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.

Free printable · A3

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).

FOUNDATIONS

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).

FOUNDATIONS

Open Strings in Hertz

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

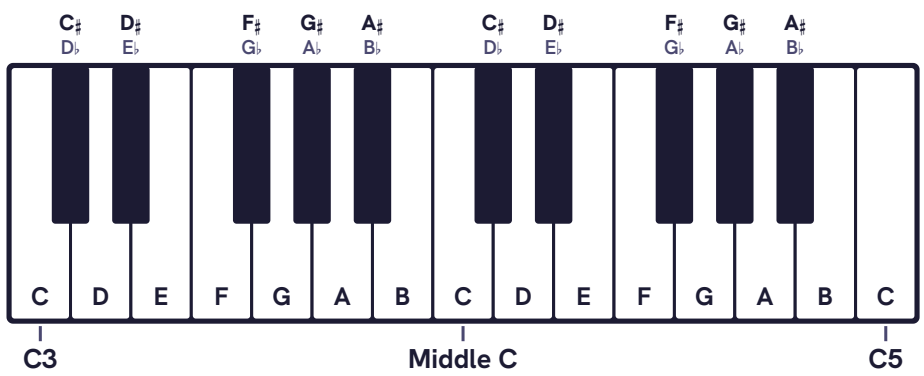
Guitar	E_2 82.41 A_2 110.00 D_3 146.83 G_3 196.00 B_3 246.94 E_4 329.63
Bass guitar	E_1 41.20 A_1 55.00 D_2 73.42 G_2 98.00
Ukulele	G_4 392.00 C_4 261.63 E_4 329.63 A_4 440.00
Violin	G_3 196.00 D_4 293.66 A_4 440.00 E_5 659.26

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

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.

"Music is the universal language of mankind."

Henry Wadsworth Longfellow, Outre-Mer, 1835

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