

## A Spectrum of Modes

<p>↑</p> <p><i>"Brighter"</i></p> <p>↓</p> <p><i>"Darker"</i></p>	1	2	3	$\sharp 4$	5	6	7	<b>Lydian</b>
	1	2	3	4	5	6	7	<b>Ionian (Major)</b>
	1	2	3	4	5	6	$\flat 7$	<b>Mixolydian</b>
	1	2	$\flat 3$	4	5	6	$\flat 7$	<b>Dorian</b>
	1	2	$\flat 3$	4	5	$\flat 6$	$\flat 7$	<b>Aeolian (Minor)</b>
	1	$\flat 2$	$\flat 3$	4	5	$\flat 6$	$\flat 7$	<b>Phrygian</b>
	1	$\flat 2$	$\flat 3$	4	$\flat 5$	$\flat 6$	$\flat 7$	<b>Locrian</b>

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## Why Study Music Theory?

Many *extremely* proficient musicians play quite well with little or no knowledge of music theory, so why study it?

The answer is very practical and very simple: *music theory gives you “shortcuts” to finding tones that sound good together, so you don’t have to learn by trial and error.*

This tutorial will teach you some foundational concepts of music theory, including *intervals, scales, and keys.*

## The Purpose of This Tutorial

This tutorial will teach you what modes are and how to play them. Mastering these concepts will enable you to:

- Switch between different modes within a given key signature
- Switch between different modes for a given tonic
- Alter the “feeling” of a tune by modifying its mode
- Determine the mode of a tune by its key signature and tonic

You will maximize your learning by experimenting with all these concepts on your instrument(s) while you read the tutorial.

Any text set in *italicized red* denotes an exercise recommended for immediate application or a question for you to answer.

## Starting Assumptions

This tutorial assumes prior knowledge of certain music theory topics, including *intervals*, *scales*, and *keys*. In particular, you should be familiar with *major keys* and *major scales*: how to play them on your instrument and how to easily identify their constituent tones. A *brief* refresher on these topics is included in this section.

This tutorial also assumes a context of Western music, particularly the common genres of folk and classical. In other words, nothing too crazy . . .


A musical *interval* is the difference<sup>1</sup> in pitch between two tones. The basic unit of measurement for intervals is the *step*.

One half-step is the difference in pitch between two successive frets on a guitar, or between two immediately adjacent keys on a piano. When we modify a natural tone to make it either “sharp” or “flat” we are applying a half-step interval.

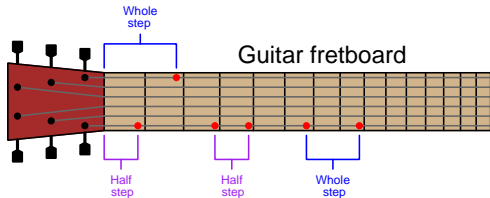
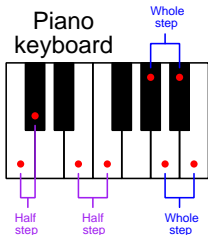
One whole-step is equal to two half-steps: a distance of two frets on a guitar, or two keys on a piano with one key in between.

Whole- and half-steps are alternatively referred to as *whole-tone* and *semi-tone* intervals.

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<sup>1</sup>Mathematically, an interval is a *ratio* of pitch frequencies. 

# Half- and Whole-Step Examples



*Try playing half-step and whole-step intervals on your instrument to explore what they sound like!*

*How many steps are in one octave (i.e. the point at which the tone-letters repeat)? Prove it by playing a one-octave interval on your instrument!*

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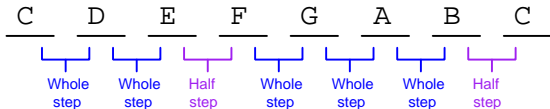
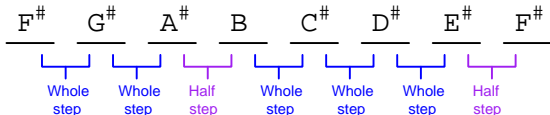
A *scale* is a particular sequence of tones played in either ascending or descending order of pitch. *Any* such sequence is fair to call a “scale,” but some scales are more common than others.

Examples of common scale types include *major* and *minor*.

The pattern of intervals between scale-tones defines the quality (major, minor) of that scale. Every major scale, for example, exhibits the exact same interval pattern between its tones.

## Major Scales

**Major** scales follow the interval<sup>2</sup> sequence W-W-H-W-W-W-H.  
C major and F-sharp major are shown as examples:

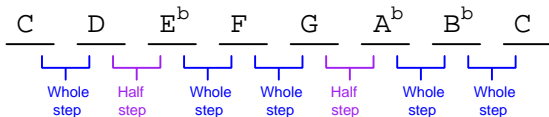
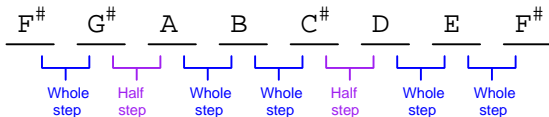
**C major scale:****F# major scale:**

<sup>2</sup>W = Whole step ; H = Half step



## Minor Scales

**Natural minor** scales follow the interval<sup>3</sup> sequence W-H-W-W-H-W-W. Again, C and F-sharp are shown as scale examples:

**C natural minor scale:****F<sup>#</sup> natural minor scale:**

<sup>3</sup>W = Whole step ; H = Half step

## Scale Degrees

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A common way to describe tones within a scale is by their numerical order in the sequence. The beginning tone of any scale is called the *tonic* and is numbered as degree 1. Successive ascending tones are numbered accordingly.

For example, the scale of C major (C-D-E-F-G-A-B-C) would have its tones labeled 1-2-3-4-5-6-7-8 respectively. Notice that the last tone in this scale (C) is the eighth degree, which is why it is called the *octave*.

Since we know that intervals really define the tonal characteristic of any musical piece, we may describe a melody by its degree number rather than by tone letters. For example, the opening tones of “Mary Had A Little Lamb” could be described as 3-2-1-2-3-3-3 regardless of the starting tone (e.g. E-D-C-D-E-E-E, B-A-G-A-B-B-B, etc.):

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Two important concepts in music are *tension* and *resolution*. These are subjective terms, referring to sensations experienced by the listener when hearing different intervals within a scale or tune.

Resolution may be easily illustrated by playing a major scale.

*For example, try playing the D major scale shown here:*

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

That sense of *completion* or *satisfaction* upon returning to the octave D tone is the musical phenomenon of the scale *resolving to its tonic*. The scale begins on D, then increases pitch in whole- and half-steps, and finally “returns home” to D.

