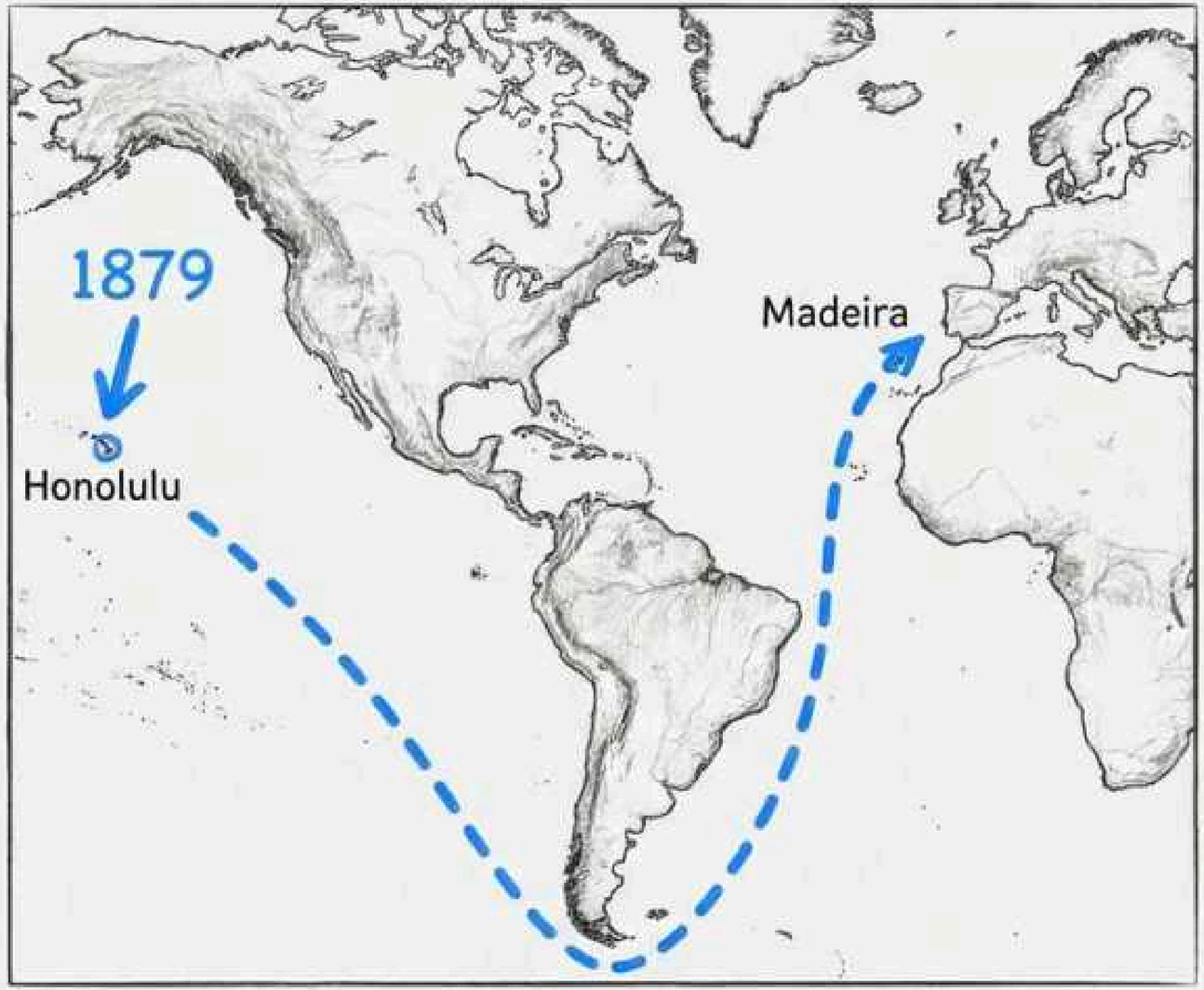
Origins of the Ukulele

¶ 1.1



[Developed in Hawaii in the 1880s]



Portuguese Machete

Ukulele

Pioneers: Manuel Nunes, Augusto Dias,
José do Espírito Santo (Madeiran woodworkers)

Royal Patronage & Global Spread

¶ 1.2

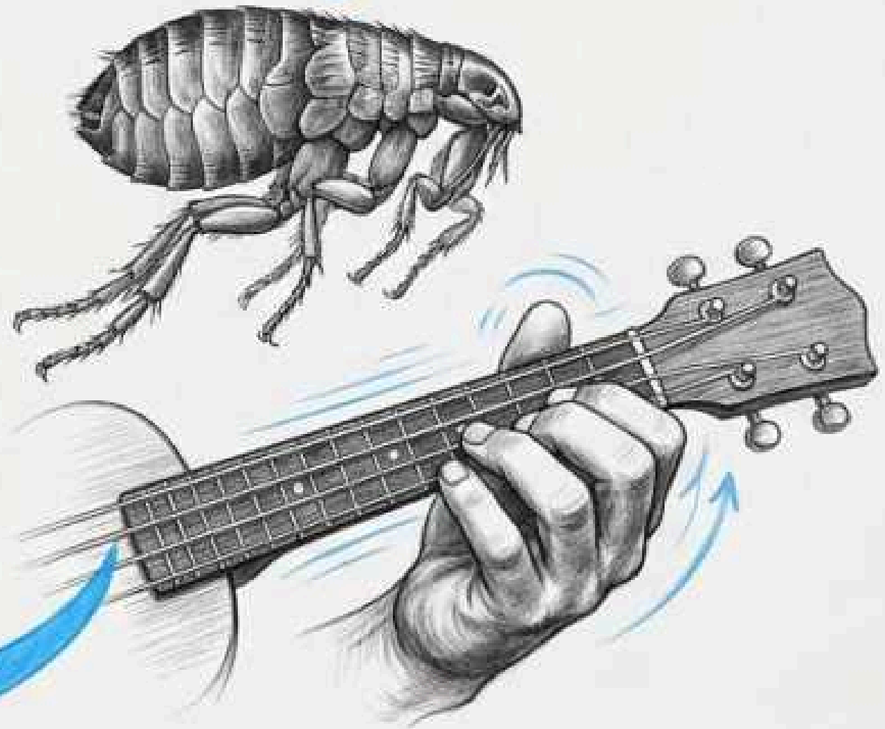


King David Kalākaua

(Made the instrument a symbol of Hawaiian music)



Jumping Flea



Spread to U.S. Mainland via **Panama-Pacific International Exposition** (San Francisco, 1915)

The Four Common Sizes



Scale Length = Vibrating length of the string (Nut to Saddle).

