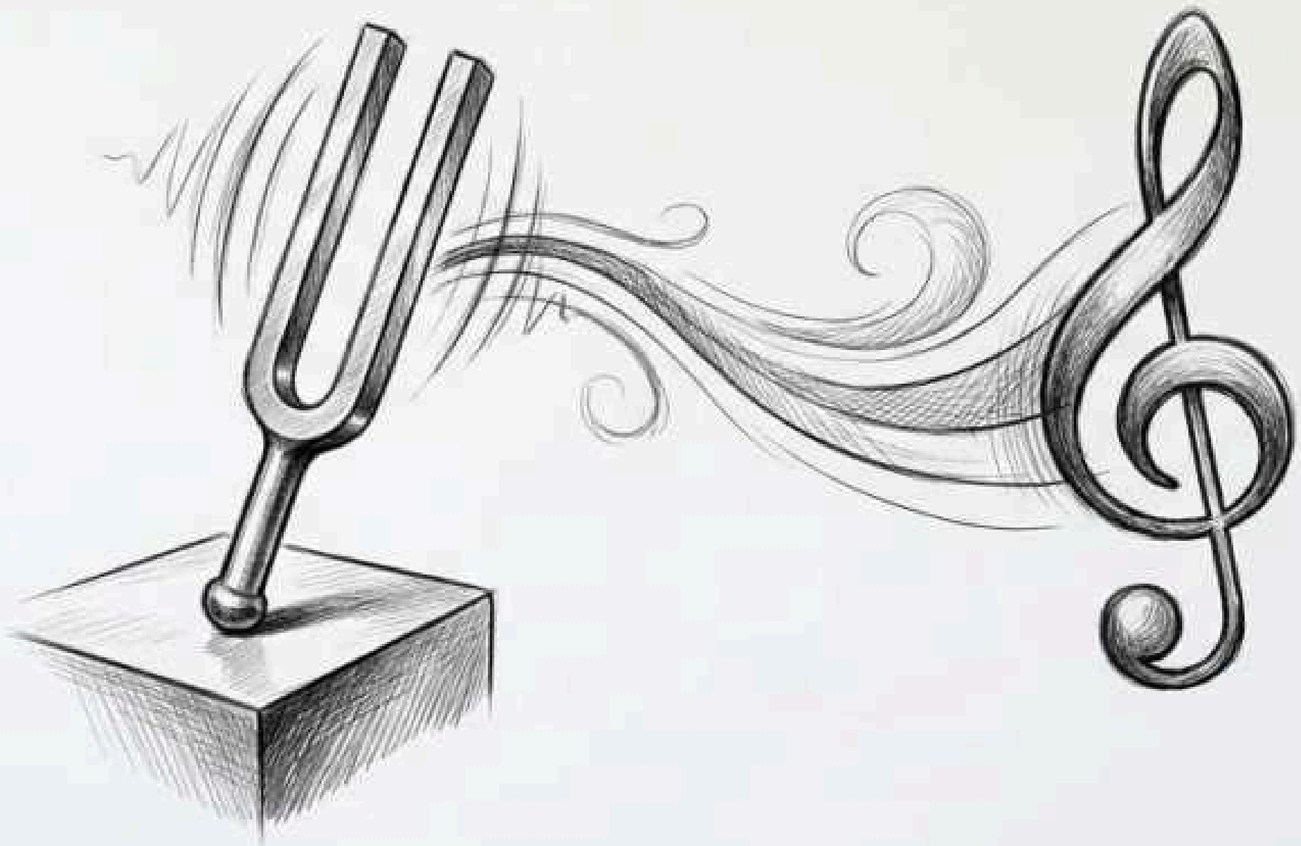
¶ 1.1

MUS 101 B: Sound, Pitch, and the Staff

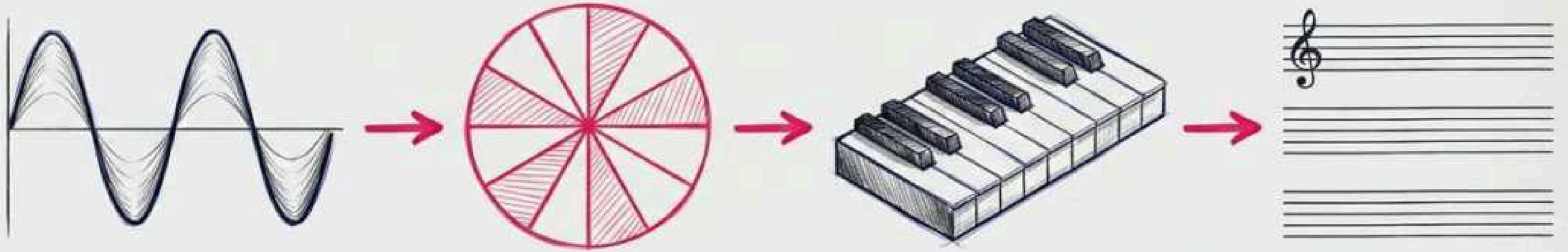


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The Professor's Whiteboard

¶ 1.2

The Simplest Question: What is a Musical Sound?