# Tension and Resolution

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Tension may be illustrated just as easily by playing a *partial* scale. *Try playing the D major scale again, but this time stop short of playing the entirety. Some examples are shown here:*

**D-E-F#-G-A-B-C# . . . .**

**D-E-F#-G-A-B . . . .**

That sense of *incompleteness* or *irresolution* created by the partial scale is the musical phenomenon of *tension*.

*In playing partial D major scales, which ending degrees of the scale result in the greatest tension?*

## Tension and Resolution

Tension and resolution make tunes interesting, much like storytelling: tension in a story builds to a climax, after which there is resolution.

Not all melodies end in perfect resolution, although many do. A compositional technique used in many folk tunes is to end the tune on a non-resolving note (i.e. end with a feeling of tension) but begin again either on the resolving tone or on one with less tension than the last. This makes everyone want to repeat the tune in order to make it seem “complete”.

An example of this is the traditional Irish slip jig *Drops Of Brandy* which ends on an E note although the tune is clearly centered around D. Another example is the traditional Irish reel *The Wind That Shakes The Barley* which is also centered around D but ends on a B note.

## Major and Minor Keys

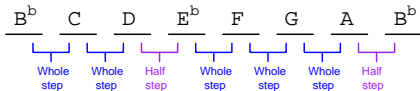
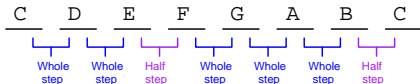
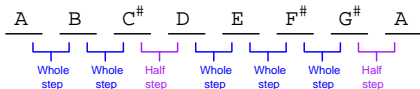
A *key* is a collection of tones covering all seven letter-names with one tone (called the *tonic*) providing a focal point for any tune composed in that key.

The overall “feel” of a key is determined by the intervals between its tones. Two common types of keys used in Western music are the *major* and *minor* keys. As we will see, these two types of keys are really just two out of seven possible *modes*, each one having a different “quality” or “mood”.

We will explore keys and modes primarily through *scales*, which are sequences of key-tones arranged in simple ascending or descending pitch.

## Major Keys

Major keys are defined by the interval sequence  
W-W-H-W-W-W-H as shown in the following scale examples:

**B<sup>b</sup> major scale:****C major scale:****A major scale:**

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Any key is “major” if its tones adhere to the W-W-H-W-W-W-H interval sequence. When played as a scale, the tonic of the key will be the first and last tones.

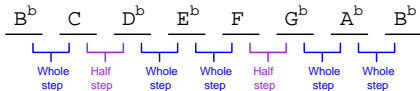
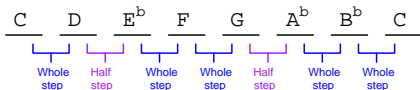
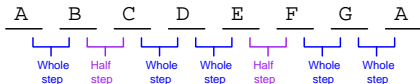
*Try playing some major scales right now! Pay attention to the common “mood” of each scale: regardless of the chosen tonic, every major scale seems to instill the same subjective sensation and is immediately recognizable as a “major” scale because of this.*

Major scales are conventionally associated in Western culture with “happy” feelings.



## Minor Keys

Minor keys are defined by the interval sequence  
W-H-W-W-H-W-W as shown in the following scale examples:

**B<sup>b</sup> minor scale:****C minor scale:****A minor scale:**

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Any key is “minor” if its tones adhere to the W-H-W-W-H-W-W interval sequence. When played as a scale, the tonic of the minor key will be the first and last tones.

*Try playing some minor scales right now! Pay attention to the common “mood” of each scale: regardless of the chosen tonic, every minor scale seems to instill the same subjective sensation and is immediately recognizable as a “minor” scale because of this.*

Minor scales are conventionally associated in Western culture with “sad” feelings. Note that there exist multiple types of minor scales (e.g. natural minor, harmonic minor, melodic minor), but in this tutorial the term “minor” is assumed to mean this *natural minor* scale.

## Relative and Parallel Keys

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Sometimes a major key and a minor key share common features. When they do, we refer to those major-minor key pairs as either “relative” or “parallel” keys.

*Relative keys* share the exact same tones, but have different tonics. An example of relative keys are C major and A minor: they both share the same set of tones but have different tonics. The C major scale is C-D-E-F-G-A-B-C and the A minor scale is A-B-C-D-E-F-G-A.

*Parallel keys* share the exact same tonic, but have some different tones. An example of relative keys are A major and A minor: the both share the same tonic, but differ in some of their other tones. The A major scale is A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A and the A minor scale is A-B-C-D-E-F-G-A.

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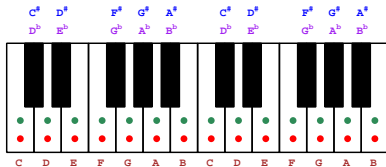
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The keys of C major and A minor are *relative* because they share all the same tones but have different tonics:



A minor = A-B-C-D-E-F-G-A . . .

C major = C-D-E-F-G-A-B-C . . .

Both C major and A minor consist of all the “white-key” piano tones, but C major resolves to C while A minor resolves to A.

*Try playing both of these scales to hear the difference between these two relative keys!*

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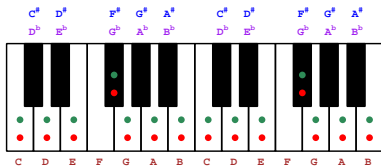
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The keys of G major and E minor are *relative* because they share all the same tones but have different tonics:



E minor = E-F<sup>#</sup>-G-A-B-C-D-E . . .

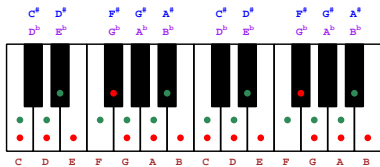
G major = G-A-B-C-D-E-F<sup>#</sup>-G . . .

Both keys consist of the exact same tones, but G major resolves to G while E minor resolves to E.

*Try playing both of these scales to hear the difference between these two relative keys!*

## Parallel Key Examples

The keys of G major and G minor are *parallel* because they share the same tonic but not all the same tones:



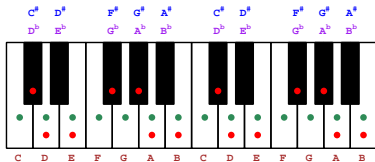
G minor = G-A-B<sup>b</sup>-C-D-E<sup>b</sup>-F-G . . .  
G major = G-A-B-C-D-E-F<sup>#</sup>-G . . .

Both keys resolve to G, but differ in three of their tones.