Soprano (The original & smallest) — ~13" (33 cm)



Concert — ~15" (38 cm)



Tenor — ~17" (43 cm)

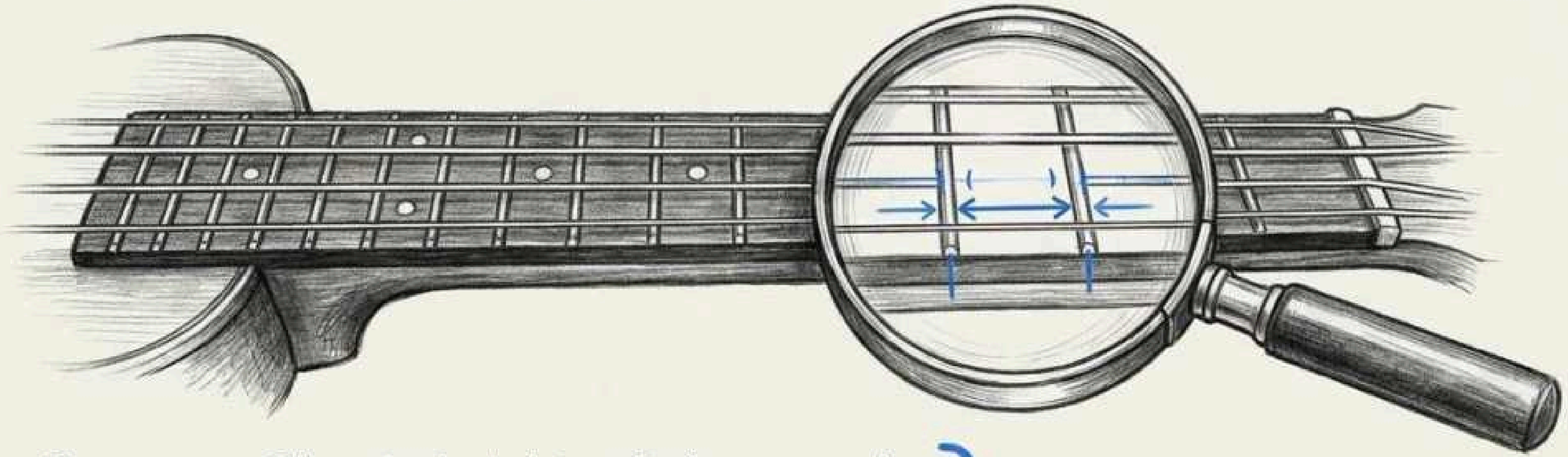


Baritone — ~19" (48 cm)

Exact lengths vary slightly by maker.

