THE PROCESS AND STEPS OF LEARNING AND OPERATING OF MUSICAL KEYBOARD FOR EFFECTIVE SYNCHRONIZING WITH SONGS

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ABSTRACT: *This study was to assess the process and steps of learning and operating of musical keyboard for effective synchronizing with songs. Learning to play a basic melody on a keyboard or even putting a few chords to them is a great confidence builder. Songs inspire and strengthen, bring beauty and unity, and are a unique way to express feelings. Many people want to learn how to read music, conduct hymns, and play a keyboard. This study concluded that the process and steps of learning the musical keyboard for effective synchronizing of songs cannot be over-emphasized. The entire process of educating students to play keyboard instruments falls into the category of musical education. The purpose of the songs is to help develop the skills necessary to play the keyboard. However, people express their emotions, foster their creativity, and unravel their talents through music. One of the recommendations made was that the leaners of a musical keyboard should ensure that they are familiar with the notes and method of operating the keyboard parts in order to synchronize with songs.*

Keywords: Learning, Operating, Musical Keyboard, Effective Synchronizing and Songs

Introduction

Songs are an intentionally organized art form whose medium is sound and silence, with core elements of pitch (melody and harmony), rhythm (meter, tempo, and articulation), dynamics, and the qualities of timbre and texture. Learning to play a basic melody on a keyboard or even putting a few chords to them is a great confidence builder (MILNE Library, 2021). A device made or modified to produce musical sounds is called a musical instrument. The item can only be used as a musical instrument with intent. Though the music produced by an ensemble is influenced by multiple factors, including musical genre, musician skill, and individual interpretation, rhythmic synchronization is at the foundation of musical interaction (Hennig, 2014). Most musical instrument families have nearly perfect harmonic overtone series, for example, keyboard, plucked, or bowed instruments.

So, to make musical instruments play notes that we accept as harmonic sounds, synchronization needs to occur to arrive at the perfect harmonic overtone series that the instruments actually produce (Bader, 2018). The reasons for this synchronization are different in the singing voice, organs, saxophones or clarinets, violin bowing or in plucked stringed instruments.

The process and steps of learning the musical keyboard for effective synchronizing of songs cannot be over-emphasized. The entire process of educating students to play keyboard instruments falls into the category of musical education. International communication experience demonstrates that instrumental teachers from diverse countries work to find innovative approaches, strategies, and tools to help students achieve better outcomes in music while also evaluating their students' musical and performing abilities (Matveeva, Jianzhou, & Starostina, 2020). Songs inspire and strengthen, bring beauty and unity, and are a unique way to express feelings. Many people want to learn how to read music, conduct hymns, and play a keyboard. The purpose of the songs is to help you develop the skills necessary to play the keyboard. According to VanWeelden, Davis, and Singletary (2019), people express their emotions, foster their creativity, and unravel their talents through music. Taking a music lesson can help improve their instrumentalist abilities as well as their understanding of musical principles and music history.

Concept of Song

A song is a musical composition intended to be performed by the human voice. This is often done at distinct and fixed pitches (melodies) using patterns of sound and silence. Songs contain various forms, such as those including the repetition and variation of sections (Wikipedia, 2022). Songs are one of the most captivating and culturally diverse resources that may be used in language learning. Songs are musical compositions with lyrics, especially popular songs. Songs are a distinct form that shares aspects with speech and poetry. Songs and speech both contain melody, are vocally generated, and have linguistic meaning. Songs can both be set to music and utilize words to communicate meaning. According to Bertoli-Dutra and Bissaco (2006), every song has its own message. The appeal and effectiveness of the song to the listener is dependent on the lyrics. The message contained in a song can be delivered depending on how the writer puts the words in the lyrics. A song may be for a solo singer, a lead singer supported by background singers, a duet, a trio, or larger ensemble involving more voices singing in harmony, although the term is generally not used for large classical music vocal forms, including opera and oratorio, which use terms such as aria and recitative instead.

