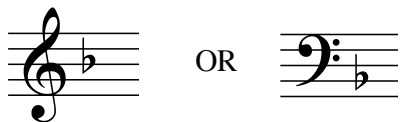


## KEY SIGNATURES

There is a more convenient way to write scales that takes into account the patterns we have noticed.

A **Key Signature** is like a time signature or a clef—it calibrates a scale and staff so that the half and whole steps (and therefore, the sharps or flats) go in the correct place. A key signature has the same name as the scale and sets the staff for the specific accidentals.

The F Major key signature looks like this:



The accidental sits at the beginning of the staff on the note(s) (line or space) that are to be accidentals in the scale. A key signature accidental applies to **all** occurrences of that note on **any** line or space.

The B<sup>b</sup>M key signature



GM



The E<sup>b</sup>M key signature



DM



AM



Now we can write a scale like so:

*An FM scale with its key signature*

FM      This ♭ means that these and all Bs will be flat.

*An E<sup>b</sup>M scale with its key signature*

E<sup>b</sup>M      These flats mean that all the Bs, Es & As will always be flat.

## THE KEY

Beyond the designation of scales, the key signature establishes the music in a particular key. All the notes to be played will belong to a specific key. *Here Comes the Sun* (the Beatles again) is in the key of A Major, so the notation would contain an AM key signature (three sharps)—all Fs, Cs and Gs would be sharp.

And since real music is more complicated than a textbook explanation, there might be the occasional use of notes that are not in the AM key signature. In that case, an accidental will be added: a sharp, flat or natural (if it is one of the key signature notes that needs to be changed—like if we needed a B<sup>b</sup> in the key of CM for example).

## ACCIDENTALS IN A KEY SIGNATURE

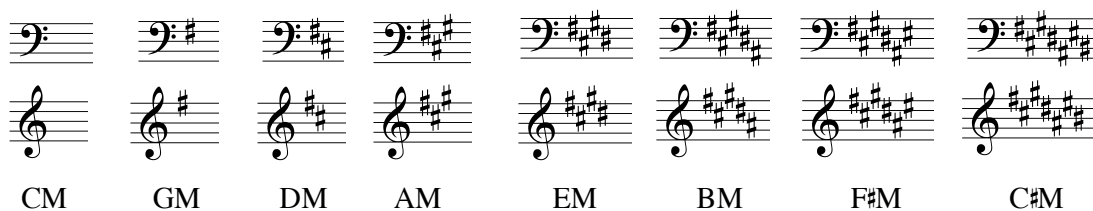
Accidentals can be added to, or taken away from a key signature:



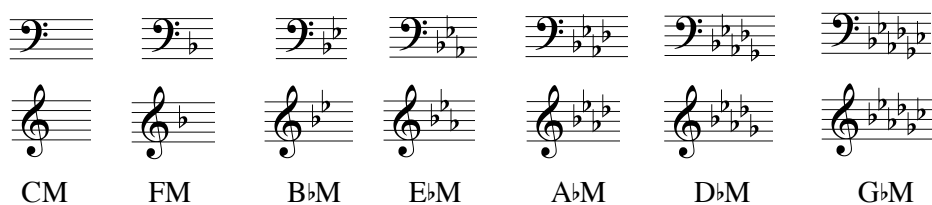
If we are in the key of FM, but we need a B $\sharp$ , we insert the accidental only where we want the change. In this example, the first B is  $\flat$  and the second B is  $\sharp$ .

## CIRCLE OF FIFTHS

There is a standard method by which we organize key signatures that shows how their sharps or flats increase incrementally. Recalling the sharp keys (GM with one sharp, DM with two, AM with three, etc.), we encountered them in a particular order where one sharp was added in each new key. The keys themselves were not adjacent (G is five notes above C, D is five above G and A is five above D). So for every five notes that we ascend, the key signature adds one sharp.



Recalling the flat keys, the key signature added one flat for every four notes we ascended:



## CIRCLE OF FIFTHS CONTINUED

So the sharp key signatures increase in a sequence of five scalar notes (by "fifths") and the flat key signatures increase in a sequence of four notes (by "fourths").

After many sequences, not only does the key signature become heavy with sharps or flats, but the keys become enharmonically equivalent to different keys. C $\flat$ M (with seven flats) sounds the same as B $\natural$ M (only five sharps). C $\sharp$ M (seven sharps) sounds the same as D $\flat$ M (five flats). So eventually the sequences of sharps and flats overlap and it might make sense to choose the key signature that has fewer accidentals (in some cases) such as B $\natural$ M instead of C $\flat$ M. This phenomenon also speaks to the old proverb that there is more than one way to express the same musical idea.