Pitch & Frequency → The 12 Notes → The Keyboard → The 5-Line Staff

In this lecture, we build the tools to take sound from the air and write it down on paper.

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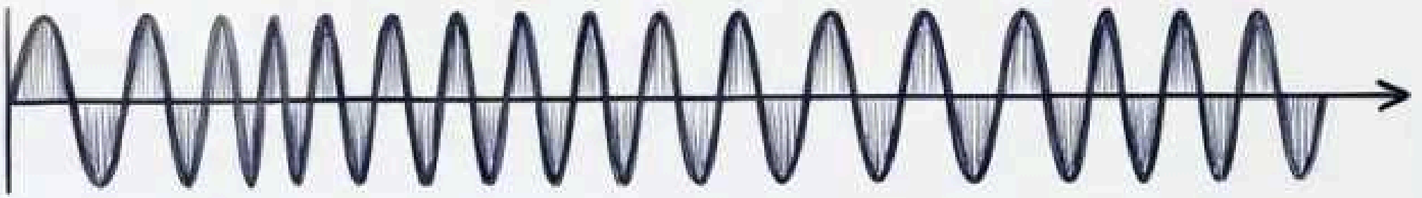
The Professor's Whiteboard

¶ 1.3

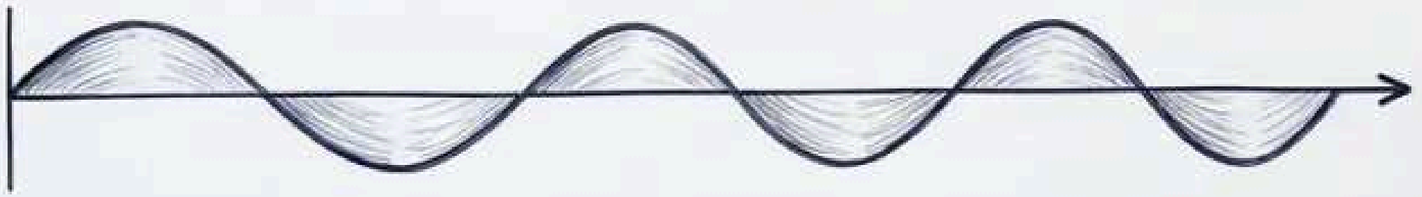
Sound is Vibration



Frequency = Vibrations per second (Hertz/Hz)



Faster vibration = Higher pitch



Slower vibration = Lower pitch

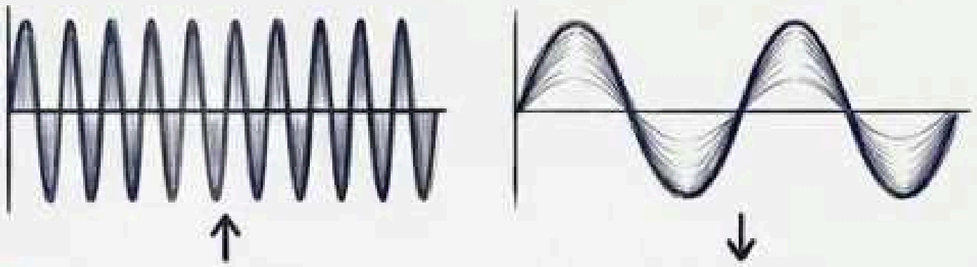
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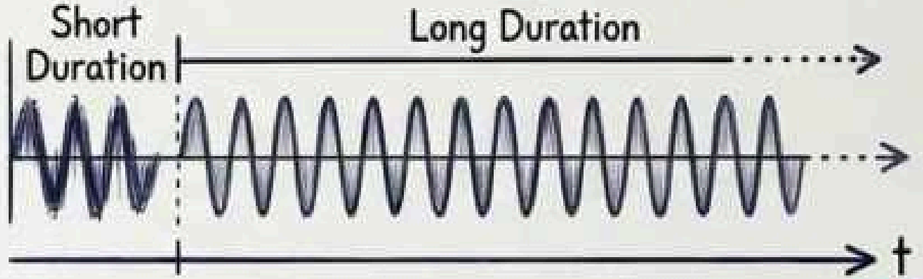
¶ 1.4

The Four Qualities of a Note

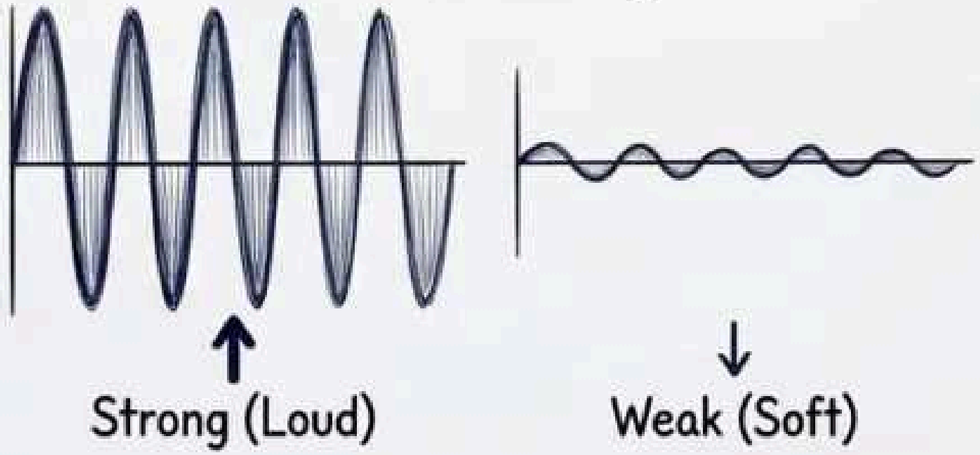
Pitch (High/Low)