Songs refer to a set of words or short poems meant to be sung and set to a certain type of music. Songs have surrounded humanity for millennia and have served as a way of expressing feelings, wants, hopes, and desires in a melodic way (Gray, 2022). Songs consist of many different components: lyrics, verses, refrain, and meter. Lyrics are a group of words that make up a song and are usually broken up into verses. Verses are a grouped portion of a song, which can also be found in poetry. The refrain of a song is the repeated part, usually broken up throughout the song. The meter is the measurement of regularly occurring beats or bars. Songs can have one single verse or many verses and refrains. Songs with more than one voice in a part singing in polyphony or harmony are considered choral works. Songs can be broadly divided into many different forms and types, depending on the criteria used. Through semantic widening, a broader sense of the word "song" may refer to instrumentals, such as the 20th century Songs Without Words pieces for solo piano (Bernardinelli, 2018). A song can be sung without accompaniment by instrumentalists (a cappella) or accompanied by instruments. In popular music, a singer may perform with an acoustic guitarist, pianist, organist, accordionist, or backing band.

Concept of Musical Keyboard

The term "musical keyboard" often refers to keyboard-style synthesizers. Under the fingers of a sensitive performer, the keyboard may also be used to control dynamics, phrasing, shading, articulation, and other elements of expression depending on the design and inherent capabilities of the instrument (Kelzenberg, 2013). A keyboard refers to a row of keys used to operate any musical instrument which falls under the incredibly broad definition of a keyboard: Keytars, marimbas, pianos, accordions, and harpsichords. A musical keyboard refers to any musical instrument on which different notes can be sounded by pressing a series of keys, pushing buttons, or parallel levers (Clutton, Libin, & Ripin, 2021). In nearly all cases in Western music, the keys correspond to consecutive notes in the chromatic scale, and they run from the bass at the left to the treble at the right. A musical keyboard is the set of adjacent depressible levers or keys on a musical instrument. Keyboards typically contain keys for playing the twelve notes of the Western musical scale, with a combination of larger, longer keys and smaller, shorter keys that repeat at the interval of an octave (DEFINITIONS NET, 2022). Depressing a key on the keyboard causes the instrument to produce sounds, either by mechanically striking a string or tine; plucking a string; causing air to flow through a pipe; or striking a bell. On electric and electronic keyboards, depressing a key connects one or several circuits. Since the most commonly encountered

keyboard instrument is the piano, the keyboard layout is often referred to as the "piano keyboard".

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Types of Musical Keyboard

Musical keyboards are great instruments for learning and practicing how to play, even though they do not give the real feel of an acoustic piano. These devices, though, serve many different purposes for music professionals and are essential to their work as musicians (Hafeez, 2022). Currently, there is a broad range of musical keyboards, making it difficult to choose the right one. When working on different projects or learning new playing skills and techniques, it's critical to understand the advantages and disadvantages of each type.

Basic Keyboard (Beginners): Beginner keyboards are designed with the novice student in mind. Beginner keyboards generally range from two to four octaves and offer a limited selection of digitized instrument sounds for entertainment variety.

These keyboards don't have weighted keys like real acoustic pianos, since keyboard keys are made from plastic, not ivory.

These are best for beginners, especially if you are still experimenting with the idea of learning how to play the piano or keyboard. These keyboards are built for beginners, so the sound ranges available are usually 2–4 octaves, with fewer instrument sounds to choose from (The Hub, 2022). They include options to help beginners get familiar with the settings and learn how to use the instrument. Many of them have USB ports to transfer sounds to and from a computer. This feature can be used to save your work or transfer music to the keyboard.

Digital Piano Keyboards: The first keyboard piano type is the classical digital piano, which comes in three forms: grand, upright, and portable pianos (Oztuna, 2022). Digital pianos cap the spectrum of electronic keyboards. Grand piano keyboards mimic the external looks of traditional grand pianos but internally lack strings and hammers. Thus, digital pianos don't deliver acoustic sounds. Rather, computer chips inside store digitized recordings, released through amplified speakers when keys are pressed.

The digital and acoustic versions of the upright piano, as well as the grand piano, have similar silhouettes and a lacquered finish. The digital versions are lighter in weight, so they are easier to move as compared to traditional ones. While they may also have 88 black and white keys, they do not rely on strings and hammers to produce a sound (Bradley, 2021). They use analog sensors for keyboard action and computer chips to mimic the sound of the acoustic piano. Depending on the piano brand, some of these digital keyboards have 128-voice polyphony, demo songs,

midi recorder, lesson function, several ports for easy computer connectivity, and more incredible features.

