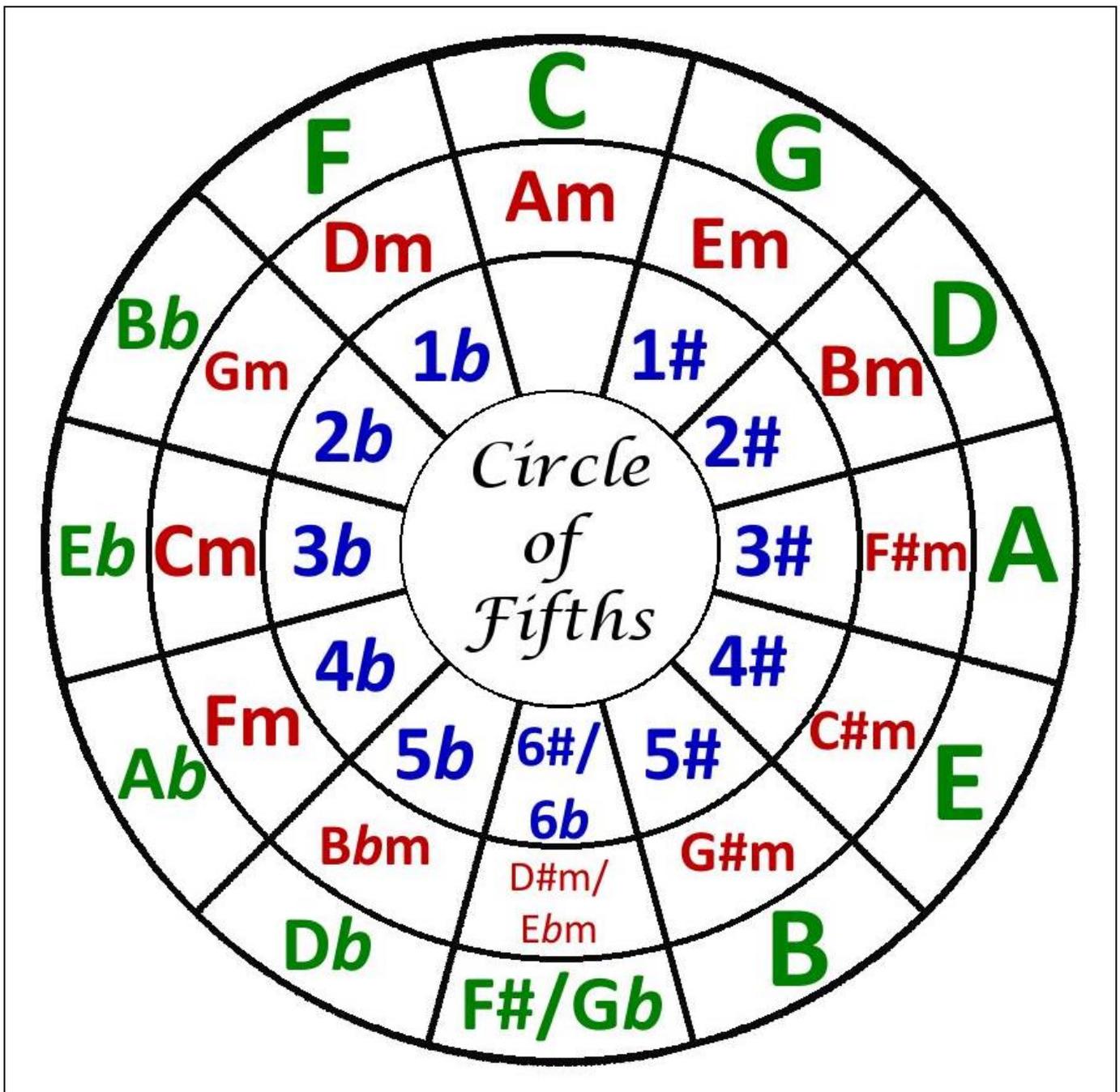


This lesson assumes that you are using a ukulele tuned to the notes G, C, E and A.

## The Circle Of Fifths

In the previous lesson, we introduced the concept of the 12 keys in music. Each key has a major scale, and a relative natural minor scale. As musicians, we need to know the notes and chords that belong to each key.

The circle of fifths is a useful way to remember which sharps or flats to include in each key. It is usually represented as a diagram, like the one below.