The Physics of Scale Length

Longer Scale → Wider Fret Spacing → Higher String Tension → Fuller Tone

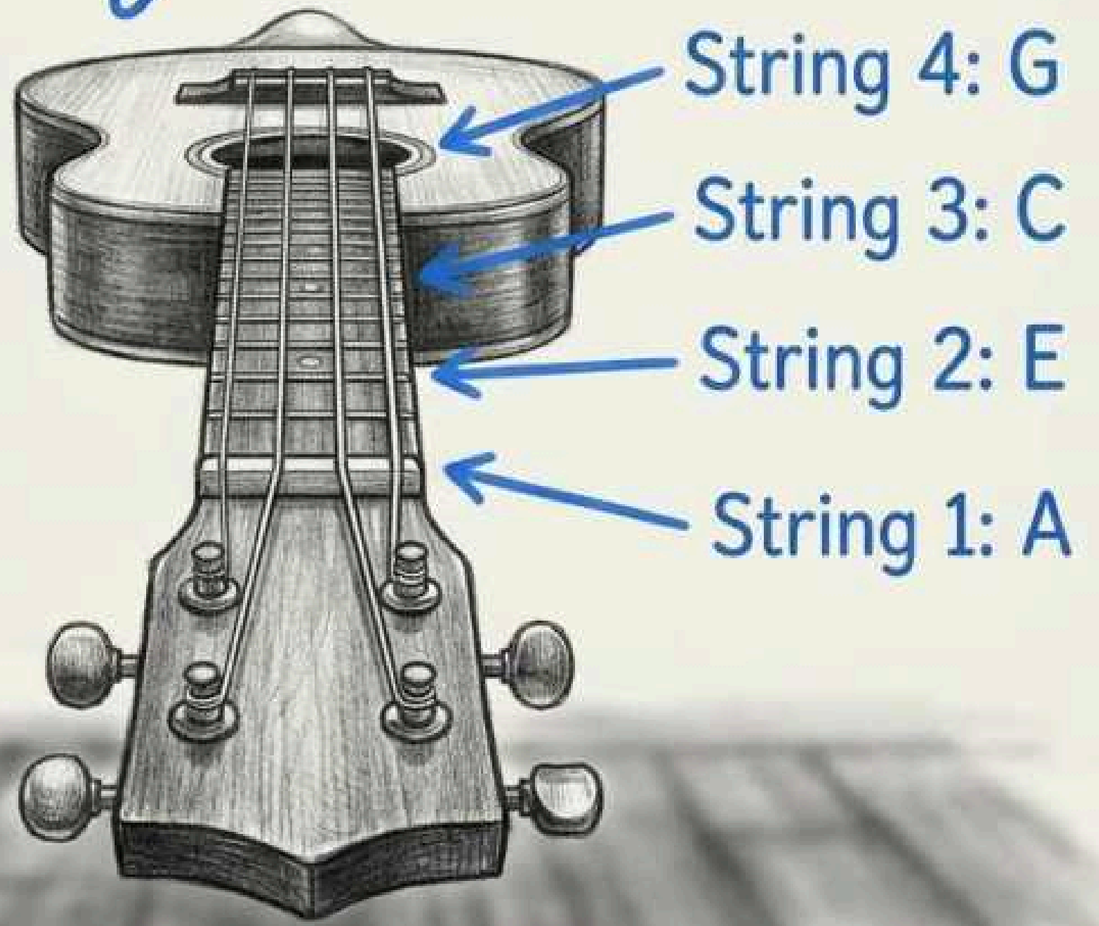


- Soprano: Classic bright, plinky sound.
- Concert: More room for larger hands.
- Tenor: Favoured for volume and range.

Normally tuned exactly the same way. (Baritone is the exception).

Standard Tuning Geography

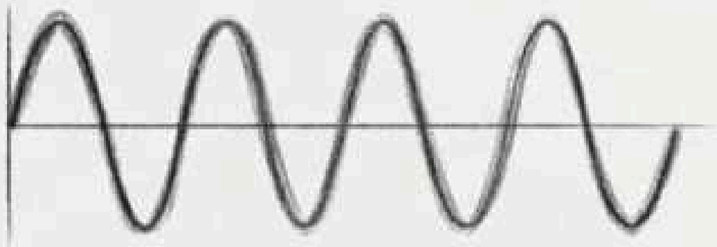
My Dog Has Fleas



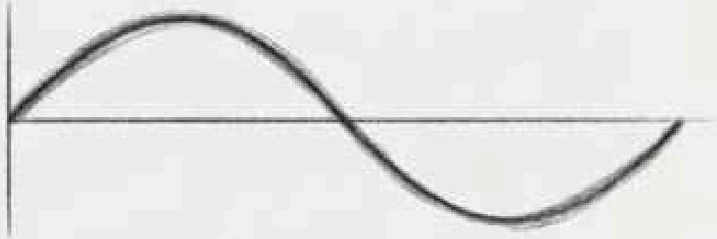
Standard Ukulele Tuning
= G C E A.
Strings are numbered
from the floor upward.

Pitch & Frequency Mathematics

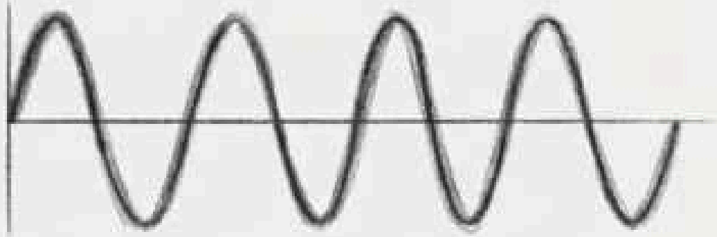
¶ 1.6

G4 

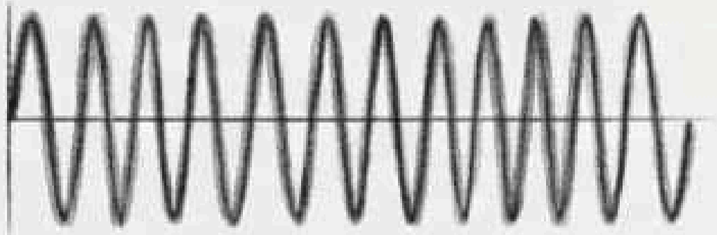
~392.0 Hz (Not the lowest!)

C4 

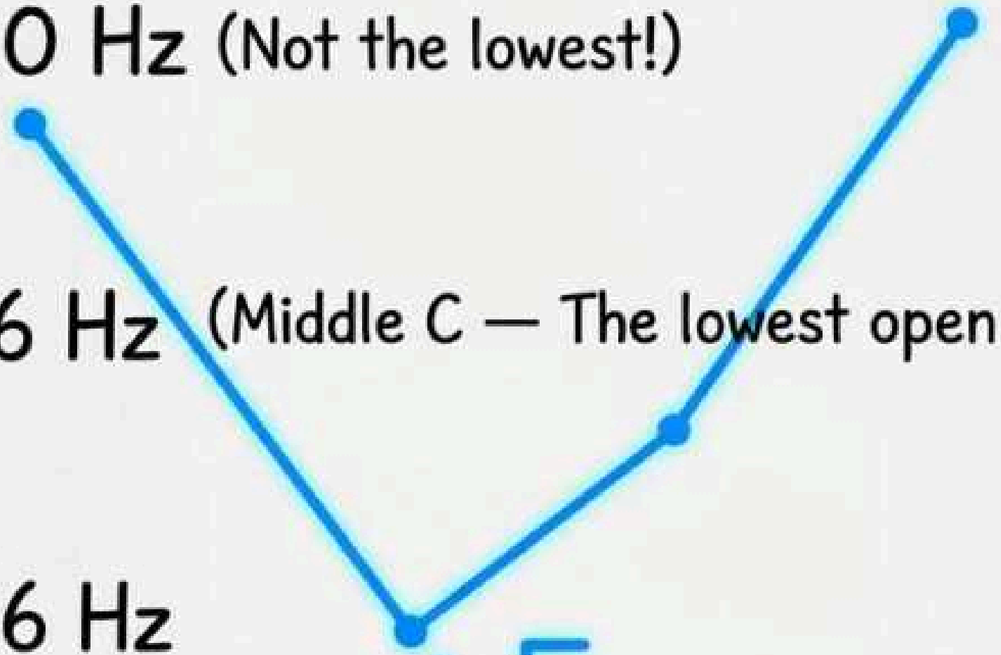
~261.6 Hz (Middle C — The lowest open string)