Synthesizers Keyboards: Synthesizers are meant for creating new sounds using material that is available on the keyboard. These instruments look like keyboards, but their purpose is to create new and original digital sounds and effects using analog and digital signal processing (Hafeez, 2022). The sound sets on synthesizers cater to specific genres of music, and knowing what style of music you will be making is important to choosing the right instrument. Synthesizers require considerable knowledge and experience in music as they are used by professionals to create unique sounds and soundtracks. They come with all the advanced connectivity, data transfer, and storage features of the other keyboards. These instruments usually have prerecorded piano sounds added to their libraries, but as a whole, the instrument is more suitable for a professional.


Synthesizer keyboards have been around for a long time and are ideal for creating unique sounds, layering effects, and manipulating sounds. Synths are often used for creating special sounds and beats on the stage and in the studio with their digital or analog processing features. Synths have many extra functions for sound manipulation that you cannot find in standard keyboards, like an effects library, filters, tones, samples, and many more. The difference between a synth and a workstation is that workstations are synthesizers with the addition of MIDI and DAW controllers and some extra features.

Arranger Keyboards: This type of keyboard is what most musicians call a "one-man-band. An arranger keyboard is mostly used by solo artists who like to perform on stage with all types of instruments at hand. Instead of having a band around him to provide different sounds, pressing a few buttons will do. Those sounds are all easily accessible on the arranger's keyboard. It is like having the whole band performing with the artist, as it has a built-in auto-accompaniment feature (Bradley, 2021). It has bass, drums, and other features that will make solo performing a breeze, particularly for those who like to compose songs anytime. The recording capability of this type of keyboard with USB connectivity also makes it even more attractive for amateur and professional songwriters.


Arranger keyboards have more features compared to the basic keyboard. They come with a larger collection of prerecorded accompaniment tracks in a wide variety of music styles, such as indie rock, reggae, classic country, techno, etc. Similar to the basic keyboard, arrangers come with a USB port that can be used to record and save music on a computer or a memory drive. Arrangers also have more styles of prerecorded backing accompaniment tracks that can be used to add a jazz, rock, Latin, or any other vibe to your compositions (Hafeez, 2022). Most solo artists prefer these instruments as they allow them to compose music on the spot during live performances with the myriad instrument and sound options available on the device. The composing and sequencing tools make it an ideal choice for songwriters. Other features that make arrangers a more comprehensive instrument are voice back-up capabilities, chord recognition software, and sound engines with a fairly good selection of sounds that add a live band feel.

Workstations Keyboards: These keyboards are also known as digital workstations because they come with composing, recording, and production features that make them as good as a compact studio. This keyboard is for professionals who need more control over the creation of their work, and therefore most features are designed to aid their creative process in making original music pieces (Hafeez, 2022).


The digital workstation is an upgrade to the arranger keyboard. It is simply having a computer on a keyboard. All the necessary components that a producer would need to manipulate every single detail of a song are included in the workstation, be it sampling, layering of effects, sequencing, filtering, recording, or editing. You name it, and the workstation keyboard can provide it along with computer integration. Some models have a built-in synthesizer. It is the total package that every single songwriter, musical arranger, or record producer needs.

Method of Operating the Keyboard Parts

Getting to know the keyboard with notes: The notes on this keyboard are grouped into 6 groups of 12 notes. Each group consists of 7 white keys and 5 black keys, depending on the type of keyboard. Each group starts with a **"C"** note, which is located to the left of two consecutive black keys. Keyboards come in different sizes and with different numbers of keys (MUSIC2ME, 2020). If music is a language, the notation system is like written text. Like any language, music is based on rules and uses special symbols. The notation defines which notes have to be played at a certain point in time.

