Getting Started With Music Theory

Let's start with the basics

So...What is a note?

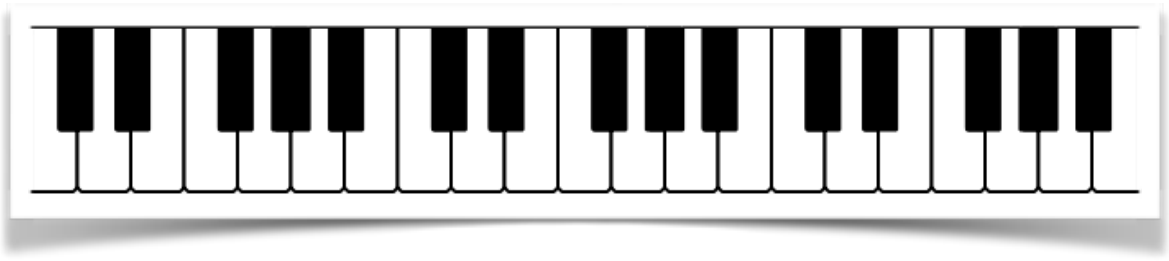
All sound is caused by **vibration**. What we call a musical note is a sound of a specific and stable pitch, meaning a specific and stable vibration.

How high or how low a note sounds depends on the **frequency of the vibrations**. The higher the frequency of the vibrations, the higher the pitch of the note, and vice versa.

If you double the frequency of a note, you have gone up an **octave**. This means the note will sound the same, but higher (if this sounds odd to you, you just have to try it for yourself to understand). This also means means if you halve the frequency of a note, you have gone down an octave, which sounds the same but lower. For example, the note 'A' roughly in the middle of your keyboard will vibrate 440 times a second, the 'A' above it 880 times a second, and the one below it 220 times a second (vibrations per second are measured in '**Hertz**', shortened to '**Hz**').

The Scale

When you look at a keyboard, you see a repeating pattern of 12 notes.

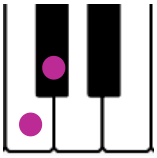


This is because in Western music we divide the octave in to **12 equal steps**.

Even though we use just 12 notes in our music, our major and minor scales **only use 7 notes**. This is why when you have gone through all 7 notes of the scale and get back to the same note, it is called an octave, meaning 8 (think of words like 'octagon', 'octopus' etc.).

So as you might have guessed, if we are not using all the notes when playing a scale, we are skipping certain notes, meaning some of the distances between notes will be bigger than others (the distance between any two notes is called an **interval**). To move to the nearest note is to move a **semitone**, and to go one step further than this (the distance of two semitones) is called a **tone**.

So for example, **C** to **C sharp** is a **semitone**:

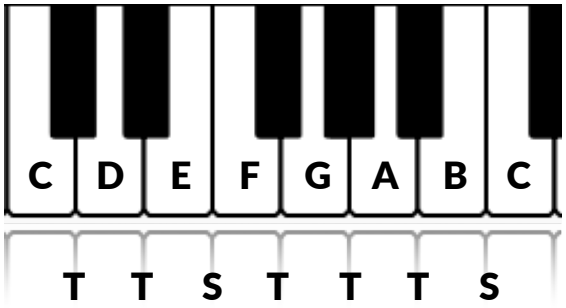


and **C** to **D** is a **tone**:

Tones and semitones are also referred to as **whole-steps and half-steps**, but here we'll refer to them as tones and semitones, represented by **T** and **S**.

What makes a scale sound like a scale?

What makes musical scales sound different from one another is that they have their own patterns of tones and semitones. The **major scale**, which is the basis for most music you hear, has this pattern of intervals: **T T S T T T S**. If you start the pattern on the note C on a keyboard, you end up playing all the white notes.