E4 

~329.6 Hz

A4 

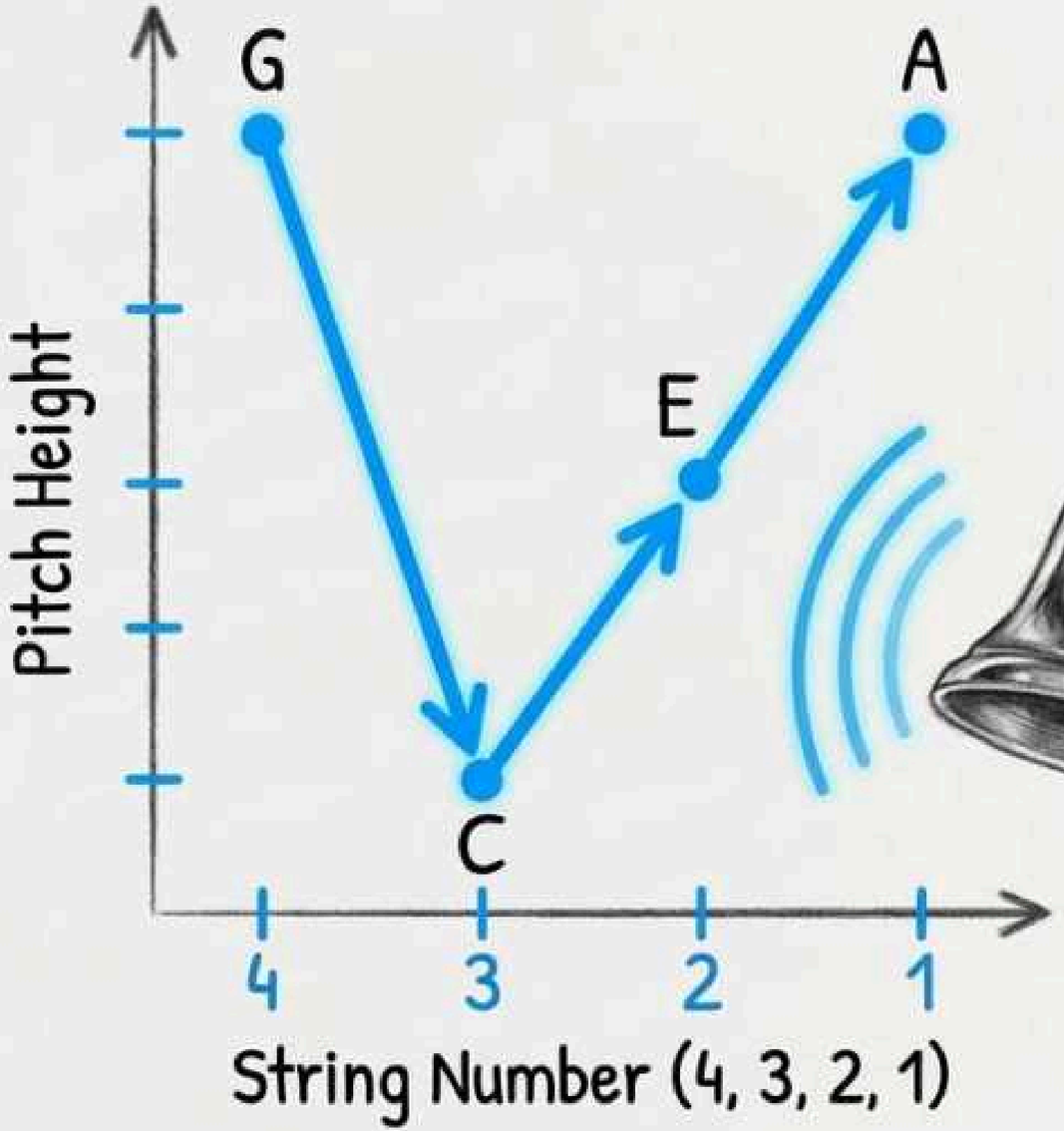
440.0 Hz
(Orchestral tuning reference)



Notice: G4 lies between E4 and A4. It is higher than the C string beside it.

The Magic of Re-entrant Tuning

¶ 1.7



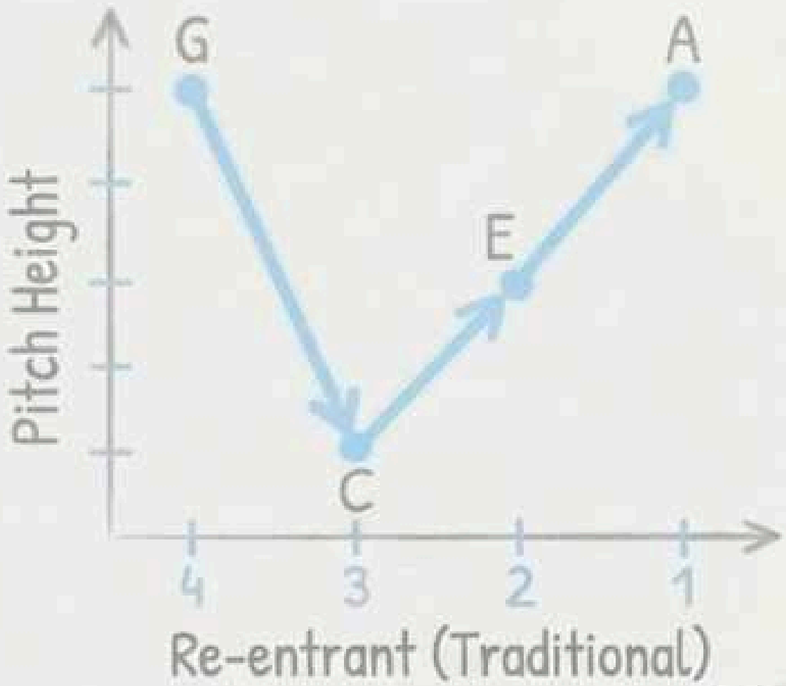


- Re-entrant tuning — The pitch drops bac after the first string. (The ukulele's most distinctive feature).
- All four strings stay within a range of less than one octave.
- Bright, close, and ringing.