## Ukulele Music Theory Part 3 – The Circle Of Fifths & Key Signatures

By Pete Farrugia BA (Hons), Dip Mus, Dip LCM

In the circle of fifths diagram on the previous page, there are three rings of information, each in a different colour.

The **green** ring shows the major keys, from C to F.

The **red** ring shows the minor keys, from the A minor to D minor.

The **blue** ring shows the number of sharps or flats in each key.

To prove that the information in the circle of fifths is correct, we can use the table below. Each row of the table shows us the notes in a major scale. The scale degrees from 1 to 8 are also given their proper names, tonic, supertonic etc.

TONIC	SUPERTONIC	MEDIANT	SUBDOMINANT	DOMINANT	SUBMEDIANT	LEADING NOTE	TONIC	SHARPS OR FLATS
1	2	3	4	5	6	7	8	
<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>0</b>
<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F#</b>	<b>G</b>	<b>1#</b>
<b>D</b>	<b>E</b>	<b>F#</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C#</b>	<b>D</b>	<b>2#</b>
<b>A</b>	<b>B</b>	<b>C#</b>	<b>D</b>	<b>E</b>	<b>F#</b>	<b>G#</b>	<b>A</b>	<b>3#</b>
<b>E</b>	<b>F#</b>	<b>G#</b>	<b>A</b>	<b>B</b>	<b>C#</b>	<b>D#</b>	<b>E</b>	<b>4#</b>
<b>B</b>	<b>C#</b>	<b>D#</b>	<b>E</b>	<b>F#</b>	<b>G#</b>	<b>A#</b>	<b>B</b>	<b>5#</b>
<b>F#</b>	<b>G#</b>	<b>A#</b>	<b>B</b>	<b>C#</b>	<b>D#</b>	<b>E#</b>	<b>F#</b>	<b>6#</b>
<b>Db</b>	<b>Eb</b>	<b>F</b>	<b>Gb</b>	<b>Ab</b>	<b>Bb</b>	<b>C</b>	<b>Db</b>	<b>5b</b>
<b>Ab</b>	<b>Bb</b>	<b>C</b>	<b>Db</b>	<b>Eb</b>	<b>F</b>	<b>G</b>	<b>Ab</b>	<b>4b</b>
<b>Eb</b>	<b>F</b>	<b>G</b>	<b>Ab</b>	<b>Bb</b>	<b>C</b>	<b>D</b>	<b>Eb</b>	<b>3b</b>
<b>Bb</b>	<b>C</b>	<b>D</b>	<b>Eb</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>Bb</b>	<b>2b</b>
<b>F</b>	<b>G</b>	<b>A</b>	<b>Bb</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>1b</b>

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We can work out the notes of each major scale comes from the major scale formula...

TONE – TONE – SEMITONE – TONE – TONE – TONE - SEMITONE

We start with the C major scale. As you can see, this has no sharps or flats. The two semitone steps in the formula happen to fall on E to F and B to C, which unlike the other alphabetic notes don't have any sharp or flat notes between them.

Next, we go to the dominant (fifth) note of the C major scale, which is G. This becomes our new tonic, and using the major scale formula, we find that the leading (seventh) note is F#. So the key of G major has one sharp.

The dominant note of the G major scale is D, our new tonic. The major scale formula gives us the notes, and we see that the new key has inherited the F# from the previous key, and that it has also gained a new sharp in the leading note position, which is C#. So the key of D major has two sharps.

Once again, we take the dominant note, and make it our new tonic, A. This time, F# and C# are inherited from the previous key, and the new sharp leading note is G#. So the key of A major has three sharps.

The pattern continues. The key of E major has four sharps – F#, C# and G# are inherited from the previous key, and the new sharp leading note is D#.

The key of B major has five sharps – F#, C#, G# and D# are inherited from the previous key, and the new sharp leading note is A#.

The new key's tonic is itself a sharp – F#. F#, C#, G#, D# and A# are inherited from the previous key, and the new sharp leading note is E#.

**Hang on!** What's this note E#? Up to now, we've always said that that note doesn't exist –on the piano, there is no black key between the white keys E and F, and on the ukulele the note E is followed by the note F. Well, a tone above the sixth note D# is actually F. As this is the key of F# this could get a bit confusing, especially when reading music notation. So the rules of **enharmonic spelling** are invoked. These are...

