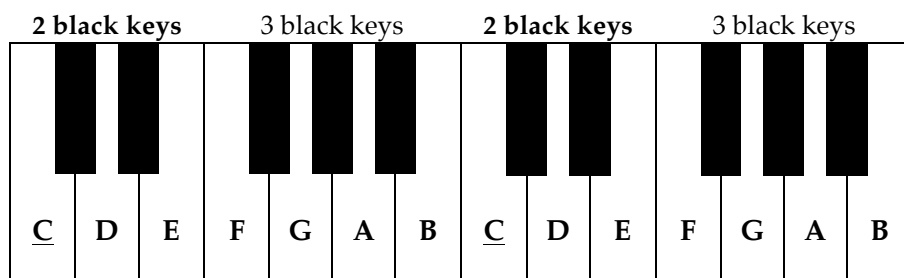


*Volume 4, Appendix 1 (= Volume 1, Section 1.1.2)*

**THE CHROMATIC SCALE AND THE PIANO**

**Pattern of the piano keyboard**

This section uses the piano, but the concepts apply to other instruments and voice also. The piano repeats a pattern: groups of two black keys alternate with groups of three. Every white key just to the left of a group of **two** black keys is labeled as C. After G, the letter names start over with A.



**Half step**

A **half step** is the distance from one piano key to the next closest (whether it happens to be white or black). E to F is a half step, because E and F are next to one another. Similarly, B to C is a half step. E to F and B to C are the only **natural half steps** because they use letter names without accidentals.

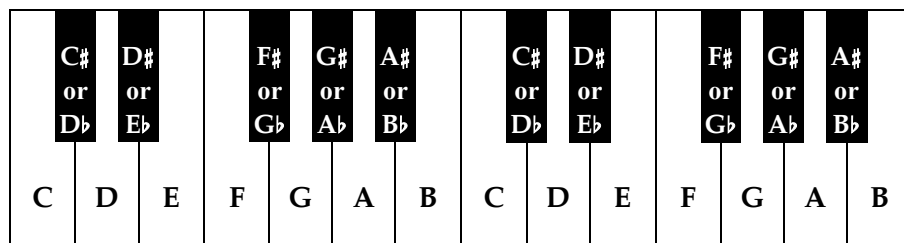
**Natural half steps**

**Accidentals**

The black keys use the letter of an adjacent white key plus a modifier called an **accidental**. The most common accidentals are:

**Flat, natural, sharp**

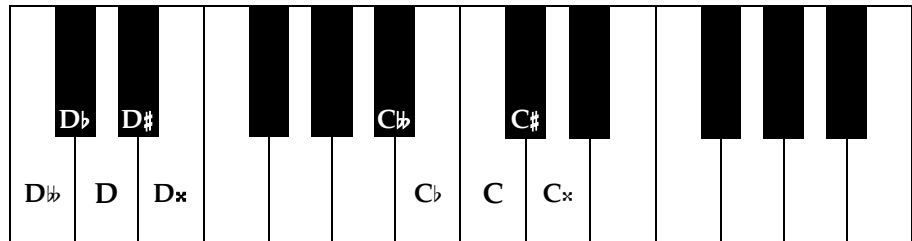
4. **b = flat**; **one half step lower than** (left of) a white key
5. **♮ = natural**; cancels other accidentals; indicates white notes on a piano
6. **# = sharp**; **one half step higher than** (right of) a white key



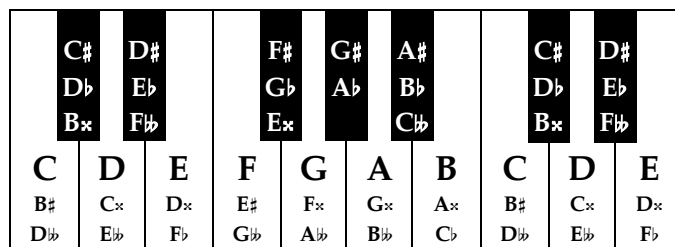
**Enharmonic notes**

**Enharmonic notes** are different names for the same piano key. For example, the black key called C sharp is one half step above C, but also one half step below D. C sharp is **enharmonic** with D flat. White keys also have enharmonic names: B raised one half step with a sharp is the white key C.

**Double flat** A **double flat** lowers a flat note by another half step, keeping the same letter name. Double flats are thus two half steps **lower** than the white key (natural) note. Similarly, a **double sharp** (looks like an x) raises a sharp note by another half step, keeping the same letter name. Double sharps are two half steps **higher** than the white key (natural) note.



**All enharmonics** The piano keyboard below shows all the enharmonic names for the keys.



**Whole step** A **whole step** is two half steps. For instance, for C up to D, the two half steps are C to C# and C# to D.

**Scale** A **scale** (from the Italian word for ladder) is a series of notes from low to high (or high to low) following some pattern of whole steps and half steps.

**Chromatic scale** A **chromatic scale** lists all the notes (white and black keys) in order, usually from C to the next C above or below. Chromatic scales use only half steps. **Ascending** chromatic scales use **sharps** for black piano keys. **Descending** chromatic scales use **flats** for black piano keys.