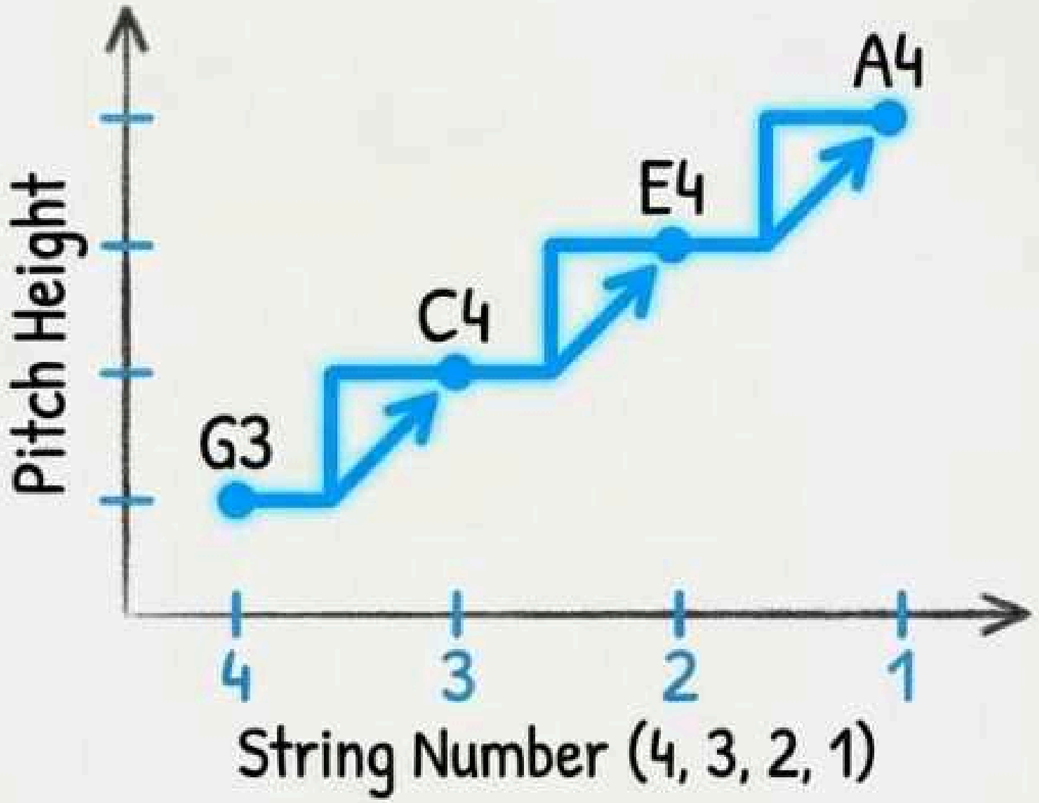
Campanella Style: (Italian for little bell). Notes of a melody are played on different strings so they ring into each other.

Low-G (Linear) Tuning

¶ 1.8



Replace high G4 with a thicker string tuned an octave lower → G3 (196 Hz).



Deeper, richer tone.



Low G3 (Wound String) | Normal Nylon String

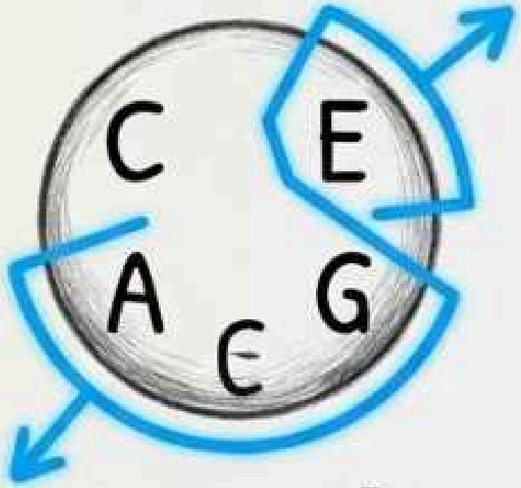
- Gives chords a deeper sound.
- Linear Tuning: Strings run in order from low to high (G3, C4, E4, A4).
- Adds 5 notes below middle C (G3 to B3) for melody/fingerpicking.

Note names, chord shapes, and theory remain 100% unchanged.

Open Chord Theory

Strumming the open strings (G C E A) without fretting naturally sounds a pleasant chord.