Learning the Note Values: There has been great progress in operating the keyboard parts and speaking the language of music that all can understand. To make music, instead of just playing notes in random order, you need a kind of map that shows you which note is to be played when and for how long (MUSIC2ME, 2020). Reading music sheets is similar to reading a hiking map. The hiking map shows the destination, the route you need to take, where you can rest, and for how long, in order to reach your destination on time. In music, the sequence of notes provides the route; the bars and beats tell you where in time the notes are to be played.

Learning to Position All Fingers Efficiently: The hints on the keyboard show you which finger plays the first note. They will make it easier to play. Positioning all fingers helps to play music more easily and lets you know which fingers belong to which keys. Your hands will move more comfortably and more fluidly across the keyboard. At first, it is not easy to control each finger individually and to make it clear to your brain that only the muscles of one finger should be addressed. Fingers are numbered the same on both hands.

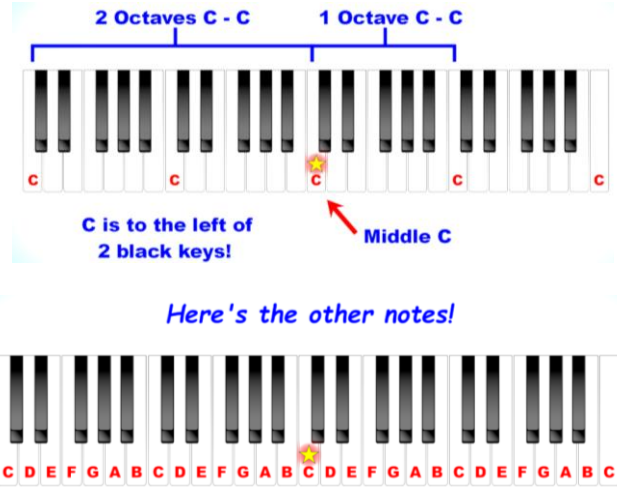
Learning Beats and Rhythm: In music, beats are represented by notes. There are several kinds of notes, and each receives a different value, or number of beats. The first step in reading rhythm is to find the beat. The beat in music is steady, like your heartbeat or a ticking clock. According to the Church of Jesus Christ of Latter-day Saints (2004), the rhythm in a piece of music is based on a constant fundamental beat that you can hear and feel. When you tap your foot to music, you are feeling the fundamental beat and marking it with your foot. This fundamental beat can be shown by evenly spaced music notes.

Using the black keys as guidance: When placing the fingers on the keyboard, move your fingertips just inside the black keys. If you use the black key as a guide rather than moving your fingers back and forth to the white keys, you will avoid having

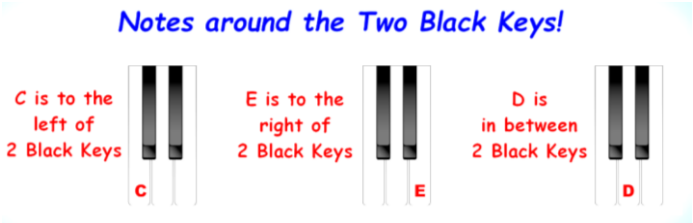
to reach for notes. Another tip is to play on the padded part of your fingers rather than on the very end of your fingertips. This will allow you to move your fingers around the keyboard quicker as well as get the necessary force needed to impact the keys. This will feel a little weird at first, but good technique often does when you're first getting started. Just stay with it, and you'll begin to feel more comfortable with it.

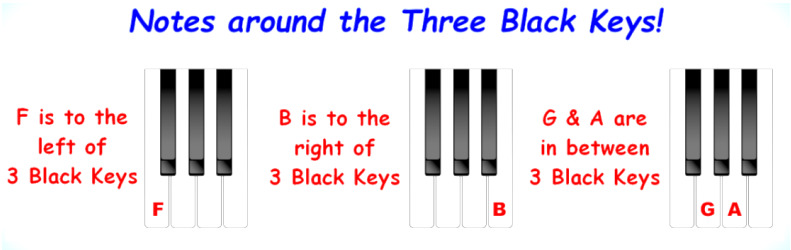
Notes in Musical Keyboard

The notes of a musical keyboard and how to identify them. As already stated, some keyboards have more keys than others, but this makes no difference in relation to understanding how to play them, as they all have the same basic arrangement of black and white keys. If you look closely, you will see that the black keys are in groups of two, then three (Woodward, 2015). This enables us to easily find every single note. And the first one that you must learn is 'C ', which can be found just to the left of two black keys. The diagram below shows a four-octave span, revealing five C's, each of which are eight notes apart—hence octave—as in octagon—eight.



