Music Note Frequency Chart.

The frequency of every note in hertz, octaves 0 to 8, how the numbers work, and the open strings of guitar, bass, ukulele and violin.

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FOUNDATIONS

Note Frequencies

The pitch of every note in hertz (Hz, vibrations a second), with A4 tuned to 440 Hz and equal temperament, as on a piano. Middle C is C4.

OCTAVE	0	1	2	3	4	5	6	7	8
C	16.35	**32.70**	**65.41**	**130.81**	**261.63**	**523.25**	**1046.50**	**2093.00**	**4186.01**
C♯ D♭	17.32	**34.65**	**69.30**	**138.59**	**277.18**	**554.37**	**1108.73**	**2217.46**	4434.92
D	18.35	**36.71**	**73.42**	**146.83**	**293.66**	**587.33**	**1174.66**	**2349.32**	4698.64
D♯ E♭	19.45	**38.89**	**77.78**	**155.56**	**311.13**	**622.25**	**1244.51**	**2489.02**	4978.03
E	20.60	**41.20**	**82.41**	**164.81**	**329.63**	**659.26**	**1318.51**	**2637.02**	5274.04
F	21.83	**43.65**	**87.31**	**174.61**	**349.23**	**698.46**	**1396.91**	**2793.83**	5587.65
F♯ G♭	23.12	**46.25**	**92.50**	**185.00**	**369.99**	**739.99**	**1479.98**	**2959.96**	5919.91
G	24.50	**49.00**	**98.00**	**196.00**	**392.00**	**783.99**	**1567.98**	**3135.96**	6271.93
G♯ A♭	25.96	**51.91**	**103.83**	**207.65**	**415.30**	**830.61**	**1661.22**	**3322.44**	6644.88
A	**27.50**	**55.00**	**110.00**	**220.00**	**440.00**	**880.00**	**1760.00**	**3520.00**	7040.00
A♯ B♭	**29.14**	**58.27**	**116.54**	**233.08**	**466.16**	**932.33**	**1864.66**	**3729.31**	7458.62
B	**30.87**	**61.74**	**123.47**	**246.94**	**493.88**	**987.77**	**1975.53**	**3951.07**	7902.13

Shaded: the 88 keys of a piano, A0 to C8. Bold: A4 (440 Hz) and middle C (C4).

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How the Numbers Work

Every note is worked out from A4 = 440 Hz, the pitch orchestras and tuners use.

- Up an octave, the frequency doubles: A4 is 440 Hz, A5 is 880 Hz, A3 is 220 Hz.
- Up a semitone, it multiplies by the 12th root of 2, about 1.0595. Twelve semitones make the doubling.
- Sharps and flats on the same key share a frequency: C♯4 and D♭4 are both 277.18 Hz.
- Some orchestras tune A4 a little higher, to 442 or 443 Hz; every note then moves up by the same small amount.

Frequency = 440 × 2^(n ÷ 12), where n is the number of semitones from A4 (negative below it).

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Open Strings in Hertz

Standard tuning for four string instruments, lowest string first, as a tuner shows them.

Guitar	**E_2 82.41 A_2 110.00 D_3 146.83 G_3 196.00 B_3 246.94 E_4 329.63**
Bass guitar	**E_1 41.20 A_1 55.00 D_2 73.42 G_2 98.00**
Ukulele	**G_4 392.00 C_4 261.63 E_4 329.63 A_4 440.00**
Violin	**G_3 196.00 D_4 293.66 A_4 440.00 E_5 659.26**

Ukulele: the G string is tuned above middle C, higher than the C string.

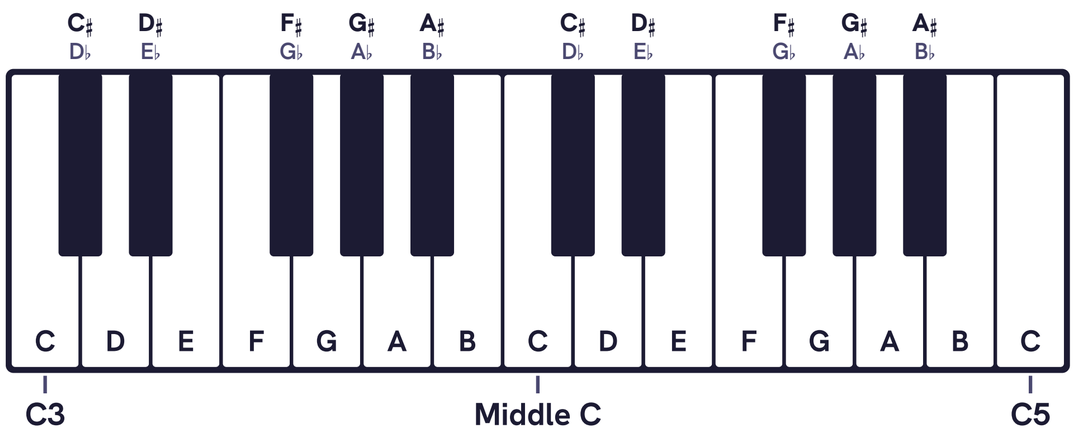
"Music is the universal language of mankind."

Henry Wadsworth Longfellow, Outre-Mer, 1835

FOUNDATIONS

Piano Keys

Two octaves around middle C, with every key named. The pattern of two and three black keys repeats all the way along.



Black keys have two names: the sharp of the white key to the left, the flat of the white key to the right.

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