[C + E + G] (*C Major Triad*) + Added 6th (*A*) = C6 Chord



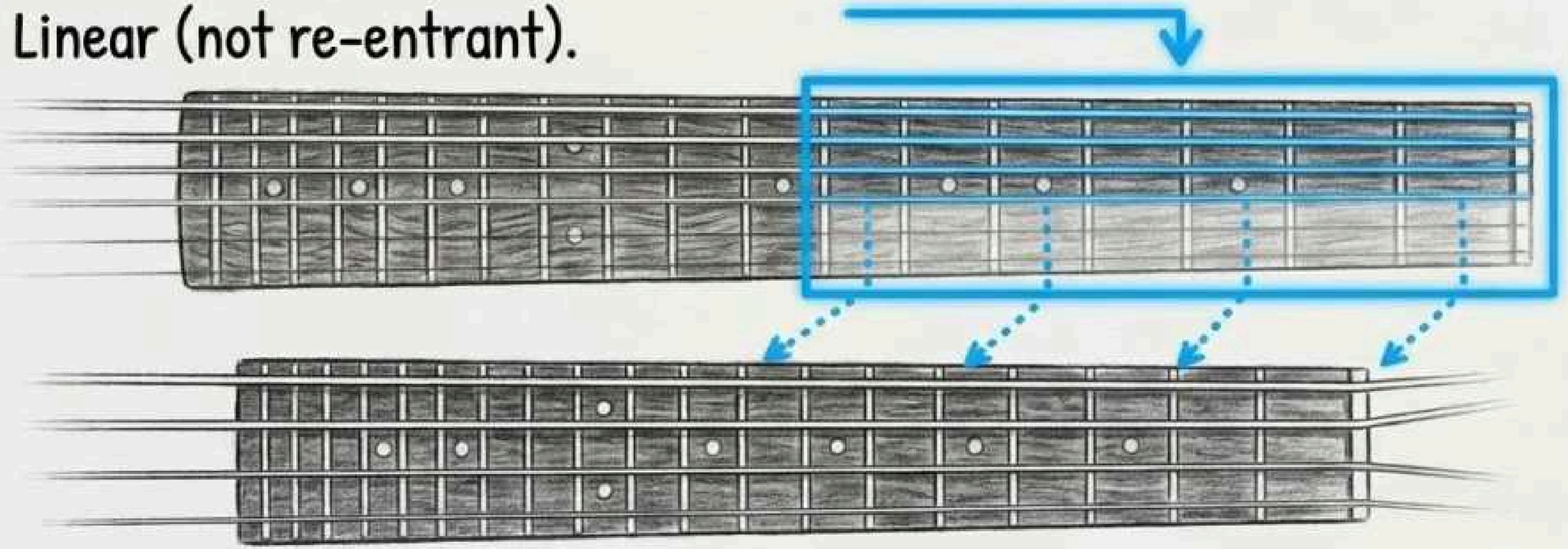
Read from A → [A + C + E + G] = A *minor* 7th (*Am7*) Chord

The open strings belong entirely to the C major scale, making the key of C deeply natural for the ukulele.

The Baritone Exception

Baritone Tuning: D3 - G3 - B3 - E4 (String 4 to 1).

Linear (not re-entrant).



Exact same pitches as the top four strings of a guitar.

Baritone is a Perfect Fourth (5 half steps) lower than standard.

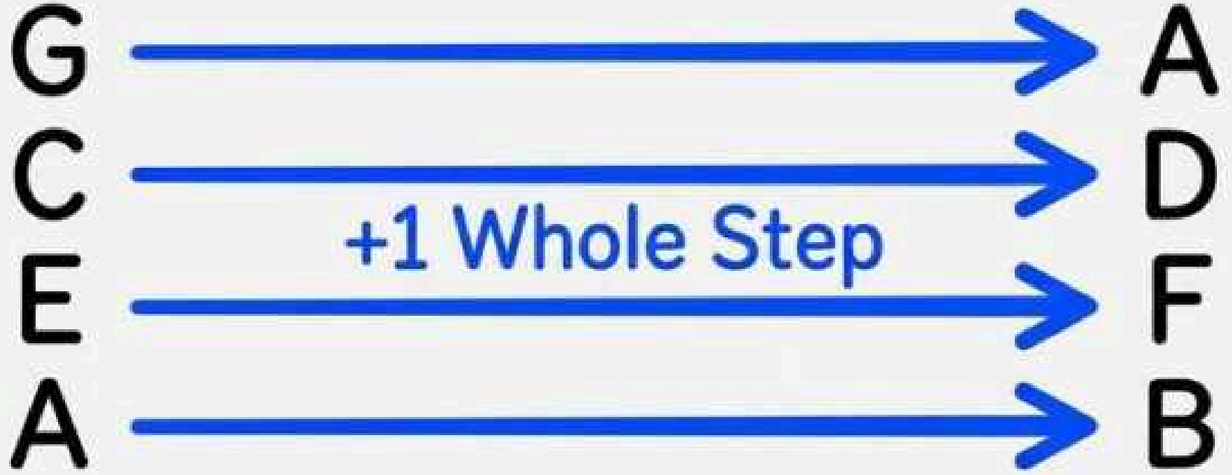
- Standard 'C' Shape = Baritone 'G' Chord.
- Baritone players read the same diagrams but must rename the chords.

D Tuning: The Historical Shift



Early 20th Century

Common on sopranos in the early 1900s; found in older songbooks.

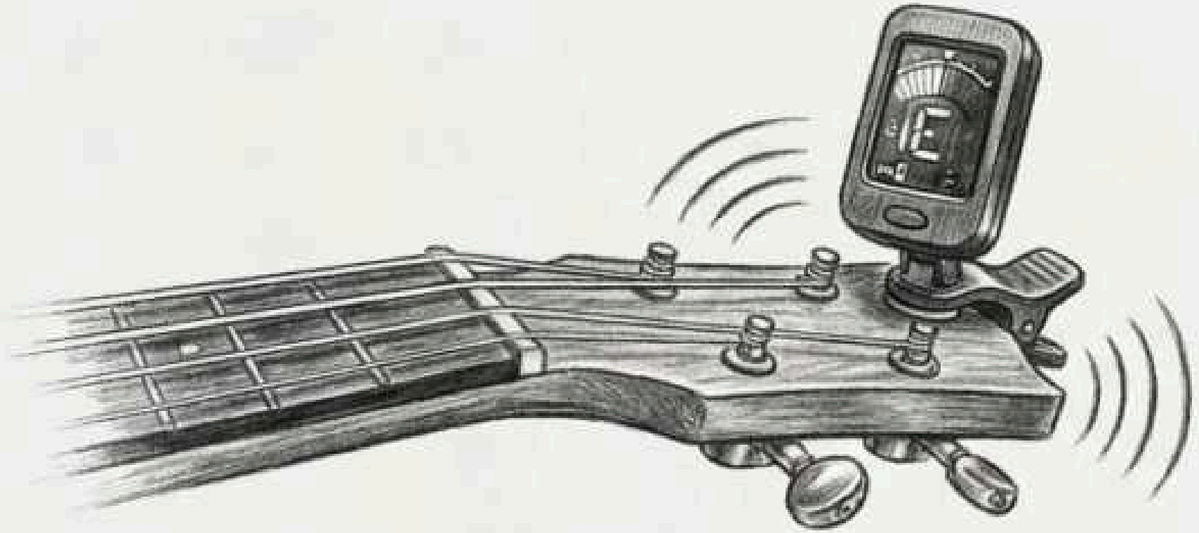


Every string is tuned exactly one whole step higher than standard.
A "C" shape in standard tuning gives a "D" chord in D tuning.