All the other notes are here, but I don't want you to get too confused about all this at the moment. We will be taking it all slowly, step by step. Easy, if you split them up into two main groups according to the number of black notes as shown below:





According to Woodward (2015), probably the most important note on the keyboard is **middle C**, which is the **'C'** that is more or less in the middle of the keyboard and because it is so important, we are going to put a star on ours as shown. Now all the notes to the left of **middle C** get gradually lower in pitch and all the notes to the right gradually get higher. And usually, you will use your right hand for the higher notes and your left hand for the lower notes.

Functions of Musical Keyboard

The musical keyboard utility has improved, but the most frequent features can be found on current keyboards and can be quite helpful in terms of learning how to play more skillfully. Some musical keyboards have a sustain pedal that can keep notes sounding after the release of keys. Many keyboards also have a "soft" pedal that can mute the volume and a sustain pedal that sustains selected notes (Digital Piano, 2021). keyboards have some functions that can do some playing on their own (with your guidance, of course). You can sit back and let the keyboard do some of the work. The most common features are

Drum rhythms: All portables and arrangers and many high-end digital pianos offer an on-demand drummer to add some groove to your performance (Kovarsky, 2016). You can select the choices from the front panel, add fancy transitions called fills, and sometimes select progressively busier variations. Some stage pianos, synths, and workstations also offer these grooves, although they may be lurking within the arpeggiator feature.

Auto-accompaniment: How about having a full backing band ready to play whatever style of music, song, or chords you think of? Portables, arrangers, and some high-end digital pianos can do that and more. If you haven't been around keyboards and music for some time, you may not realize just how good the backing bands on today's keyboards have become. In a word: amazing!

Arpeggiation: With arpeggiation, you hold a few notes or a chord, and the keyboard repeats them over and over in a dizzying array of possible patterns, from simple up and down repetitions to pulsing grooves to complex rhythmic patterns. According to Kovarsky (2016), an arpeggiator is often what produces the fancy

riffs you hear in pop and dance music. Many of the more advanced options can also produce realistic guitar strumming, harp flourishes, and even drum grooves.

Voice Select: A feature found in all digital pianos is the ability to switch between different sounds. Some keyboards and synthesizers have many different kinds of sounds, such as bells, percussion, mellotron or even animal sounds. Digital pianos (as opposed to keyboards) often do not have as many different types of sounds, but instead, a larger selection of piano sounds and sounds from other keyboard instruments, such as e-piano, harpsichord and organ.

Metronome: A metronome helps you keep pace. You specify a tempo, which is subsequently played with clicks from the instrument. The tempo is in beats per minute, and can be set to different beats, and whether you want to hear a one-beat or not (Digital Piano, 2021). A metronome is good to have for rehearsing a piece of music at a certain tempo and technical practice. Built-in metronomes are found in almost all digital pianos.

Record/Play: A built-in recorder is useful in several practice situations. Apart from the fact that it can be fun to hear yourself play, it is also practical to be able to refine you're playing from what you hear or save creative musical ideas for later. On many instruments, you can record on several tracks. If this is not enough, you can also connect most digital pianos to a computer and use a recording program to record as many tracks as you want.

Transposing: The transpose function gives you the opportunity to transpose to another key. When you switch to another key, you change the pitch of the entire piece and thus get a completely different starting point (Digital Piano, 2021). It can be useful in a situation where you have learned to play a song, where the melody starts on C, for example, but you need to play it starting on F. This is especially useful if you are accompanying vocalists who want to sing in a higher or lower key.

