

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# Db	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# Eb	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# Gb	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# Ab	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# Bb	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 half step, it multiplies by the 12th root of 2, about 1.0595. Twelve half steps make the doubling.
- Sharps and flats on the same key share a frequency: C#4 and Db4 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 = $440 \times 2^{(n \div 12)}$, where n is the number of half steps 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.

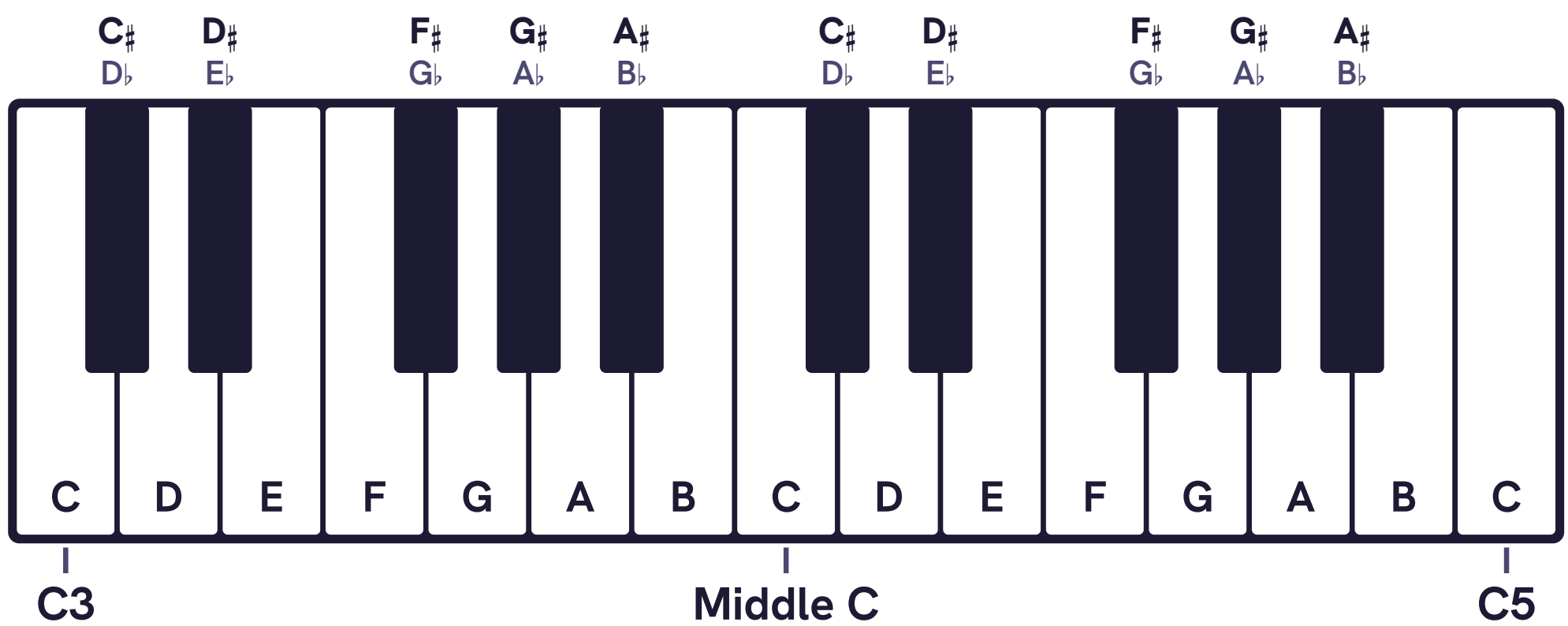
	E ₂ 82.41	A ₂ 110.00
Guitar	D ₃ 146.83	G ₃ 196.00
	B ₃ 246.94	E ₄ 329.63
Bass	E ₁ 41.20	A ₁ 55.00
guitar	G ₂ 98.00	
Ukulele	G ₄ 392.00	C ₄ 261.63
	E ₄ 329.63	A ₄ 440.00
Violin	G ₃ 196.00	D ₄ 293.66
	A ₄ 440.00	E ₅ 659.26

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.

PRACTICE TIP

Practice slowly. Speed comes from playing it right, not from playing it fast.

“Music is the universal language of mankind.”

Henry Wadsworth Longfellow, Outre-Mer, 1835