If a chord chart seems to give wrong names, check which tuning it assumes.

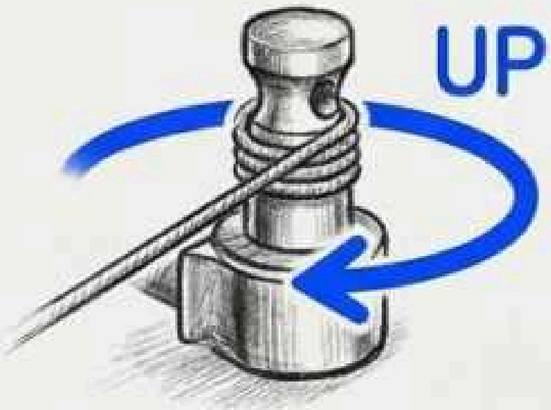
Electronic Tuning Mechanics

¶ 1.12





Clip-on (senses vibration through headstock) vs. App (listens via microphone).

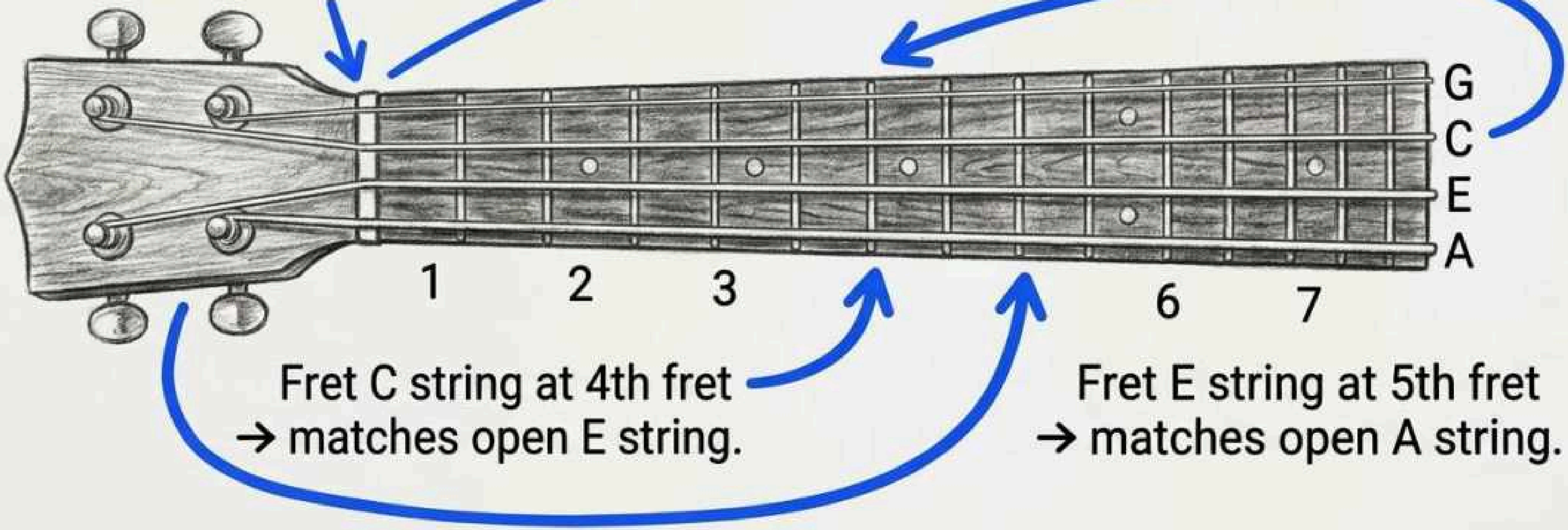


Tune *UP* to the note (rather than down to it). Center the needle. This adds tension and helps the string hold its pitch.

New nylon or fluorocarbon strings stretch over several days and require frequent retuning.

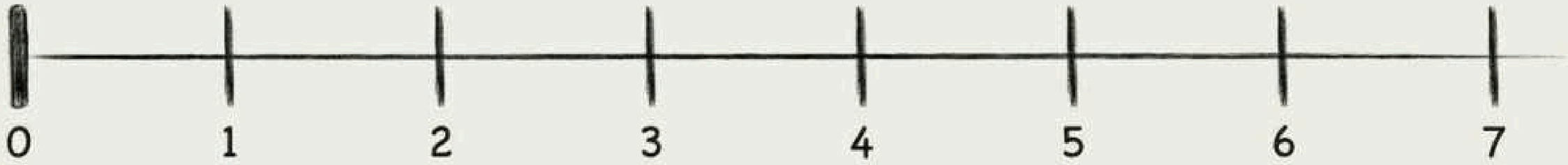
Relative Tuning Map

¶ 1.13



The Mathematics of Half Steps

Each physical fret raises a string's pitch by exactly 1 half step.