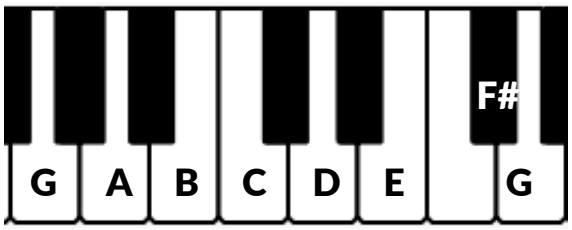


Whatever note you start playing on, this pattern of intervals will create a major scale, just using a different set of notes. The only difference is that it will sound higher or lower. Other scales, like the minor scale, have their own pattern of tones and semitones.

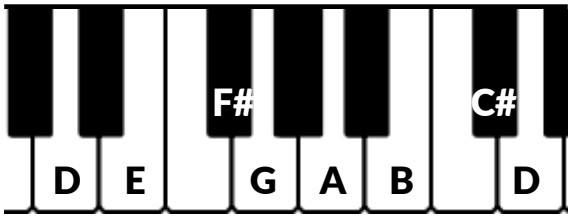
Key signatures

As we have just seen, playing all the white notes on a piano starting on C gives you the major scale. All the notes in the C major scale are in the **key of C major**. If we play the notes of a major scale starting on a different note, say G, those notes are in the key of G major. Simple, right?

Let's have a look at the G major scale. Remember, that means we start on G and move up the interval pattern T T S T T T S. You'll see that we now have one of the black notes in our major scale, an F sharp.



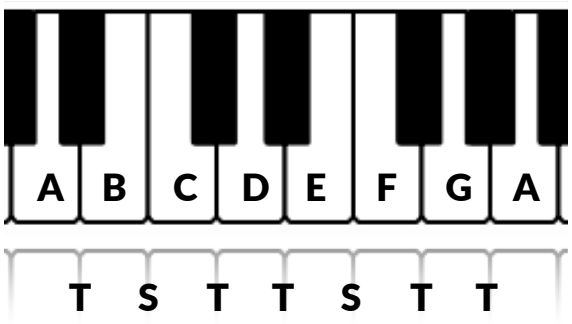
So in the key of G major, there is one sharp, F. If we start on the note D and do the same thing, our scale has two sharps, F and C, meaning that the key of D has two sharps.



You see, it's all pretty simple! Remember, when going up a major scale all the notes go up **alphabetically**, whether they are sharp or flat. This is why in the D major scale there is an F sharp and **not** a G flat, as it is the next note up from E and it is before G. Other scales will use flats instead of sharps, for the same reason. For example, the notes in **F major** are **F, G A, B flat, C, D, E**. It has to be B flat, not A sharp (even though they sound the same), because it appears between A and C in the scale.

Minor scales and keys

After the major scale, the next most important and commonly used is the **minor scale**. To play a minor scale, start on the note A and move up the white notes.



You can see that this has its own pattern of tones and semitones, which is why it sounds different to the major scale.

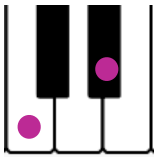
There are a few variations of the minor scale. This most basic version is called the **natural minor scale**. Just as we saw with the major scale, the notes of a natural minor scale form the **minor key**. So all the notes in the scale of A minor are in the key of A minor.

You may have noticed that A minor has all the same notes as the key of C major. This is because they are **relative keys**: A minor is the **relative minor** of C major. To find the relative minor of any major key, you simply start on the sixth position of the scale. For another example, the relative minor of G major is E minor.

Intervals

As we saw earlier, the distance in pitch between two notes is called an interval. Let's have a look at the differences between the intervals in major and minor scales.

The first difference appears on the 3rd note of the scale. In a major scale, the third note of the scale is 4 semitones up from the root, or **tonic**, of the scale. In a minor scale, it is only 3 semitones up from the root. That's why the interval of 3 semitones is called a **minor 3rd** and 4 semitones a **major 3rd**.



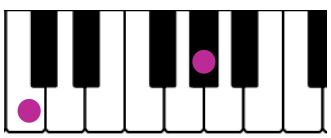
C to E flat = Minor 3rd

C to E = Major 3rd

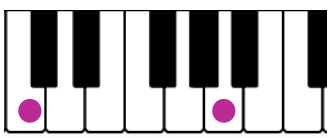
Remember, **a minor interval is always one semitone flatter than its major counterpart**.

