_
- 16) If the key signature is Bb and Eb, what's the key? \_\_\_\_\_
- 17) If the key signature is F#, C#, G#, and D#, what's the key? \_\_\_\_\_
- 18) If the key signature is Bb, Eb, Ab, Db, Gb, and Cb, what's the key? \_\_\_\_\_

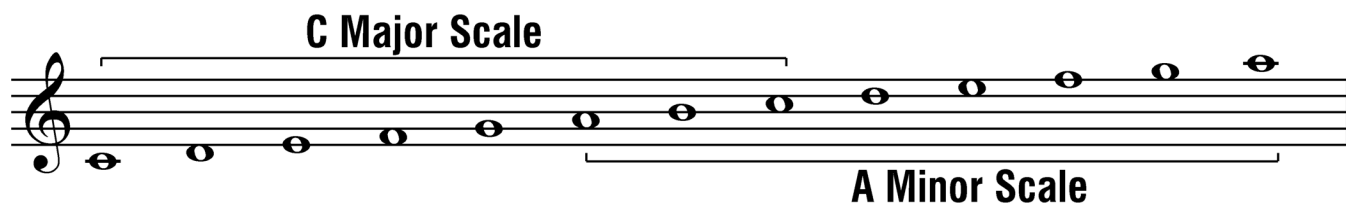
# Relative Major and Minor Scales

There is a unique relationship between the keys of major scales and minor scales. This relationship is called RELATIVE.

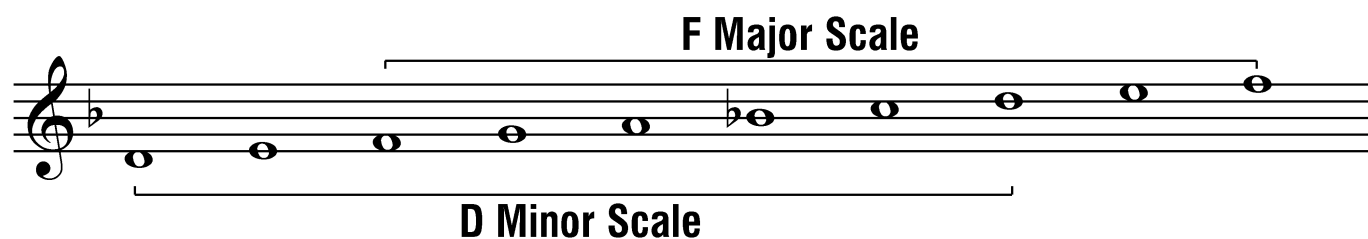
**Relative major and minor scales share the same key signature.**

To derive a relative minor scale: Go to the 6<sup>th</sup> step of the major scale and build an 8 note scale in that key. You can get to the 6<sup>th</sup> step of any major scale by either going up 6 steps from the root or down two steps from the root.

So, the C major scale and the A minor scale share the same key signature. Therefore, A is the relative minor of C major and conversely, C major is the relative major of A minor.



Let's look at another example.



Here's a list of all 12 keys and their relative major and minor scales.

<u>Relative Major</u>	<u>Relative Minor</u>
C Major	A Minor
Db Major	Bb Minor
D Major	B Minor
Eb Major	C Minor
E Major	C# Minor
F Major	D Minor
F# Major	D# Minor
Gb Major	Eb Minor
G Major	E Minor
Ab Major	F Minor
A Major	F# Minor
Bb Major	G Minor
B Major	G# Minor



# Determining a Key from a Key Signature














There are two simple rules to help you determine a key from the key signature written on a piece of music.

**For Keys with Sharps:** The key is one half step UP from the last sharp in the key signature.

For example, if the key signature is F#, C#, G#, then the last sharp is G#. One half step up from G# is A. The key is A.












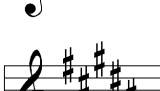
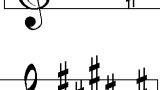
**For Keys with Flats:** The key is the next to last flat in the key signature.

For example, if the key signature is Bb, Eb, Ab, then the next to last flat is Eb. The key is Eb. (Remember, if the key signature has only one flat then the key is F.)

	<u>Key Signature</u>	<u>What's the Key?</u>		<u>Key Signature</u>	<u>What's the Key?</u>
1)		_____	8)		_____
2)		_____	9)		_____
3)		_____	10)		_____
4)		_____	11)		_____
5)		_____	12)		_____
6)		_____	13)		_____
7)		_____			

# Major Scales and Key Signature List

**STOP! Do yourself a favor. Take a few minutes or a few days to put these important things to memory. If you don't, then you will be constantly turning back to this page to remind yourself. The concepts after this all assume you know key signatures to all of the keys from memory.**

<u>Key</u>	<u>Key Signature</u>	<u>Major Scale</u>
<b>C</b>	 No sharps or flats	C D E F G A B C
<b>F</b>	 Bb	F G A Bb C D E F
<b>Bb</b>	 Bb, Eb	Bb C D Eb F G A Bb
<b>Eb</b>	 Bb, Eb, Ab	Eb F G Ab Bb C D Eb
<b>Ab</b>	 Bb, Eb, Ab, Db	Ab Bb C Db Eb F G Ab
<b>Db</b>	 Bb, Eb, Ab, Db, Gb	Db Eb F Gb Ab Bb C Db
<b>Gb</b>	 Bb, Eb, Ab, Db, Gb, Cb	Gb Ab Bb Cb Db Eb F Gb
<b>G</b>	 F#	G A B C D E F# G
<b>D</b>	 F#, C#	D E F# G A B C# D
<b>A</b>	 F#, C#, G#	A B C# D E F# G# A
<b>E</b>	 F#, C#, G#, D#	E F# G# A B C# D# E
<b>B</b>	 F#, C#, G#, D#, A#	B C# D# E F# G# A# B
<b>F#</b>	 F#, C#, G#, D#, A#, E#	F# G# A# B C# D# E# F#

# Keys and Key Signature Flash Cards

Learning all of the keys and their matching key signatures can seem like a daunting task. Here is a simple way to put these important pieces of information to memory. Copy this page and cut out the 13 flash cards. Fold each card along the dotted line. You can put a piece of tape along the other side to close up the edges to make one solid card.

**The Key of C**



**No Sharps or Flats**

**The Key of F**



**1 Flat  
Bb**

**The Key of Bb**



**2 Flats  
Bb, Eb**

## The Key of Eb



**3 Flats**  
**Bb, Eb, Ab**

## The Key of Ab



**4 Flats**  
**Bb, Eb, Ab, Db**

## The Key of Db



**5 Flats**  
**Bb, Eb, Ab, Db, Gb**

## The Key of Gb



**6 Flats**  
**Bb, Eb, Ab, Db, Gb, Cb**

## The Key of G



**1 Sharp**  
**F#**

## The Key of D



**2 Sharps**  
**F#, C#**

## The Key of A



**3 Sharps**  
**F#, C#, G#**

## The Key of E



**4 Sharps**  
**F#, C#, G#, D#**

## The Key of B



**5 Sharps**  
**F#, C#, G#, D#, A#**

## The Key of F#



**6 Sharps**  
**F#, C#, G#, D#, A#, E#**