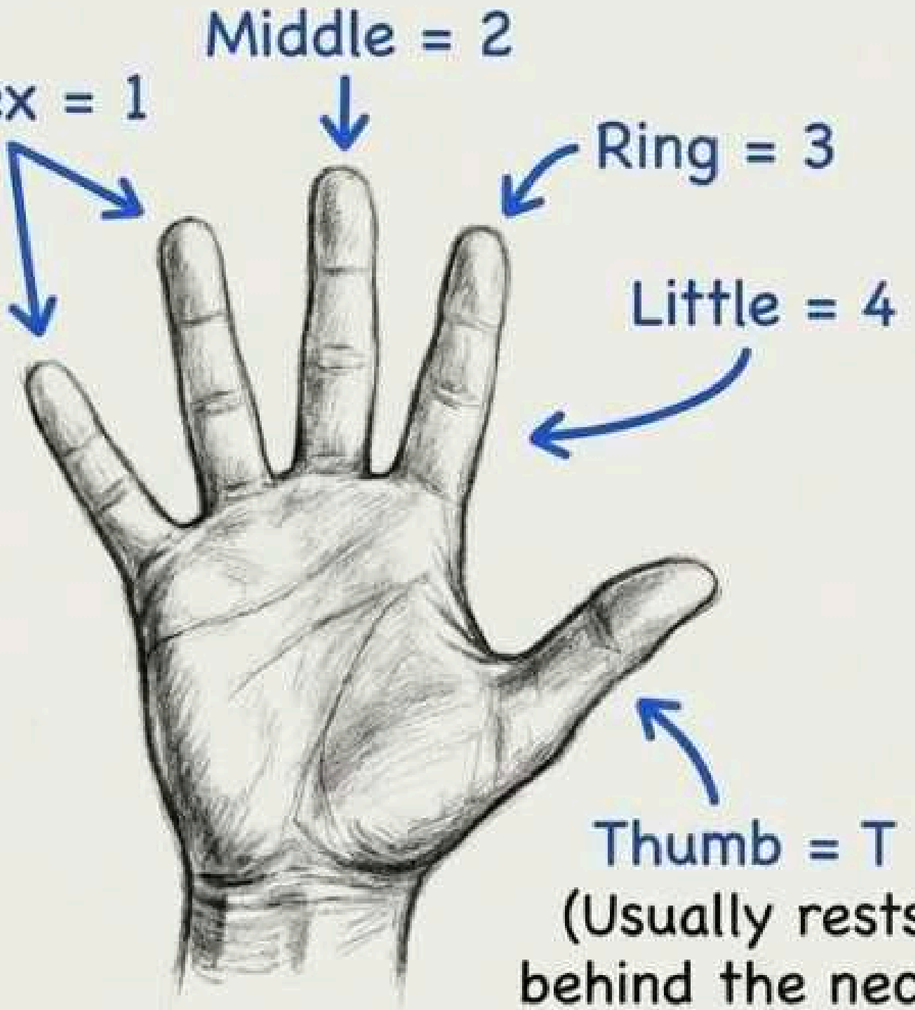


C to E = 4 half steps (Tune at 4th fret)

E to A = 5 half steps (Tune at 5th fret)

C up to High G = 7 half steps (Tune at 7th fret)

Playing Anatomy & Technique

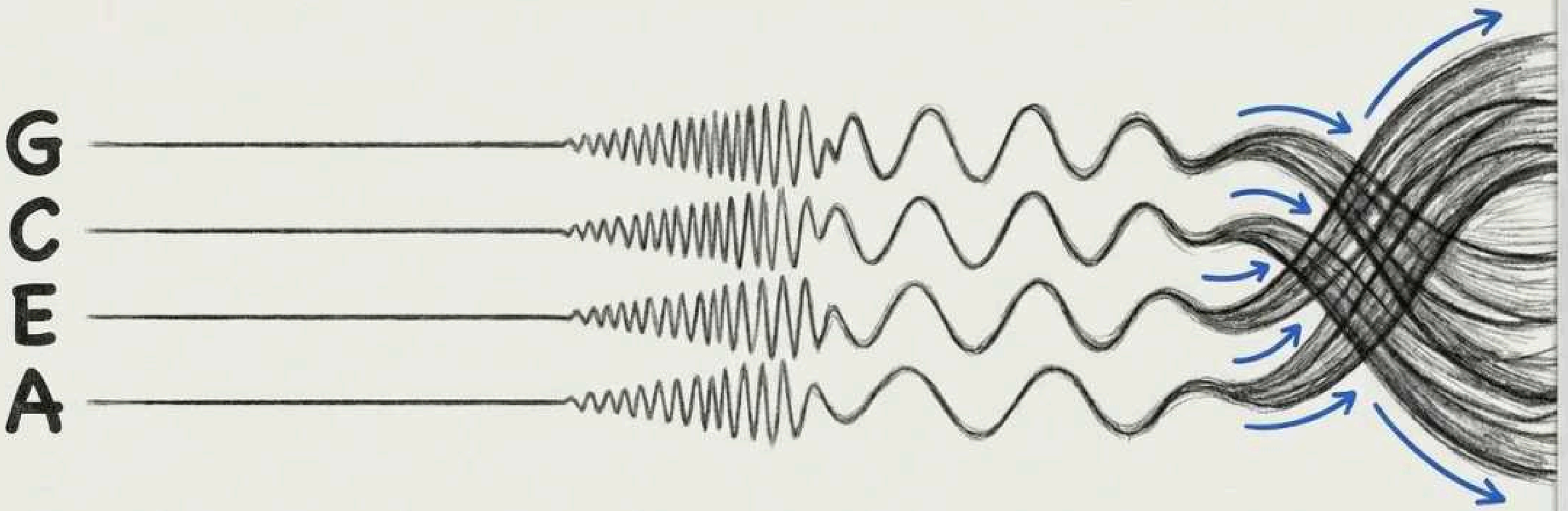


Strike strings exactly over the point where the neck meets the body for the warmest tone.



Most players strum with the index finger or thumb (felt pick is optional).

The Ultimate Reference Sound



The Reference Chord:
The foundation of the instrument.

The Anchor:
The starting point for finding everything else on the fretboard.

The open strings are the clearest example of how an instrument's tuning ultimately shapes the music that is easy to play on it.