In both minor and major scales the 4th and 5th of the scale remain the same size interval from the root. There is no minor 4th, or major 5th, for example. These intervals are called **perfect**. C to F is a perfect 4th, and C to G is a perfect 5th.

In minor scales, both the 6th and 7th of the scale are minor intervals, meaning they are one semitone flatter than their major counterparts. In the key of C minor, the 6th and 7th notes are A flat and B flat, and in C major the 6th and 7th notes are A natural and B natural.



C to A flat = Minor 6th



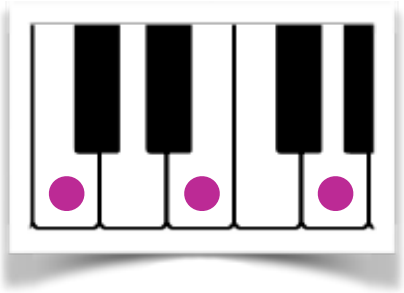
C to A = Major 6th

C to B flat = Minor 7th

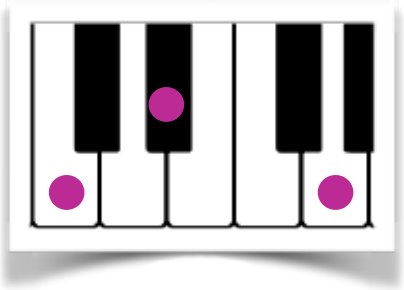
C to B = Major 7th

Chords

Chords are simply a collection of notes played simultaneously. The most common types of chord are built with three notes, so are therefore called a **triad** (no relation to the Chinese mafia). Triads are typically made out of **stacked 3rds**. For a nice, clear demonstration of what this means, simply play a **C** on a piano, play the 3rd above it, the **E**, and then play the 3rd above that, the **G**.



This is a **major chord**, or **major triad**. This is because the note in the middle, the 3rd, is a major 3rd. If you lower it a semitone to a minor 3rd you get…you guessed it, a **minor triad**. The **1st** and the **5th** of the chord are the same, it is only the **3rd** that is different.



If you build triads on every position of the major scale, using just the notes in that scale, this is the sequence of chords you create:

Major - Minor - Minor - Major - Major - Minor - Diminished

Ah yes, the **diminished** triad, I'm sure you noticed it. This is like a minor triad, except the **5th** of the chord is **flattened** by one semitone. As we said earlier, fifths are not described as major or minor. If a fifth is lowered by a semitone, it is **diminished**, hence the name of the chord. (If the 5th is raised by a semitone, it is **augmented**)

The most commonly used and most important chords in a major key are the ones build on the **1st**, **4th** and **5th** positions of the scale. In C major, these chords are **C major**, **F major** and **G major**.

Key signatures and the Circle of Fifths

So, we've already seen that **C** major has **no** sharps or flats, just the white notes on the piano (the **naturals**). We've also seen that if you go to G, which happens to be the **fifth** note of the C major scale, the G major scale/key has **one** sharp, **F**. Go up a fifth again, which takes you to **D**, and the key of D has **two** sharps, **F** and **C**. Well, guess what? If you go up another 5th, to the note **A**... the key of A has **three** sharps, **F**, **C** and **G**. And I'm sure that you'll be staggered to learn that the key of **E**, a fifth away from A, has **four** sharps! **F**, **C**, **G** and **D**! And so on...

This pattern is called the **Circle of Fifths**, and it's pretty useful to get your head around. We've seen that going up in perfect fifths adds a sharp to your key signature. Well, guess what going down a fifth does? It adds a flat to your key signature! (Or removes a sharp, depending on what key you are in)

If you go down a fifth from C, you get to F, and the key of **F** major has **one** flat, **B** flat. Go down a fifth from there you get to **B flat**, which has two flats in its key signature, **B** flat and **E** flat. And so on and so on.

You can see that it is a very neat and logical system. There is a nice big picture of the circle of fifths in the glossary for you to wrap your head around. Admittedly, it does look a little daunting... If you find it confusing and difficult at first, don't worry. Just persevere, and it will all make sense soon enough. Once you understand it well, understanding and navigating key signatures will be a doddle.