*Try playing both of these scales to hear the difference between these two relative keys!*

## Parallel Key Examples

The keys of A major and A minor are *parallel* because they share the same tonic but not all the same tones:



A minor = A-B-C-D-E-F-G-A . . .

A major = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A . . .

Both keys resolve to A, but differ in three of their tones.

*Try playing both of these scales to hear the difference between these two relative keys!*

## A Problem . . .

Many modern instruments are *chromatic*, which means they are capable of producing all twelve tones in the Western music system. A fair number of folk instruments, however, are called *diatonic* because they only play one tone per letter (i.e. seven tones per octave). In other words, diatonic instruments are “missing” some of the tones available on chromatic instruments.

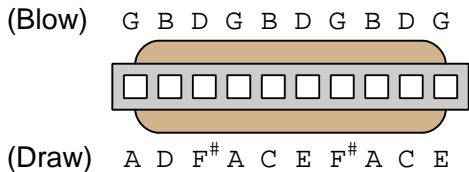
Examples of diatonic instruments include African marimbas, Irish whistles, most harmonicas, most dulcimers (both lap and hammered types), and some accordions.

This limitation means some musical keys are just not playable on diatonic instruments. The advantage of diatonic instruments, of course, is that they are easier to learn because there are fewer tones to master.



## G Major Diatonic Harmonica

Take a “G major” harmonica, for example. Whether blowing or drawing air through each hole, the only playable<sup>4</sup> tones are those belonging to the key of G major:



*Identify which holes you would have to blow and draw through to play a G major scale!*

<sup>4</sup>We will ignore the “bending” of certain notes possible with harmonicas.

## How To Make a Harmonica Minor?

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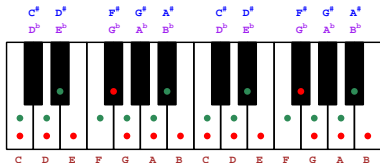
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A “G major” harmonica is perfectly capable of playing tunes written in the key of G major. But what if you want to play a *minor* key on that same harmonica? Certainly G minor is impossible because three of the tones are different from G major and therefore unavailable on that instrument.

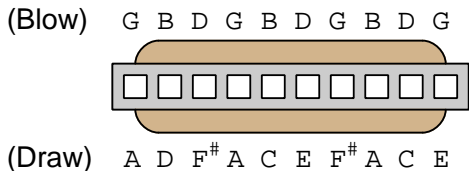


G minor = G-A-B<sup>b</sup>-C-D-E<sup>b</sup>-F-G . . .  
G major = G-A-B-C-D-E-F<sup>#</sup>-G . . .

A “G major” diatonic harmonica lacks B<sup>b</sup>, E<sup>b</sup>, and F tones!

## G Major Diatonic Harmonica

However, every major key has a *relative minor* using the same tones, just with a different tonic. In the case of G major, the relative minor key is *E minor* (E-F<sup>#</sup>-G-A-B-C-D-E).



*Identify which holes you would have to blow and draw through to play an E minor scale!*

## G Major / E Minor Compared

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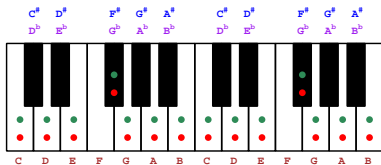
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Examine the relative keys of G major and E minor, written as scales to the right of the piano:



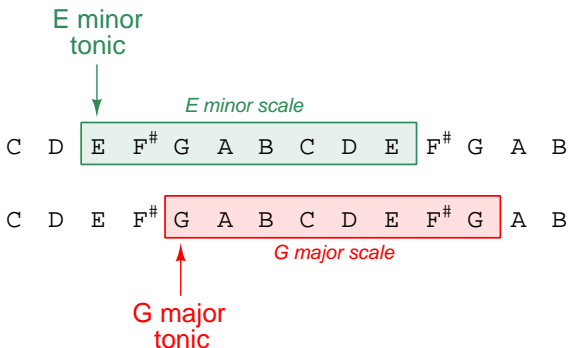
E minor = E-F<sup>#</sup>-G-A-B-C-D-E . . .

G major = G-A-B-C-D-E-F<sup>#</sup>-G . . .

*Can you determine how to pick the new tonic to turn G major into a minor key? i.e. Where is E in relation to G in this key?*

## Shifting The Tonic

The secret to converting a major key into its relative minor key is to *shift* the tonic two degrees back. Instead of starting on G, you start on the 6th degree (two degrees to the left) which places the new tonic at E and creates a minor key from the tones of a major key:



# Shifting The Tonic

This “trick” of shifting the tonic two degrees back works to convert *any* major key into its relative minor. Consider these examples:

*A minor scale*

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

Shift! ↙

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

*C major scale*

*B minor scale*

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

Shift! ↙

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

*D major scale*

*F# minor scale*

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

Shift! ↙

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

*A major scale*

# Folk Music

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The simplicity of creating a minor key using an instrument designed to play a major key – by shifting the tonic – explains why certain major and minor keys are so common in folk music genres. These are the *only* major and minor keys playable on certain folk instruments!

This same simplicity helps musicians playing chromatic folk instruments as well (e.g. fiddle): if you are accustomed to playing a limited set of major keys, the relative minors of those keys will use the exact same finger positions! For example, the relative keys of A major and F<sup>#</sup> minor use the same tones, and so tunes set in F<sup>#</sup> minor will be easy to play for any musician accustomed to playing tunes in A major.

## There's More Than Just Major and Minor!

If we can alter the “mood” of a key from major to minor just by shifting the tonic two degrees down and retaining all of the original key's tones, what other possibilities exist? If there are seven tones in a diatonic scale, then there ought to be *seven* different tonic-shifts possible, each one having its own unique mood or “feel”!

For example, if we take the tones in a G major scale (G-A-B-C-D-E-F<sup>#</sup>-G) and make new scales by shifting the tonic, we should have seven scales in total: the major scale starting on G, a different scale starting on A, another scale starting on B, etc. The term used to describe each of these variants is *mode*.

In the modern Western system of music, each mode is given a Greek name. The conventional “major” mode is called *Ionian* while the natural “minor” mode is called *Aeolian*.



