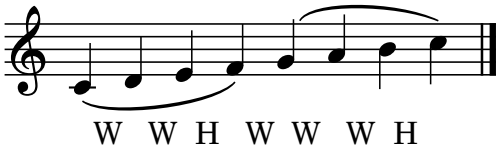
Scales and Key Signatures

Music of the ***Common Practice Period*** (1600-1900) is typically based on the idea of a pitch center, one note that is more important than the others. Over time, two keys emerged as the basis for most western music of this time, the ***major key*** and the ***minor key***. These keys are defined by the collection of notes used in a piece or passage. These collections are called ***scales***.

A scale is a collection of adjacent notes on the staff. The notes are in specific patterns of half steps and whole steps. If you look at the piano keyboard, you can see how this works. Find C on the keyboard and then find C#. C# is a half step above C. Now find D. D is a half step above C#. But D is also a whole step above C. This math is very simple: 2 half steps = 1 whole step. Scales are based on patterns of half steps and whole steps.

The Major scale is the simplest scale. It's patten is whole, whole, half, whole, whole, whole, half. Note that in the example below we double the key note (***tonic***) at the top of the scale. This is so we can see that final half step.

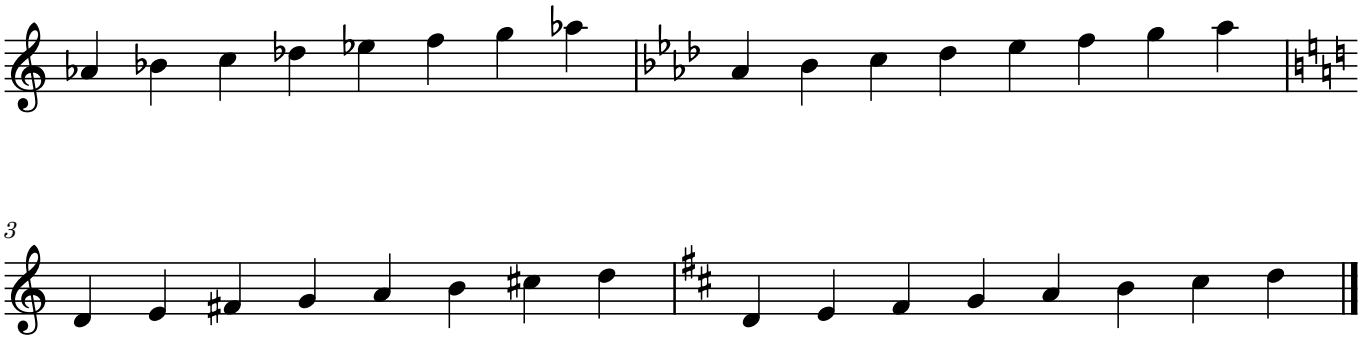
1. Major Scales



Another way of looking at the major scale, and the way musicians in earlier periods learned it, was by the ***tetrachords***. A tetrachord is merely a 4 note pattern. If you look at the major scale you will see that the first 4 notes are the same pattern as the last four notes, separated by a half step. The slurs show the tetrachords. This can be a useful way to check your work.

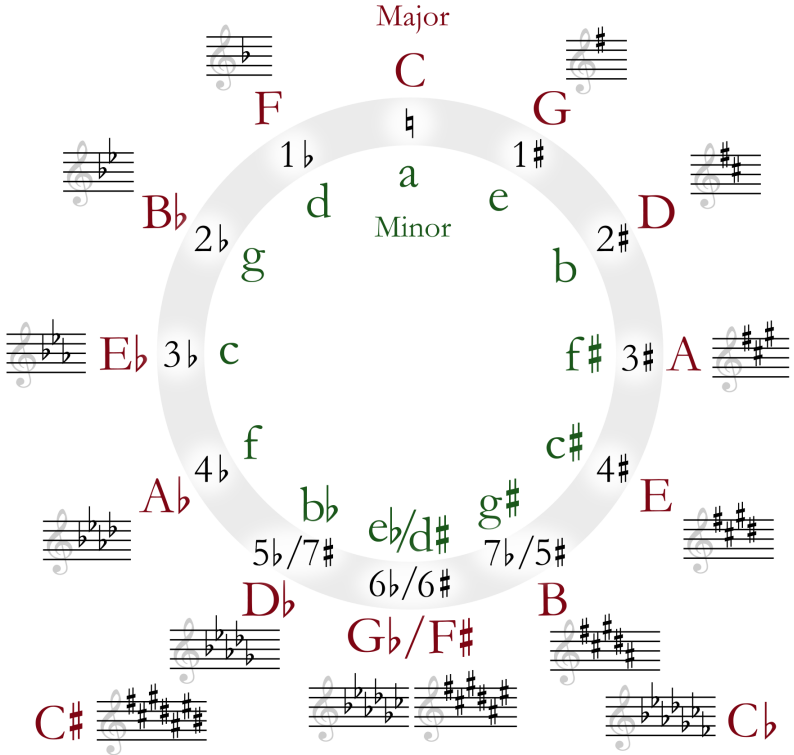
Major scales can be built on any note. While homework assignments may have them built on double flats or sharps, this is not found in actual music.