1 A major scale must rise according to the letters of the alphabet – no letter can be skipped.

2 A single letter of the alphabet cannot occur twice in any major scale.

So we can't call the leading note of the F# major scale F. We have to pretend that it's called E#.

At this point we could remember that all sharp notes actually have another (flat) name. In this case, the key of F# becomes the key of Gb.

TONIC	SUPERTONIC	MEDIANT	SUBDOMINANT	DOMINANT	SUBMEDIANT	LEADING NOTE	TONIC	SHARPS OR FLATS
1	2	3	4	5	6	7	8	
<b>G<sub>b</sub></b>	<b>A<sub>b</sub></b>	<b>B<sub>b</sub></b>	<b>C<sub>b</sub></b>	<b>D<sub>b</sub></b>	<b>E<sub>b</sub></b>	<b>F</b>	<b>G<sub>b</sub></b>	<b>6<sub>b</sub></b>

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So the key of *Gb* has six flats instead of six sharps. It also contains the odd note *Cb*, which is actually B. We can't call it B, because this key already has *Bb*.

Things are getting out of hand – what about the next key. Is it *C#* or *Db*?

TONIC	SUPERTONIC	MEDIANT	SUBDOMINANT	DOMINANT	SUBMEDIANT	LEADING NOTE	TONIC	SHARPS OR FLATS
1	2	3	4	5	6	7	8	
<b>C#</b>	<b>D#</b>	<b>E#</b>	<b>F#</b>	<b>G#</b>	<b>A#</b>	<b>B#</b>	<b>C#</b>	<b>7#</b>

Now all seven notes are sharps, are two of them, *E#* and *B#* are actually really F and C, but we can't call them that!

If we call this new key *Db*, then instead of gaining a sharp, we're losing a flat. Also, there are no oddly named notes. There are five flats in the key of *Db* major – *Db*, *Eb*, *Gb*, *Ab* and *Bb*. So it makes sense to continue with only flat keys.

The dominant of *Db* is *Ab*. The leading note G loses its flat, so now there are four flats - *Db*, *Eb*, *Ab* and *Bb*.

The dominant of *Ab* is *Eb*. The leading note D loses its flat, leaving three flats - *Eb*, *Ab* and *Bb*.

The dominant of *Eb* is *Bb*. The leading note A loses its flat, leaving two flats - *Eb* and *Bb*.

The dominant of *Bb* is F. The leading note E loses its flat, leaving one flat – *Bb*.

The dominant of F is C, which is back where we started.

So, we travelled around all twelve keys in fifths, from C back to C. That's why it's called the circle of fifths.

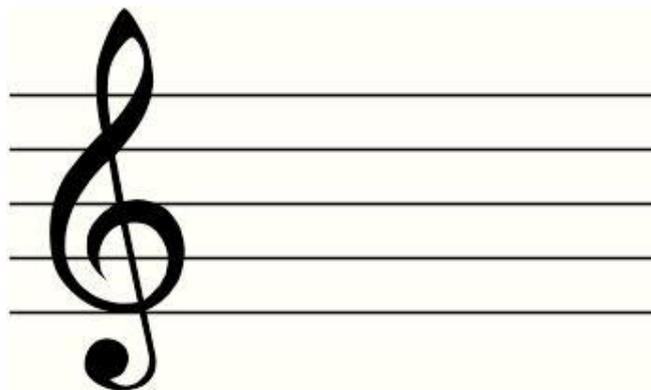
### Relative Minor Keys

Each major key has a relative minor key, which contains exactly the same notes. To find the relative minor, go to the submediant (sixth) note of the major scale. For example, the relative minor of C major, is A minor. The circle of fifths diagram on the first page of this document. Includes a ring of minor keys, shown in **red**.

Of course, the number of sharps and flats for any specific major key, is also true of its relative minor key.