## The Modes of G

Here are the seven modes made from the tones of G major spanning two octaves:

G A B C D E F# G	A B C D E F# G	<b>G Ionian (G Major)</b>
G A B C D E F# G A	B C D E F# G	<b>A Dorian</b>
G A B C D E F# G A B	C D E F# G	<b>B Phrygian</b>
G A B C D E F# G A B C	D E F# G	<b>C Lydian</b>
G A B C D E F# G A B C D	E F# G	<b>D Mixolydian</b>
G A B C D E F# G A B C D E	F# G	<b>E Aeolian (E Minor)</b>
G A B C D E F# G A B C D E F#	G	<b>F# Locrian</b>

*Try playing each of these modes to experience the unique quality or "feel" imparted by them! Which of them seems most commonplace? Which of them seems most exotic? Which of them most cheerful? Which of them most melancholy?*

## G Major Harmonica

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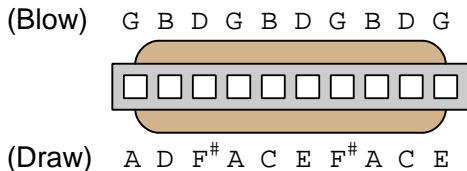
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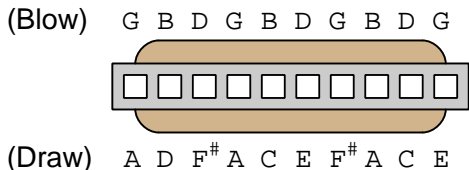
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Returning to our diatonic harmonica example, the existence of seven modes means this instrument is not limited to playing only tunes in G major!



Our G major harmonica is actually capable of playing *six other modes*, and therefore *seven* different qualities or “feels” of melodies in total. The limitation is in the tonic: only one tonic per mode is possible with a diatonic instrument.

## G Major Harmonica



*Identify which holes you would have to blow and draw through to play an A dorian scale!*

*Identify which holes you would have to blow and draw through to play a D mixolydian scale!*

*Identify which holes you would have to blow and draw through to play an F# locrian scale!*

# “Modal” Music?

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Sometimes you will hear musicians refer to some tunes as being “modal,” by which they mean tunes that are neither in the standard major key (Ionian mode) nor the natural minor key (Aeolian mode).

In reality, though, major and minor are just two out of seven possible modes! This means that *all* Western music may be properly considered “modal”. It’s just that the Ionian and Aeolian modes happen to be more common in modern Western music than the other five modes.

# Commonly Used Modes

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The existence of *seven* modes for every diatonic tone-set may seem daunting, especially if you are in the process of committing all the major keys to memory. However, there is good news for you here: the most common of the seven modes are Ionian (Major), Aeolian (Minor), Mixolydian, and Dorian.

Unless you're playing jazz, though, you are unlikely to encounter any of the other three modes (Lydian, Phrygian, or Locrian).

## Relative Modes

To find any mode of any major key, the pattern is the same: shift the tonic to a specific degree. As we previously saw with the key of G major, we could find its relative minor key by shifting the tonic to the *6th* degree tone (E). As it so happens, shifting to the *2nd* degree tone yields the Dorian mode, and shifting to the *5th* degree tone yields the Mixolydian mode.

First, list all the tones of the major scale, in order from 1st to 7th and then returning to the tonic one octave up (8th). Then find the 2nd degree for the tonic of the dorian mode, the 5th degree for the tonic of the mixolydian mode, and the 6th degree for the tonic of the aeolian (minor) mode.

The concept of relative modes is useful for players of diatonic instruments, to know which modes are available to them to play.

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Here are the tones comprising the key of C major:

C-D-E-F-G-A-B-C

*Identify the dorian mode relative to C major!*

*Identify the mixolydian mode relative to C major!*

*Identify the minor mode relative to C major!*

## Answers: some modes of C major

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D Dorian = **D-E-F-G-A-B-C-D**

G Mixolydian = **G-A-B-C-D-E-F-G**

A Minor = **A-B-C-D-E-F-G-A**



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Here are the tones comprising the key of G major:

G-A-B-C-D-E-F<sup>#</sup>-G

*Identify the mixolydian mode relative to G major!*

*Identify the dorian mode relative to G major!*

*Identify the minor mode relative to G major!*

## Answers: some modes of G major

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D Mixolydian = **D-E-F<sup>#</sup>-G-A-B-C-D**

A Dorian = **A-B-C-D-E-F<sup>#</sup>-G-A**

E Minor = **E-F<sup>#</sup>-G-A-B-C-D-E**

# Practice: some modes of D major

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Here are the tones comprising the key of D major:

D-E-F<sup>#</sup>-G-A-B-C<sup>#</sup>-D

*Identify the minor mode relative to D major!*

*Identify the mixolydian mode relative to D major!*

*Identify the dorian mode relative to D major!*

## Answers: some modes of D major

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**B Minor = B-C<sup>#</sup>-D-E-F<sup>#</sup>-G-A-B****A Mixolydian = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G-A****E Dorian = E-F<sup>#</sup>-G-A-B-C<sup>#</sup>-D-E**

## Practice: some modes of A major

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Here are the tones comprising the key of A major:

A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A

*Identify the mixolydian mode relative to A major!*

*Identify the minor mode relative to A major!*

*Identify the dorian mode relative to A major!*

## Answers: some modes of A major

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E Mixolydian = **E-F#-G#-A-B-C#-D-E**

F# Minor = **F#-G#-A-B-C#-D-E-F#**

B Dorian = **B-C#-D-E-F#-G#-A-B**

## Parallel Modes

Applying the principle of relative keys (shifted tonic) to find modes is useful when you wish to find the modes playable on a diatonic instrument. For players of *chromatic* instruments (possessing all 12 tones per octave), the problem of modes comes in a different form: *which tones comprise a given mode?*

For example, suppose you are in a musical session with no sheetmusic and someone calls out a tune in the key of *D Dorian*. Which tones will you be playing on your instrument for D Dorian? You know the tones of the D major scale because you've been practicing all the major scales, but how does that help you now?

What you need is a scheme to shift between *parallel* modes: where the tonic remains the same but some of the other tones are altered in pitch.

# Comparing Modes with their Parallel Major Keys

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In order to learn how to find parallel modes, we will need to identify some patterns based on major and “modal” scales we already know. The previous section (Relative Modes) listed Dorian, Mixolydian, and Minor modes for four different major keys, and so we will build on these examples to identify general patterns.

For example, we will take some of the modes previously shown and compare them side-by-side with their corresponding major scales to see what is different. We will examine multiple examples for each mode in order to identify universal patterns.



## Major versus Mixolydian

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Which tones differ between each of these parallel modes?