Key signatures are used to simplify the scales. Instead of writing out all the accidentals in a scale, we put them at the beginning of each line.



In the above examples, the first scale is written with accidentals, the second is written with a ***Key Signature***. A key signature is just the accidentals of the scale put, in a specific order, at the beginning of the key. A quick way to find the key name from the signature is, if it's sharps, look at the last sharp and go up a half step, so the second example has C♯, so it would be D major. If there are flats, then look at the next to last flat, and that's it's name. The next to last flat in the first example is A♭, so the key would be A♭ major.

The pattern of sharps and flats follows the circle of fifths. so if you start with C, which has no sharps or flats, and go to the right, you would go up a fifth. Five notes up from C would be G and that would have 1 sharp, five notes up from G would be D, and that has 2 sharps (F♯ and C♯. To find the flat keys, you go counterclockwise around the circle. So down 5 from C is F. F has 1 flat (B-flat), down 5 from F is B♭ (remember that we flatted the B in the previous key, so that carries over). B♭ has B♭ and E♭ in the key signature. Below are the more common key signatures. Over time, you will just know them.



The order of sharps and flats can be seen in the circle of fifths, but needs to be memorized.

Order of sharps: F, C, G, D, A, E, B

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

Notice that the order of flats is the order of sharps backwards, and vice-versa. Notice also that each flat or sharp is a fifth away from the previous.

Relative/Parallel Keys

Every major key has a ***parallel*** minor key, which has the same tonic as the major key (C major/ C minor). These keys are always 3 accidentals away (C major has 0 flats, C minor has 3 flats).

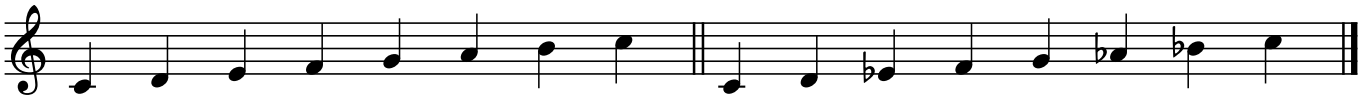
Relative keys have the same key signature, but different tonic (C major and a minor both have 0 sharps or flats). The relative minor key is always a whole step and a half step below the major key tonic.

Minor Scales

There are 3 types of minor scales: Natural, Harmonic, and Melodic. The natural minor scale only uses the notes of the relative major key.

An easy way to figure out the natural scale is to take the major scale and lower the 3rd, 6th and 7th notes. This is the same as adding three flats, or in the case of sharp keys, taking away 3 sharps.

The next example compares the major and natural minor scales.

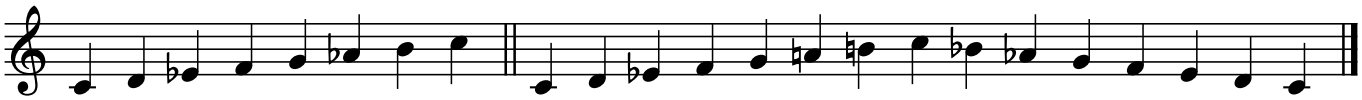


In the above example we take the C major scale and add three flats (same as E♭ major). C major and c minor are parallel keys because they share the same tonic. C minor and E♭ major are relative because they share the same key signature.

The harmonic and melodic minor scales are variants of the natural minor. These exist to deal with issues created by the approach of the leading-tone (scale degree 7).

The harmonic minor scale is created by taking the natural minor and raising scale degree 7 a half step.

The melodic minor scale corrects a problem created in the harmonic minor scale. In the harmonic minor scale, the distance between the sixth and seventh scale degree is a step and a half (augmented second), which is difficult to sing when reading. To correct this, on the ascending melodic minor scale we raise the sixth scale degree by a half step, making the distance between 6 and 7 a whole step. On the way down, we lower both 6 and 7 again.



Minor key signatures

Minor key signatures are probably easiest figured out by first knowing your major key signature. You must keep in mind the difference between parallel keys (which have the same tonic), and relative keys (which have the same key signatures).

If you are asked for F minor, to get the key signature, think of the parallel major, which would have 1 ♭, and add three ♭'s. This means that there are 4 flats in f minor. The difficulty with this method is that it causes confusion when going across C major on the circle of fiths. If you have D major, to get the parallel minor you have to do some thinking. To add three flats, you have to cancel 2 sharps first. So the first two flats turn sharps into naturals. The third one adds a sharp. So the parallel of D major, d minor, would have 1 flat.

Relative minor's are figured by going 3 steps (a step and a half) in the direction of the new mode. So if you want to find the relative minor of A♭, you'd go down 3 steps on the scale, and that brings you to f-minor. The key signature for both of these keys are the same (4 ♭'s).