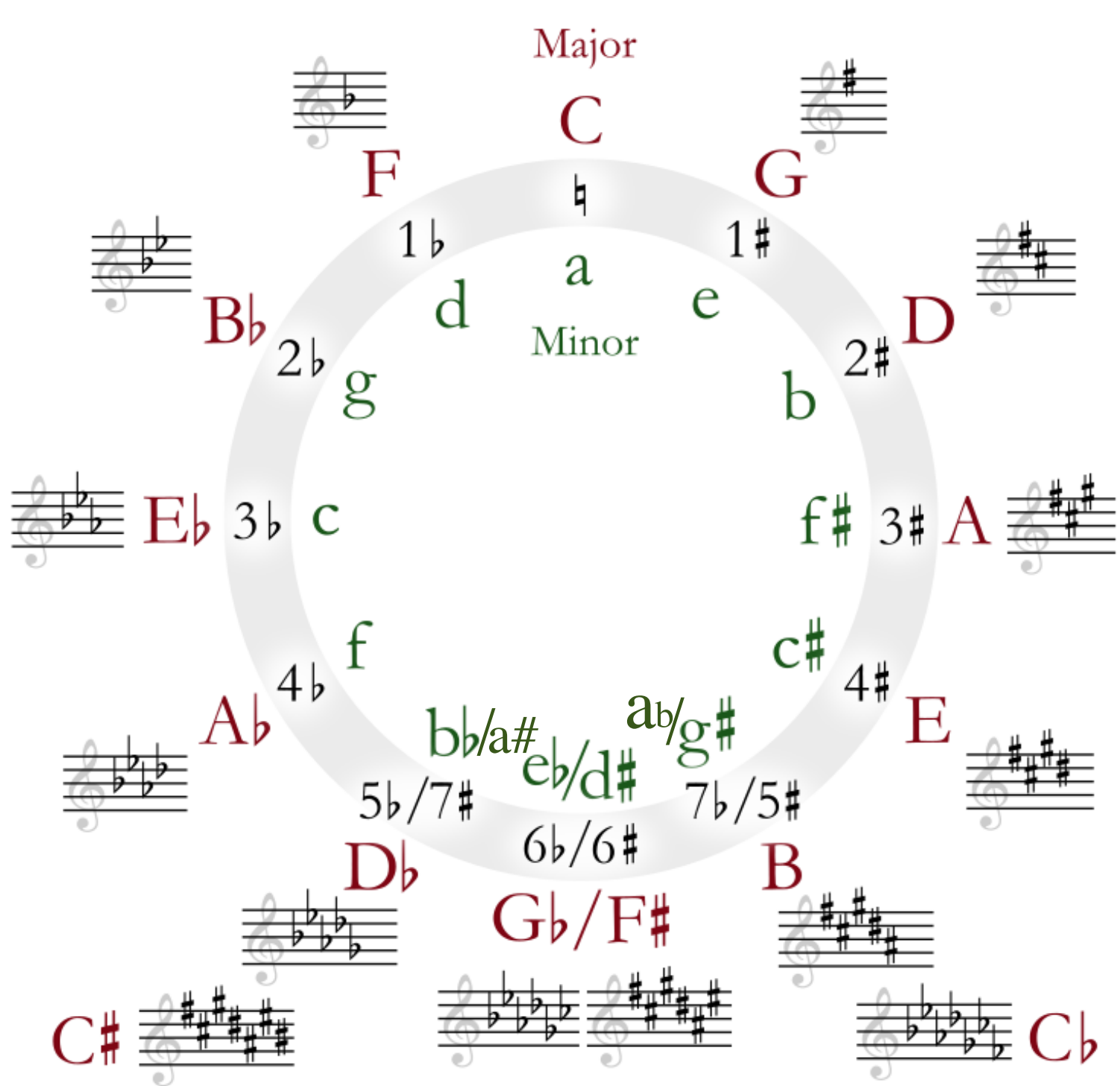
The standard way of showing the relationship between the flat and sharp keys is to arrange them in a circle:

*The Circle of Fifths*

Following the circle clockwise, we see the sequence of increasing sharps keys (increases by fifths). Following the circle counter-clockwise, we see the sequence of increasing flat keys (by fourths). At the bottom of the circle, we see where the enharmonic keys overlap. This circle is conveniently called the **Circle of Fifths** (or **Fourths** in less formal cases).

\*Notice that in writing the key signatures, there is a particular ordering of the accidentals such that they mostly fall in the center of the staff. This particular ordering in both clefs is the only standard way to write key signatures—get to know it.

One final and important observation about the circle of fifths (or fourths) is that going either clockwise or counter-clockwise, from one key to the next allows six out of seven notes to remain in common between those two keys. To put it another way, adjacent keys in the circle of 5ths have six out of seven (all but one) notes in common. These adjacent keys are considered "close" for this reason, even though the tonics of the keys are four or five notes apart from each other on a keyboard. For example, DM and AM have all but one note in common and are "close" even though A is five notes (seven half steps) above D on the keyboard.



## TRANSPPOSITION

The idea of notes and music being in a key is very powerful. Remember how we heard that no matter what note a major scale started from, it sounded the same because the pattern from note to note was the same (which is the essence of the scale!)? This relationship means that the different scales are related by **Transposition**. When a group of notes (a scale or something else) moves up or down to a different starting note, but the distances between the notes stay the same (as is the case with different major scales), then the notes have been transposed [to maintain the same intervallic relationship between a group of notes]. Therefore, all the major scales are just transpositions of one and other. This means that a group of notes in one key can easily be transposed into another key with the help of a key signature.



Twin - kle, twin - kle li - ttle star, how I won - der what you are.

This is *Twinkle, Twinkle Little Star* in G Major. To transpose it to another key (say BM), just write the BM key signature, pick the right starting note (the one in GM started on G conveniently enough, so the transposition in BM will start on B) and keep the distance between each note the same:

Musical notation for 'Twinkle, Twinkle Little Star' in G Major, identical to the previous example. Annotations with arrows point to specific intervals: 'up 2 lines' between the first two notes, 'up to the next note' between the second and third notes, and 'down to the next note' between the fourth and fifth notes. The text 'G MAJOR' is written to the right of the staff.

Twin - kle, twin - kle li - ttle star, how I won - der what you are.

Musical notation for 'Twinkle, Twinkle Little Star' transposed to B Major. The key signature has two sharps (F# and C#). An annotation 'up 2 lines...' points to the interval between the first two notes. The text 'B MAJOR' is written to the left of the staff.

Twin - kle, twin - kle li - ttle star, how I won - der what you are.

\*\*Transposition is necessary when an instrument or a voice is not able to play all the notes in a given range.

By transposing a piece, its range can accommodate the singer's or instrument's limited range.