G Maj = G-A-B-C-D-E-F<sup>#</sup>-G

G Mix = G-A-B-C-D-E-F--G

D Maj = D-E-F<sup>#</sup>-G-A-B-C<sup>#</sup>-D

D Mix = D-E-F<sup>#</sup>-G-A-B-C--D

A Maj = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A

A Mix = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G--A

E Maj = E-F<sup>#</sup>-G<sup>#</sup>-A-B-C<sup>#</sup>-D<sup>#</sup>-E

E Mix = E-F<sup>#</sup>-G<sup>#</sup>-A-B-C<sup>#</sup>-D--E

# Major versus Mixolydian

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Did you notice how each of the Mixolydian scales had *one less sharp* than their parallel Major scales? Specifically, degree 7 was lowered in the Mixolydian scale compared to the parallel Major scale.

This is the rule of the Mixolydian mode: lower the 7th degree tone of a Major scale to create its parallel Mixolydian scale.

## Major versus Dorian

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Which tones differ between each of these parallel modes?

D Maj = D-E-F<sup>#</sup>-G-A-B-C<sup>#</sup>-D

D Dor = D-E-F--G-A-B-C--D

A Maj = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A

A Dor = A-B-C--D-E-F<sup>#</sup>-G--A

E Maj = E-F<sup>#</sup>-G<sup>#</sup>-A-B-C<sup>#</sup>-D<sup>#</sup>-E

E Dor = E-F<sup>#</sup>-G--A-B-C<sup>#</sup>-D--E

B Maj = B-C<sup>#</sup>-D<sup>#</sup>-E-F<sup>#</sup>-G<sup>#</sup>-A<sup>#</sup>-B

B Dor = B-C<sup>#</sup>-D--E-F<sup>#</sup>-G<sup>#</sup>-A--B

# Major versus Dorian

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Did you notice how each of the Dorian scales had *two fewer sharps* than their parallel Major scales? Specifically, degrees 3 and 7 were lowered in the Dorian scale compared to the parallel Major scale.

This is the rule of the Dorian mode: lower the 3rd and 7th degree tones of a Major scale to create its parallel Dorian scale.

## Major versus Minor

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Which tones differ between each of these parallel modes?

A Maj = A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A

A Min = A-B-C--D-E-F--G--A

E Maj = E-F<sup>#</sup>-G<sup>#</sup>-A-B-C<sup>#</sup>-D<sup>#</sup>-E

E Min = E-F<sup>#</sup>-G--A-B-C--D--E

B Maj = B-C<sup>#</sup>-D<sup>#</sup>-E-F<sup>#</sup>-G<sup>#</sup>-A<sup>#</sup>-B

B Min = B-C<sup>#</sup>-D--E-F<sup>#</sup>-G--A--B

F<sup>#</sup> Maj = F<sup>#</sup>-G<sup>#</sup>-A<sup>#</sup>-B-C<sup>#</sup>-D<sup>#</sup>-E<sup>#</sup>-F<sup>#</sup>

F<sup>#</sup> Min = F<sup>#</sup>-G<sup>#</sup>-A--B-C<sup>#</sup>-D--E--F<sup>#</sup>

# Major versus Minor

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Did you notice how each of the Natural Minor scales had *three fewer sharps* than their parallel Major scales? Specifically, degrees 3, 6, and 7 were lowered in the Minor scale compared to the parallel Major scale.

This is the rule of the Aeolian (Natural Minor) mode: lower the 3rd, 6th, and 7th degree tones of a Major scale to create its parallel Minor scale.

## Major versus any other Mode

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When converting Major into Mixolydian, we lower one scale tone: the 7th degree.

When converting Major into Dorian, we lower two scale tones: the 3rd and 7th degrees.

When converting Major into Minor, we lower three scale tones: the 3rd, 6th, and 7th degrees.

Based on this accumulation of lowered tones we could say that Mixolydian is one shade “darker” than Major, Dorian is two shades “darker” than Major, and Minor is three shades “darker” than Major. In fact, it is possible to express all seven modes on a spectrum of “brightest” to “darkest”.

# A Spectrum of Modes

When you compare each mode to its relative major, you end up with a pattern of raised (sharp) and lowered (flat) scale-tones.

	1	2	3	#4	5	6	7	<b>Lydian</b>
"Brighter" ↑	1	2	3	4	5	6	7	<b>Ionian (Major)</b>
	1	2	3	4	5	6	<sup>b</sup> 7	<b>Mixolydian</b>
	1	2	<sup>b</sup> 3	4	5	6	<sup>b</sup> 7	<b>Dorian</b>
	1	2	<sup>b</sup> 3	4	5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Aeolian (Minor)</b>
	1	<sup>b</sup> 2	<sup>b</sup> 3	4	5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Phrygian</b>
"Darker" ↓	1	<sup>b</sup> 2	<sup>b</sup> 3	4	<sup>b</sup> 5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Locrian</b>

Once committed to memory, this pattern makes it easy to change the mode of *any* key without altering its tonic.



## Major/Minor Modes

Chord-playing musicians often refer to the major versus minor quality of each mode by the quality of the first (I) chord. Recall that a major chord consists of degrees 1, 3, and 5 of the major scale; a minor chord differs by a flat 3, and a diminished chord differs further by a flat 5:

	↑	1	2	3	#4	5	6	7	<b>Lydian</b>
(1-3-5)	"Major" modes	1	2	3	4	5	6	7	<b>Ionian (Major)</b>
	↓	1	2	3	4	5	6	<sup>b</sup> 7	<b>Mixolydian</b>
	↑	1	2	<sup>b</sup> 3	4	5	6	<sup>b</sup> 7	<b>Dorian</b>
(1- <sup>b</sup> 3-5)	"Minor" modes	1	2	<sup>b</sup> 3	4	5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Aeolian (Minor)</b>
	↓	1	<sup>b</sup> 2	<sup>b</sup> 3	4	5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Phrygian</b>
"Diminished" mode	↑	1	<sup>b</sup> 2	<sup>b</sup> 3	4	<sup>b</sup> 5	<sup>b</sup> 6	<sup>b</sup> 7	<b>Locrian</b>
(1- <sup>b</sup> 2- <sup>b</sup> 5)	↓								

## Practice: some modes of C

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Here are the tones comprising the key of C major:

C-D-E-F-G-A-B-C

*Identify the tones of C dorian!*

*Identify the tones of C mixolydian!*

*Identify the tones of C minor!*

## Answers: some modes of C

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C Major = **C-D-E-F-G-A-B-C**  
(our "baseline")

C Dorian = **C-D-E<sup>b</sup>-F-G-A-B<sup>b</sup>-C**  
(flat 3 and 7)

C Mixolydian = **C-D-E-F-G-A-B<sup>b</sup>-C**  
(flat 7)