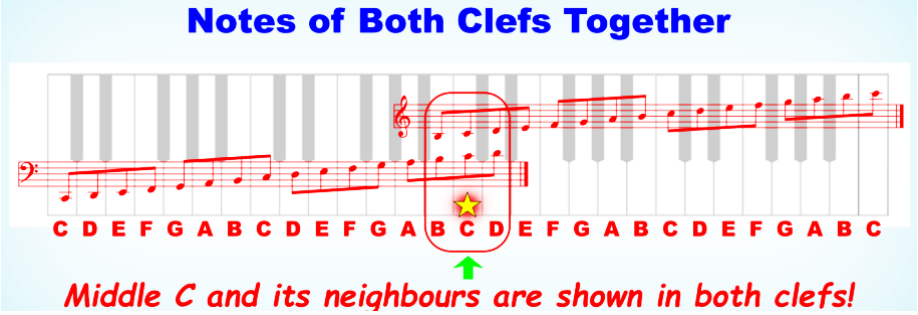
Tuning: You may have heard that guitars or acoustic pianos can "go out of tune". This means that the strings in the instrument are not adjusted to the standard. The A440 is the musical pitch, corresponding to a sound frequency of 440 Hz, which acts as a tuning standard for the musical tone "A" over the middle C (also called A_4 in scientific pitch notation). A digital instrument, on the other hand, cannot go out of tune - there are no strings to tune. However, it is still possible to tune it, if you wish. In some instances, some songs or pieces are written in a special tuning, and you may therefore need to tune your piano a little up or down to be able to play along with other musicians.

Sound Capability: keyboards can do much more than just play sounds. They are loaded with a multitude of features and capabilities to astonish you. The very primitive appearing instrument can have dozens of groupings of sound (Anurag, 2022). Most keyboards have hundreds, and high-end ones may have thousands of sounds. These may be a simple single sounds or those combinations of instruments.

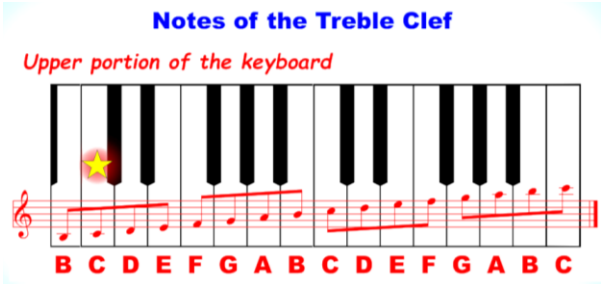
How the Notes Relate to the Keyboard

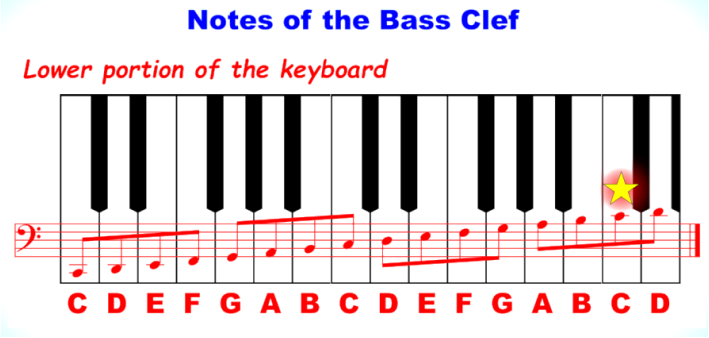
According to Woodward, (2015), Notes can be Related to the Keyboard in the following manner:

This next diagram may at first look a little confusing and difficult to read; and if you are reading this on a tablet, it may not be clear.



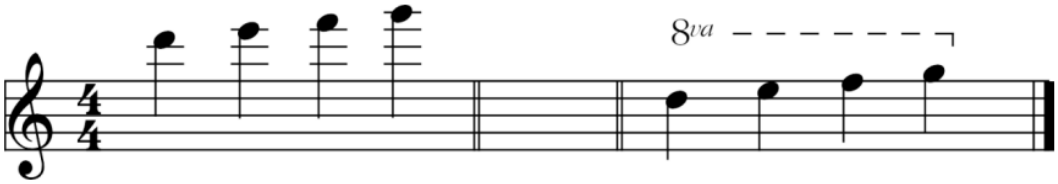
To make this easier to see, below I have separated the keyboard into two 2 octave sections, one for each clef, but remember that we have put a star on Middle C so that you can always find it! So notice that the next two diagrams are actually the same as the above diagram split into two. It may be useful for you to print out these three diagrams and look at them in detail





Ok so this shows a four octave spread, but what happens when the notes are higher or lower than these as on larger keyboards?