Conclusion

Everything covered here is essential knowledge if you want to really understand music. If you are new to the world of music theory, then hopefully the last 25 minutes or so have been very enlightening! But trust me, you've still got a lot more to learn: this really just scratches the surface.

If you are serious about music education, and want to improve your skills as a composer, make sure to check out our list of Premium courses, which you can see here: https://thinkspaceeducation.com/courses/

Thank you for reading, and happy composing!

The ThinkSpace Team

Glossary

Augmented - If an interval is increased by one semitone, it is augmented. This generally doesn't apply to major and minor intervals, but the 'perfect' intervals. For example, C to G sharp is an augmented 5th, C to F sharp is an augmented 4th etc. An 'augmented chord' (or 'augmented triad') is a major triad with an augmented 5th. So a C augmented chord has the notes C - E - G♯.

Circle of fifths - See diagram at the end.

Diminished - If an interval is decreased by one semitone, it is diminished. This generally doesn't apply to major and minor intervals, but the 'perfect' intervals. For example, C to G flat is a diminished 5th. A 'diminished chord' (or 'diminished triad') is a minor triad with a diminished 5th. So a C diminished chord has the notes C - E♭ - G♭.

Enharmonic - Descriptive of two notes of the same pitch but of different function. For example, G flat and F sharp are 'enharmonic equivalents', meaning they have the same pitch but are used in different contexts.

Flat - Represented by this symbol: ♭. It indicates a lowering in pitch by one semitone. So, to flatten the note E would give you the note E ♭.

Half-step - The American term for 'semitone'.

Hertz - Shortened to Hz, this is the standard measurement of the frequency of pitch. One Hz means one vibration per second. So if you see the note A described as 440 Hz, this means there are 440 vibrations per second.

Interval - The distance in pitch between any two notes is an interval. This is generally done with numbers representing the distance between the notes along the scale, preceded by a description as either major, minor, perfect, augmented or diminished, depending on the interval. For example, C to D is a major 2nd, C to E ♭ is a minor 3rd, C to F is perfect 4th, C to G♯ is an augmented 5th, and C to G ♭ is a diminished 5th. The terms 'semitone' and 'tone' also relate to intervals.

Intervals can either be ‘harmonic’ or ‘melodic’. Harmonic means they are played at the same time, and melodic means the notes are played following each other sequentially. For example, if I play C and E at the same time that is a harmonic interval, and if I play them one after the other that is a melodic interval.

An interval can be described as ‘compound’ if you make it an octave bigger. For example, C to E (the octave above) is a compound major 3rd.

Key - The key of a piece of music refers to the group of notes it uses. A key is either major or minor, meaning that is based on a major or minor scale. For example, if something is in the key of G major it uses the notes of the G major scale. A note used in that piece that falls outside the key is known as an ‘accidental’ (even when it is on purpose).

Natural - This simply refers to a note that is not sharp or flat, such as the white notes on a piano. It is represented by the symbol ♮

Octave - An interval between one musical pitch and another with double its frequency, equivalent to 12 semitones. Notes an octave apart have the same note name. So to go up (or down) an octave from G for example will take to G.

Perfect - Descriptive of an interval that is neither major or minor. This relates to the fourth, the fifth, the octave and the unison (to play in unison is to play the same note at the exact same pitch).

Relative key - Major keys have relative minor keys, and minor keys have relative major keys. A relative key uses the same set of notes, but starts at a different point along the scale, therefore it has its own pattern of tones and semitones. A major scale has the interval pattern of T T S T T T S. A minor scale begins on the 6th position of the major scale (in C major this is on the note A), and therefore has the interval pattern T S T T S T T.

Semitone - The smallest interval typically used in Western music, equal to one twelfth of an octave, or half a tone. On a piano the distance of a semitone would be the nearest key, on a guitar it would be the nearest fret, etc. It is the same interval as a minor 2nd.