C Minor = **C-D-E<sup>b</sup>-F-G-A<sup>b</sup>-B<sup>b</sup>-C**  
(flat 3, 6, and 7)

# Practice: some modes of A

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Here are the tones comprising the key of A major:

A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G<sup>#</sup>-A

*Identify the tones of A mixolydian!*

*Identify the tones of A minor!*

*Identify the tones of A lydian!*

## Answers: some modes of A

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(our "baseline")

A Mixolydian = **A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G-A**  
(flat 7)

A Minor = **A-B-C-D-E-F-G-A**  
(flat 3, 6, and 7)

A Lydian = **A-B-C<sup>#</sup>-D<sup>#</sup>-E-F<sup>#</sup>-G<sup>#</sup>-A**  
(sharp 4)

# Practice: some modes of D

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Here are the tones comprising the key of D major:

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

*Identify the tones of D dorian!*

*Identify the tones of D minor!*

*Identify the tones of D mixolydian!*

## Answers: some modes of D

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D Major = **D-E-F<sup>#</sup>-G-A-B-C<sup>#</sup>-D**  
(our "baseline")

D Dorian = **D-E-F-G-A-B-C-D**  
(flat 3 and 7)

D Minor = **D-E-F-G-A-B<sup>b</sup>-C-D**  
(flat 3, 6, and 7)

D Mixolydian = **D-E-F<sup>#</sup>-G-A-B-C-D**  
(flat 7)

## A pattern of fifths!

You may have noticed the ordering of Major versus modal (Mixolydian, Dorian, Minor) scales in the Relative Modes section, and how they progressed in fifths. This is no coincidence, as the order of eliminated sharps (or added flats if you will) follows the exact same order as the Circle of Fifths!

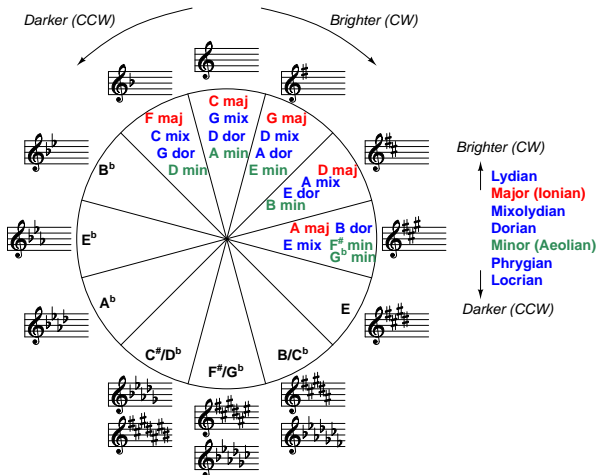
If you begin with any major key shown in the Circle and take one step counter-clockwise, the resulting key signature will have one less sharp (or one more flat) and will be the parallel Mixolydian mode (i.e. one shade “darker”) to the original major key.

If you begin with any major key shown in the Circle and take two steps counter-clockwise, the resulting key signature will have two fewer sharps (or two more flats, or one more flat and one less sharp) and will be the parallel Dorian mode (i.e. two shades “darker”) to the original major key.



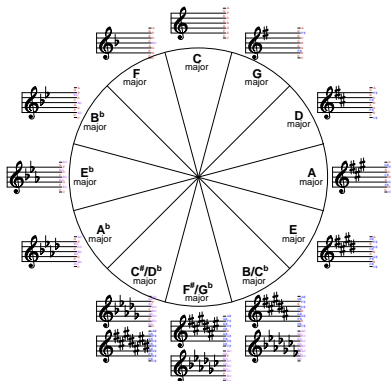
# A Brighter/Darker Circle

A few of the major keys common to folk music are shown with their relative modes:



# A Brighter/Darker Circle

This mode-shifting strategy works for those familiar with the Circle of Fifths, specifically with the order of major keys and their respective key signatures (the cluster of sharps or flats near the clef symbol).



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Identify the major-key signature used to play each of these modes:

*Find the key signature used to play F dorian!*

*Find the key signature used to play E mixolydian!*

*Find the key signature used to play B minor!*

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F Dorian =  $E^b$  major key signature (F-G- $A^b$ - $B^b$ -C-D- $E^b$ -F)  
*(two steps CCW from F major, adding two flats)*

E Mixolydian = A major key signature (A-B-C $\sharp$ -D-E-F $\sharp$ -G $\sharp$ -A)  
*(one step CCW from E major, eliminating one sharp)*

B Minor = D major key signature (D-E-F $\sharp$ -G-A-B-C $\sharp$ -D)  
*(three steps CCW from B major, eliminating three sharps)*

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Identify the major-key signature used to play each of these modes:

*Find the key signature used to play G lydian!*

*Find the key signature used to play C<sup>#</sup> dorian!*

*Find the key signature used to play D mixolydian!*

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G Lydian = D major key signature (G-A-B-C<sup>#</sup>-D-E-F<sup>#</sup>-G)  
*(one step CW from G major, adding one sharp)*

C<sup>#</sup> Dorian = B major key signature  
 (C<sup>#</sup>-D<sup>#</sup>-E-F<sup>#</sup>-G<sup>#</sup>-A<sup>#</sup>-B-C<sup>#</sup>)  
*(two steps CCW from C<sup>#</sup> major, eliminating two sharps)*

D Mixolydian = G major key signature (D-E-F<sup>#</sup>-G-A-B-C-D)  
*(one step CCW from D major, eliminating one sharp)*

# Modes in Sheetmusic

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It is often useful to interpret the mode of a tune from its sheetmusic (score). Identifying the key signature – that cluster of sharps or flats near the clef symbol – is not enough unless we happen to know the tune is in Ionian (Major) mode. Otherwise, that same key signature could represent some relative mode of that major key.

To properly identify any key, we need to know the tones comprising it *and* the tonic that key “resolves” to. The key signature shown in sheetmusic tells us the tones (which are natural, which are sharp, which are flat). The tonic is trickier to discern. While often the last note of the piece, this not true if the tune happens to be unresolved at the end. Often, *listening* for the resolving tone in the melody is a good way to identify the tonic.

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Shown here are the beginning and ending lines of Jay Ungar's beautiful waltz "*Ashokan Farewell*":

The image shows two staves of musical notation for the waltz "Ashokan Farewell". Both staves are in treble clef with a key signature of one sharp (F#) and a 3/4 time signature. The first staff contains the beginning of the piece, starting with a quarter note G4, followed by quarter notes A4, B4, and C5, then a dotted quarter note B4, and a half note A4. The second staff contains the ending of the piece, starting with a quarter note G4, followed by quarter notes A4, B4, and C5, then a dotted quarter note B4, and a half note A4. The piece concludes with a final quarter note G4.