Good question! And the answer is that up to a certain point more ledger lines are added, but when there are too many they become impossible to read quickly, so instead the music is written an octave (or more) lower or higher to keep within the clefs and then the ***8va, 8vb, 15ma or 15mb*** symbols are used. As an example the following two phrases are exactly the same, but on the second one the 8va symbol is used indicating that the notes should be played an octave higher than written.

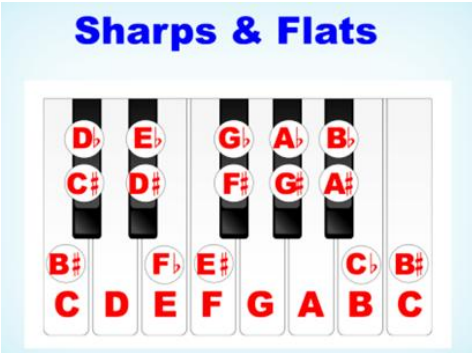


- **8va** = play the bracketed notes one octave higher;
- **8vb** = play the bracketed notes one octave lower;
- **15ma** = play the bracketed notes two octaves higher;
- **15mb** = play the bracketed notes two octaves lower.

To be honest it will probably be a while before you'll need these.

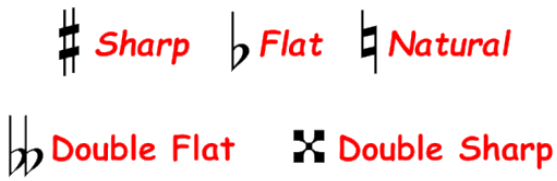
Sharps & Flats

We've already learnt that the interval from one C to the next is an octave. And indeed this is the same interval from **B - B or G - G** etc. Now the smallest interval in Western music is a semitone which is the interval from any note on the keyboard to its nearest neighbour be it black or white. So the interval between **C** and **B** is a semitone, and also the interval between **E** and **F** as in both cases there are no black notes in-between. In all the other cases there are black notes in-between, so the semitone interval will be to the black note above or below. And as you can see by the diagram below the first black note after **C** is called **C sharp** or **D flat**. Note that in some circumstances **B** could also be known as **C flat** (as there are no black notes in between) and C could also be known as **B sharp** – but actually this is very rare.



To *"sharpen"* a note is to raise the pitch and to *"flatten"* one is to lower the pitch. There are also double sharps and double flats where the pitch of a note is raised or lowered twice as much (2 semi-tones). But as these only occur occasionally in keys heavily endowed in sharps or flats we're not going to get involved with these here; and it may be years before you come across any.

Sharp / Flat Symbols



Whether a particular note is known as a sharp or a flat depends on the key signature which will be dealt with later. Sharps and flats occur in music in two different ways:

- as accidentals; or
- within key signatures (which could also include accidentals).

When they are accidentals, they are simply added to the music as and where they occur as shown below.

In this case any repeats of notes that are *"sharpened"* or *"flattened"* this way remains so for the duration of the bar unless "naturalized" using the "*natural*" symbol. If you look carefully at the last diagrams you will see that both examples are identical. The first one uses **F sharp** and the second uses **G flat** (same notes) to produce the same result.

Why do the black notes have two names? Why not just call them flats or sharps but not both?

Yes, I can see the confusion, but this is because there are flat keys and sharp keys which we'll be learning about later, along with key signatures.

Conclusion

This study concluded that the process and steps of learning the musical keyboard for effective synchronizing of songs cannot be over-emphasized. The entire process of educating students to play keyboard instruments falls into the category

of musical education. The purpose of the songs is to help develop the skills necessary to play the keyboard. However, people express their emotions, foster their creativity, and unravel their talents through music.

Recommendation

1. The leaners of a musical keyboard should ensure that they are familiar with the notes and method of operating the keyboard parts.
2. Learners should master each concept and skill until they feel comfortable before moving ahead with operating the musical keyboard.
3. Learners should understand the advantages and disadvantages of each type of musical keyboard when synchronizing with songs.

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