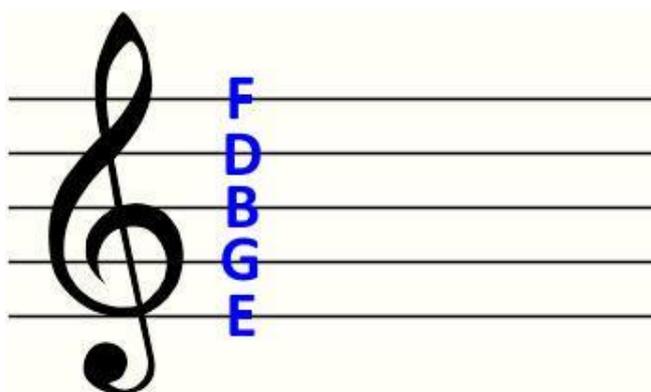
## Key Signatures

Music can be written down in standard music notation, on a **stave** or **staff** of 5 lines, together with the spaces in between and above the lines. Ukulele music uses the **treble clef**, written as an ornamental letter **G**.

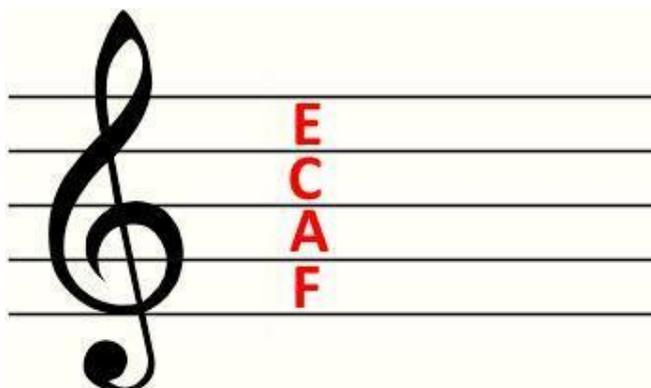


Each line represents a note, which can be either natural, sharp or flat.

From the bottom line, these notes are **E**, **G**, **B**, **D** and **F**. Some people remember this as follows: **Every Good Boy Deserves Fruit** (or **Favour**).

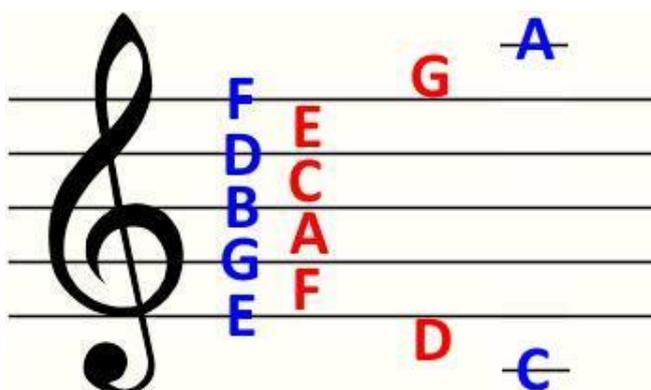


The spaces in between the lines also represent notes. These are **F**, **A**, **C** and **E**. This is of course spells **FACE**.



So the notes go up the alphabet sequentially as they go up the stave. **E – F – G – A – B – C – D – E** and **F**.

The spaces above and below the stave can also be used to continue the sequence. Small **leger** lines are used in this case.



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With standard music notation, the first thing we see to the right of the clef, is the **key signature**. This tells us which notes are to be played as sharps or flats, and consequently which key the music is in. Here are the key signatures.



The key of C major (A minor) has no sharps or flats, and therefore has no key signature.

The key of G major (E minor) has one sharp.

The key of D major (B minor) has two sharps.

The key of A major (F# minor) has three sharps.

The key of E major (C# minor) has four sharps.

The key of B major (G# minor) has five sharps.

The key of F# major (D# minor) has six sharps. This is equivalent to the key of Gb major (Eb minor) which has six flats.



The key of Db major (Bb minor) has five flats.

The key of Ab major (F minor) has four flats.

The key of Eb major (C minor) has three flats.

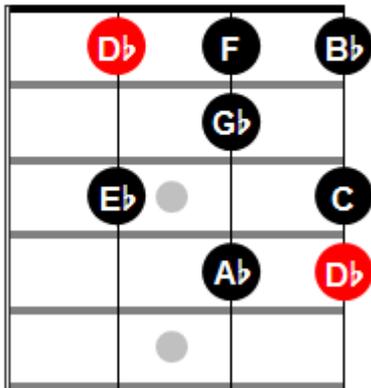
The key of Bb major (G minor) has two flats.

The key of F major (D minor) has one flat.

## Scale Shapes

Finally, here are two important scales shapes. Both shapes are movable – they have no open strings, and can therefore be transposed into different keys simply by moving up the neck of the ukulele.

### Db Major Scale



### C# Natural Minor Scale