Upon listening to this tune, it is clear that it resolves on the final note.

*Which key/mode is this tune written in?*



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The key signature shows two sharps ( $C^\#$  and  $F^\#$ ) which corresponds to D major, and since we know the tonic is D (because the tune resolves on D), this tune must be set in the key of **D major**.

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Shown here are the beginning and ending lines of Turlough O'Carolan's haunting aire "*Ramble To Cashel*":

The image displays two staves of sheet music for the tune "Ramble To Cashel". The first staff begins with a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. It starts with a triplet of eighth notes (G4, A4, B4) followed by a descending eighth-note scale: G4, F4, E4, D4, C4, B3, A3, G3. The second staff continues the melody with G3, A3, B3, C4, D4, E4, F4, G4, and concludes with a final whole note G4.

Upon listening to this tune, it is clear that it resolves on the final note.

*Which key/mode is this tune written in?*

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The key signature shows a single sharp ( $F^\sharp$ ) which corresponds to G major, but it resolves on E so it cannot be G major – it must be a mode with E as the tonic. The key of E major has four sharps, and this has only one, so it's three shades “darker” than E major, which puts it at **E minor**.

## Sheetmusic Example

Shown here are the beginning and ending lines of the “B” part to the traditional Scottish aire *“Hector The Hero”* arranged for bagpipe:

The image displays two staves of musical notation in treble clef. The key signature consists of two sharps (F# and C#), and the time signature is 3/4. The first staff shows the beginning of the piece, starting with a repeat sign followed by a dotted quarter note on G4, an eighth note on A4, a quarter note on B4, a dotted quarter note on C5, an eighth note on B4, a quarter note on A4, and a quarter note on G4. The second staff shows the ending, starting with a quarter note on G4, a quarter note on A4, a quarter note on B4, a quarter note on C5, a quarter note on B4, a quarter note on A4, and a final dotted quarter note on G4.

Upon listening to this tune, it is clear that it resolves on the final note.

*Which key/mode is this tune written in?*

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The key signature shows three sharps (C<sup>#</sup>, F<sup>#</sup>, and G<sup>#</sup>) which corresponds to A major, and we know it resolves on A so at first it would seem to be set in the key of A major. However, pay close attention to the accidental symbols (natural) used before each G note. This means the tune must be in the key of **A mixolydian**, being one shade “darker” than A major.

Sometimes “modal” sheetmusic is written like this: the key signature chosen to be the major of that tonic, but with accidentals sprinkled through the piece to make it either “lighter” or “darker” than the major mode. The typesetter of “Hector The Hero” wanted you to know it was in the key of A by using the A major key signature with three sharps, but made the necessary modal shift using accidental (natural) symbols.

## Practice Ideas

Just like memorizing multiplication tables, committing modes to memory requires much practice. Simply knowing the shift-patterns necessary to switch from one mode to another isn't truly useful to you as a musician unless and until these patterns are available to you on demand, just like knowing that  $3 \times 4$  means  $4 + 4 + 4$  doesn't help you multiply quickly unless and until you've memorized  $3 \times 4 = 12$ . Understanding the mechanics of how modes work is important, but by itself is incomplete until these principles and techniques become automatic for you.

This section outlines multiple ways to internalize these concepts. Commit to incorporating these concepts into every practice session, and you will soon find them becoming more and more comfortable to you.

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# Playing Major Scales

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Mastery of all the major scales is the foundation for building modes, and playing each major key's scale in linear order is a time-honored way of committing each key's tones to memory. Whenever possible, do this over multiple octaves so as to cover the broadest range on your instrument. This helps familiarize you with all the positions used for playing tones.

One disadvantage of linear scales is that they tend to be boring. When you hear musicians lament the practice of scales, this is what they're complaining about. Fortunately, there are more interesting ways to practice key-tones! (Read on . . .)

# Playing Relative Modes

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Begin by playing any major scale from tonic to octave, preferably spanning more than one octave. Then, switch the tonic but play the same order of tones to make a relative mode.



# Playing Parallel Modes

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Begin by playing any major scale from tonic to octave, preferably spanning more than one octave. Then, switch the mode by raising or lowering the pitch of the correct degree tone to achieve a different mode.

Do this multiple times in order from Lydian to Locrian, each scale being “darker” than the one before.

# Playing Parallel Modes

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Begin by playing any major scale from tonic to octave, preferably spanning more than one octave. Then, switch the mode by playing the next key signature from the Circle of Fifths yet keeping the original tonic (one step clockwise for the Lydian mode, and steps counter-clockwise for all the other modes).

Do this multiple times in order from Lydian to Locrian, each scale being “darker” than the one before.

## Transposing familiar tunes

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A fun way to learn modes is to take a familiar tune in a key you know well, and *transpose* that tune to a parallel mode of that key. Using “Mary Had A Little Lamb” as an example:

In the key of C major: **E-D-C-D-E-E-E**

In the key of C dorian or C minor: **E<sup>b</sup>-D-C-D-E<sup>b</sup>-E<sup>b</sup>-E<sup>b</sup>**

Note: in order to perceive a difference between *each* mode, practice on tunes using all the tones of the key. As we see here with “Mary...” we cannot perceive a difference between C dorian and C minor because the melody never reaches the 6th-degree tone where these two parallel modes differ from one another.

## Summary of Mode-Shifts

This section gives one-page references for each of the mode-finding techniques explored in this tutorial.

## Relative Mode Shifts

The numbers 1-7 refer to the degrees of *any* major scale.

	1 2 3 4 5 6 7 1	2 3 4 5 6 7 1	<b>1 Ionian (1 Major)</b>
	1 2 3 4 5 6 7 1 2	3 4 5 6 7 1	<b>2 Dorian</b>
	1 2 3 4 5 6 7 1 2 3	4 5 6 7 1	<b>3 Phrygian</b>
	1 2 3 4 5 6 7 1 2 3 4	5 6 7 1	<b>4 Lydian</b>
	1 2 3 4 5 6 7 1 2 3 4 5	6 7 1	<b>5 Mixolydian</b>
	1 2 3 4 5 6 7 1 2 3 4 5 6	7 1	<b>6 Aeolian (6 Minor)</b>
	1 2 3 4 5 6 7 1 2 3 4 5 6 7	1	<b>7 Locrian</b>

Useful on diatonic instruments: same tones, different tonic.

