

Music

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1 Note

A musical **note** is a symbol denoting a musical sound. A note can both represent the pitch and the duration of the sound.

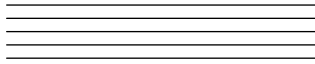
Notes are generally named as $(A-B-C-D-E-F-G)$ or $(do-re-mi-fa-sol-la-si)$.

Conventionally notes are defined around a central note A_4 , which has a pitch of $440Hz$. Each note is an integer number n of half-steps away from this central note.

$$f = 2^{\frac{n}{12}} \cdot 440Hz$$

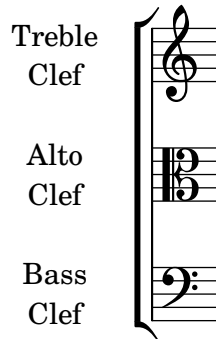
2 Staff

The **staff** or **stave** is a set of five horizontal lines and four spaces that each represent a different note.



3 Clef

A **clef** is a musical symbol used to indicate which notes are represented by the lines and spaces on a musical staff. There are mainly 3 types of clefs.



The position of the clef may be shifted up or down to change the assignment of notes.

4 Key Signature

A **key signature** is a set of symbols placed on the staff at the beginning of a section of music. The initial key signature is placed right after the clef.

The symbols are:

- \sharp sharp
- \flat flat
- \natural natural

A \sharp or \flat symbol placed on a line or space indicates that the note represented by that line or space is to be played a semitone higher (\sharp) or lower (\flat). This applies through the end of the piece or until another key signature is indicated. The \natural symbol is used to cancel the signature.



It is also possible to write a key signature symbol right before a single note, this will apply the pitch change only to it.

5 Pitch class

Two notes with a waveform ratio of any integer power power of two sound very similar. These notes can be grouped into **pitch classes**.

$$\frac{a}{b} = 2^n$$