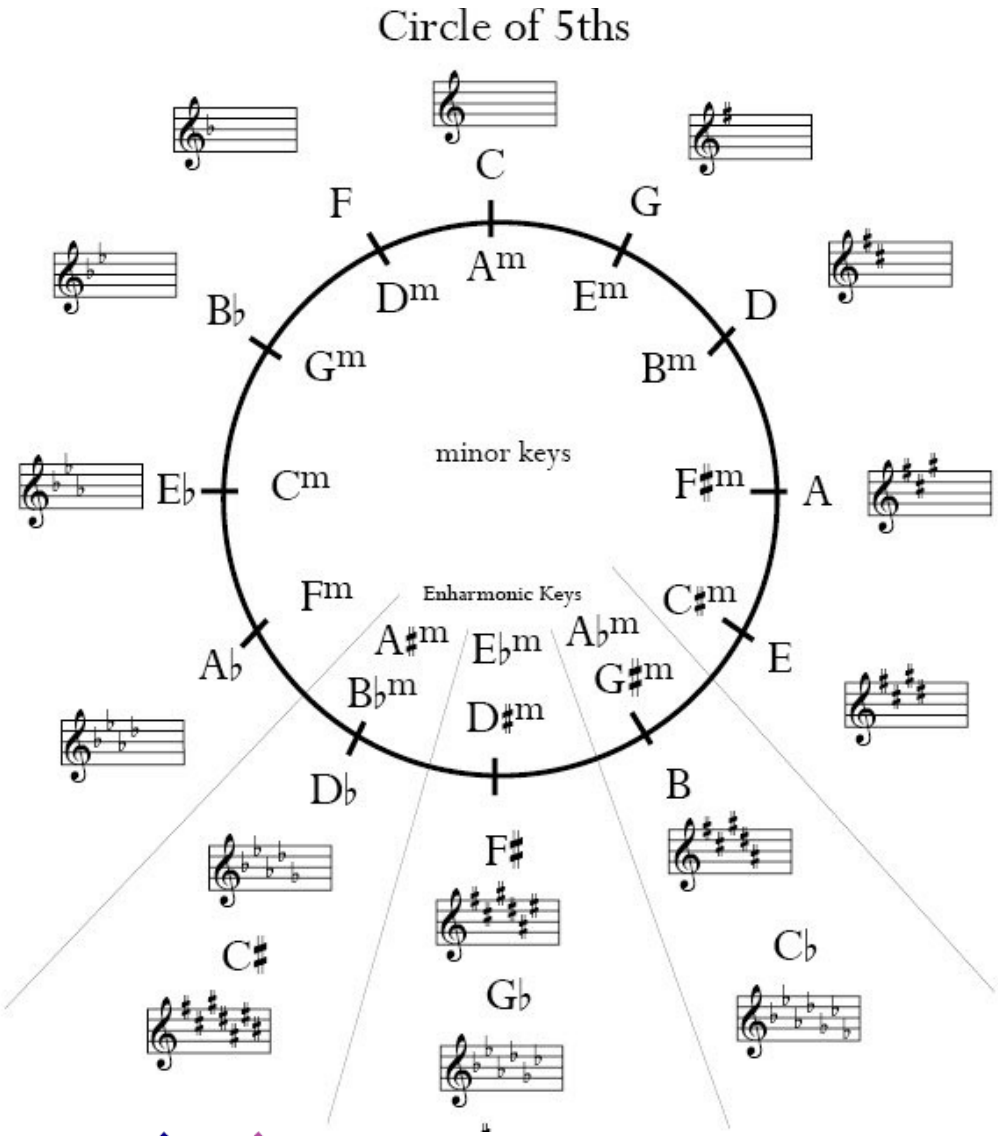
Sharp - Represented by this symbol: ♯. It indicates a heightening in pitch by one semitone. So, to sharpen the note D would give you the note D♯.

Tone - An interval equivalent to two semitones. It is the same interval as a major 2nd.

Tonic - The root note of a scale or key. For example, in the key of D major, the tonic is D.

Whole-step - The American term for 'tone'.

The Circle of Fifths:



THINKSPACE EDUCATION