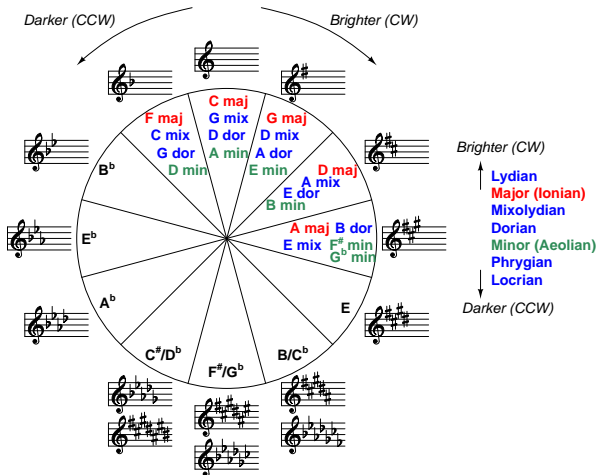
## Parallel Mode Shifts

The numbers 1-7 refer to the degrees of *any* major scale.

↑	1	2	3	#4	5	6	7	<b>Lydian</b>
"Brighter"	1	2	3	4	5	6	7	<b>Ionian (Major)</b>
	1	2	3	4	5	6	b7	<b>Mixolydian</b>
	1	2	b3	4	5	6	b7	<b>Dorian</b>
	1	2	b3	4	5	b6	b7	<b>Aeolian (Minor)</b>
"Darker"	1	b2	b3	4	5	b6	b7	<b>Phrygian</b>
↓	1	b2	b3	4	b5	b6	b7	<b>Locrian</b>

Useful on chromatic instruments: same tonic, selected tones raised/lowered.

# Shifting Around the Circle



Useful on any instrument: based on key signatures and major-key tonics.

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**Interval** – The ratio of pitch between two different tones, corresponding to the distance separating tones on a keyboard or a fretboard. One fret's distance on a guitar is a *half-step* interval, while two frets' distance is a *whole step*. Intervals may also be described in terms of the tones' numbered position on a scale (e.g. a “perfect fourth” interval is the distance between the 1 and 4 tones of a major scale). **This is part of the essential vocabulary for music. you will find that the “feel” of music depends more on the intervals *between* notes than the notes themselves!**

**Octave** – A two-to-one ratio of musical pitch. Octave tones sound remarkably similar to each other, and use the same letter designators. “Middle C” on a piano keyboard represents a tone vibration of 261.6 cycles per second, while the next “C” an octave above that is precisely twice as fast (523.2 cycle per second) and the next “C” an octave below “middle C” is half as fast (130.8 cycles per second). **Octaves are why tones seem to repeat themselves up and down the scale of any wide-range instrument.**



**Sharp** ( $\sharp$ ) or **Flat** ( $\flat$ ) – A raising or lowering of pitch. This may refer to a tone being off-pitch compared to a standard (e.g. tuning fork, electronic tuner), or it may refer to the relative pitches of tones on a musical scale. The Western “chromatic” scale (containing all tones) is divided into twelve tones per octave, some of them given letter names and others given letter names plus the “sharp” or “flat” designation: A-A $\sharp$ -B-C-C $\sharp$ -D-D $\sharp$ -E-F-F $\sharp$ -G-G $\sharp$  and back to A. Alternatively, A-B $\flat$ -B-C-D $\flat$ -D-E $\flat$ -E-F-G $\flat$ -G-A $\flat$  and back to A. **This is part of the essential vocabulary for music.**

$C^\sharp D^\sharp$      $F^\sharp G^\sharp A^\sharp$      $C^\sharp D^\sharp$      $F^\sharp G^\sharp A^\sharp$     ← "Sharp" ( $\sharp$ ) tones  
 $D^\flat E^\flat$      $G^\flat A^\flat B^\flat$      $D^\flat E^\flat$      $G^\flat A^\flat B^\flat$     ← "Flat" ( $\flat$ ) tones

*Note: there is nothing "special" about sharp or flat tones. These designations are the result of using only **seven** alphabet letters to represent **twelve** unique tones!*

$C$   $D$   $E$   $F$   $G$   $A$   $B$      $C$   $D$   $E$   $F$   $G$   $A$   $B$     ← "Natural" ( $\natural$ ) tones

**Scale** – A sequence of tones, usually played in ascending or descending order, constituting a musical “palette” useful for creating tunes or phrases. A closely related concept is that of a **Key**, which in Western music typically consists of the tones comprising a specific class of seven-note scale. [Mastery of scales and keys allows you to quickly find tones that sound well with any other tone, which is obviously useful \(e.g. jamming, composing\).](#)

**Degree** – A number label given to each of the seven tones comprising a key. For example, in the C major key, C would be 1, D would be 2, E would be 3, etc. [Musicians often refer to intervals by these degree numbers.](#)

**Tonic** – The first-degree tone of a scale. Also, the resolving tone of a key. [A scale or a melody sounds as though it has “arrived back home” when the tonic tone is played.](#)

**Major** versus **Minor** – These terms refer to two different qualities of tone-clusters (e.g. keys or chords) defined by the intervals between those tones. Major and minor are not the only types of quality in Western music, but they tend to be the most common. These qualities stand independent of the starting tone, which is why there are twelve “major keys” in Western music as well as twelve “minor keys” (i.e. each of these keys starting from one of twelve distinct tones within an octave). [Knowing all the major keys by heart gives you a great starting point to build any of the minor or “modal” keys.](#)

**Mode** – A variation on a key, created by altering the step-distances (**intervals**) separating tones in that key. Traditionally, there are seven modes, each given a Greek name. Major (ionian) and Natural Minor (aeolian) are two of them. [Some musical genres, especially Irish music and Jazz, make use of modes to create different “qualities” for tunes lying between major and minor.](#)

**Chord** – A set of three or more tones played simultaneously. Some instruments (e.g. autoharps) play nothing but chords, and others (e.g. guitars) are often played solely to form chords. Chords are used extensively to accompany melodies, and are often notated by simple letter symbols near lyrics which makes them easy to document in song music. [Knowing which tones make up a chord gives you multiple options to sing and/or play harmony to any melody.](#)

**Arpeggio** – Italian for “chord played as on a harp,” this is simply the different tones making up a chord played one at a time instead of simultaneously. Guitar players: hold a chord pattern with your left hand while *picking* individual notes with your right hand instead of *strumming* the strings, and you will be playing an arpeggio! [Many melodies contain arpeggios, making them easy to play for anyone familiar with chords. Arpeggios sound more sophisticated and interesting than chords played in block-fashion. Any chord player need only play the notes individually to create a respectable harmony from a set of given chords.](#)

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