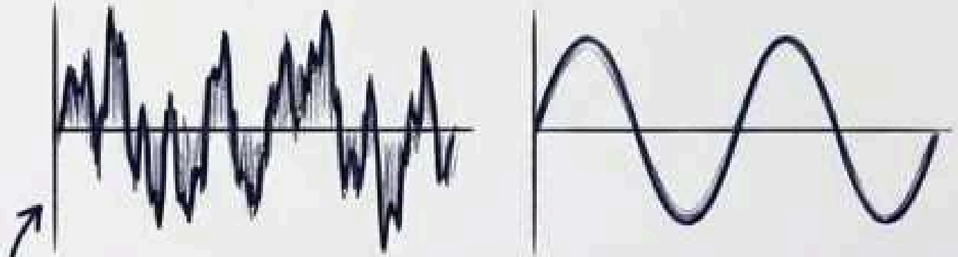
Duration (Long/Short)



Loudness (Strong/Weak)



Timbre (Tone Colour)



The quality that separates a flute from a violin.

Music Theory focuses here.

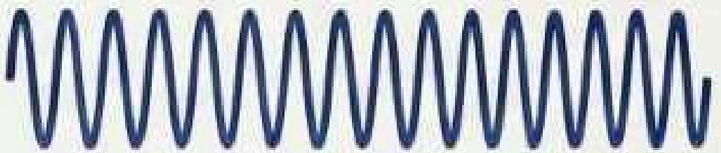
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¶ 1.5

The Remarkable Regularity of Pitch

A = 880 Hz



↑ x 2 ← "One Octave Up"

A = 440 Hz



← "Orchestral tuning note"

↓ ÷ 2

A = 220 Hz



← "One Octave" Down

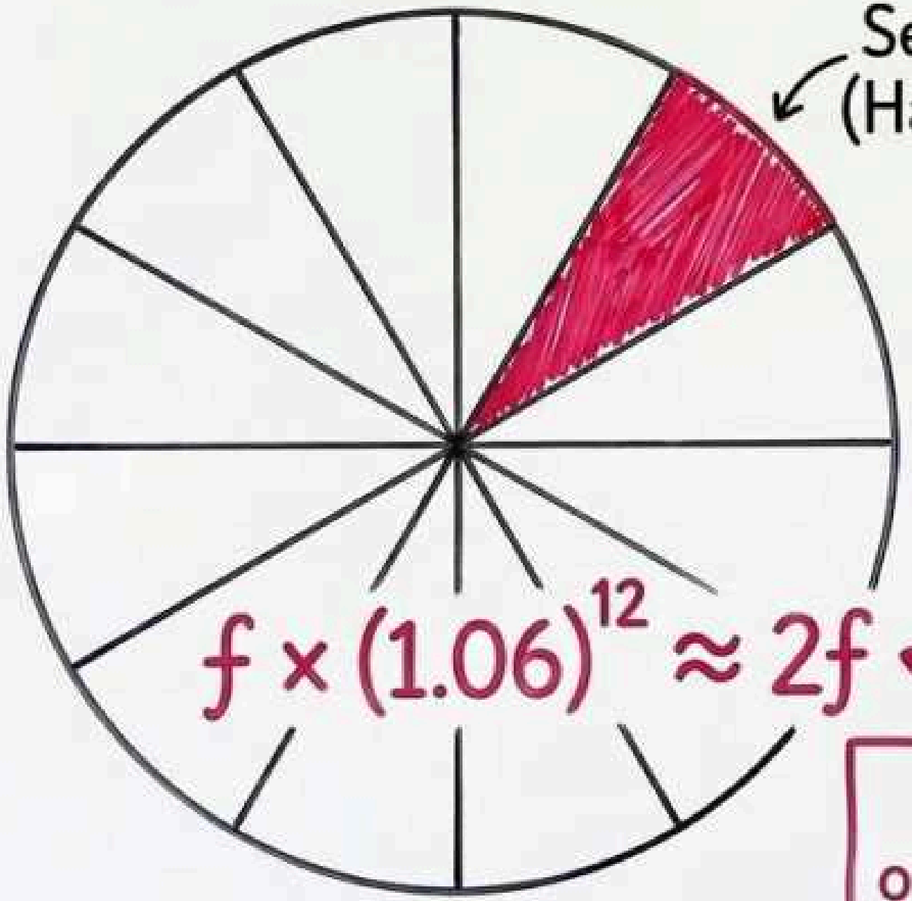
Double or halve the frequency = The same note, one octave apart.

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¶ 1.6

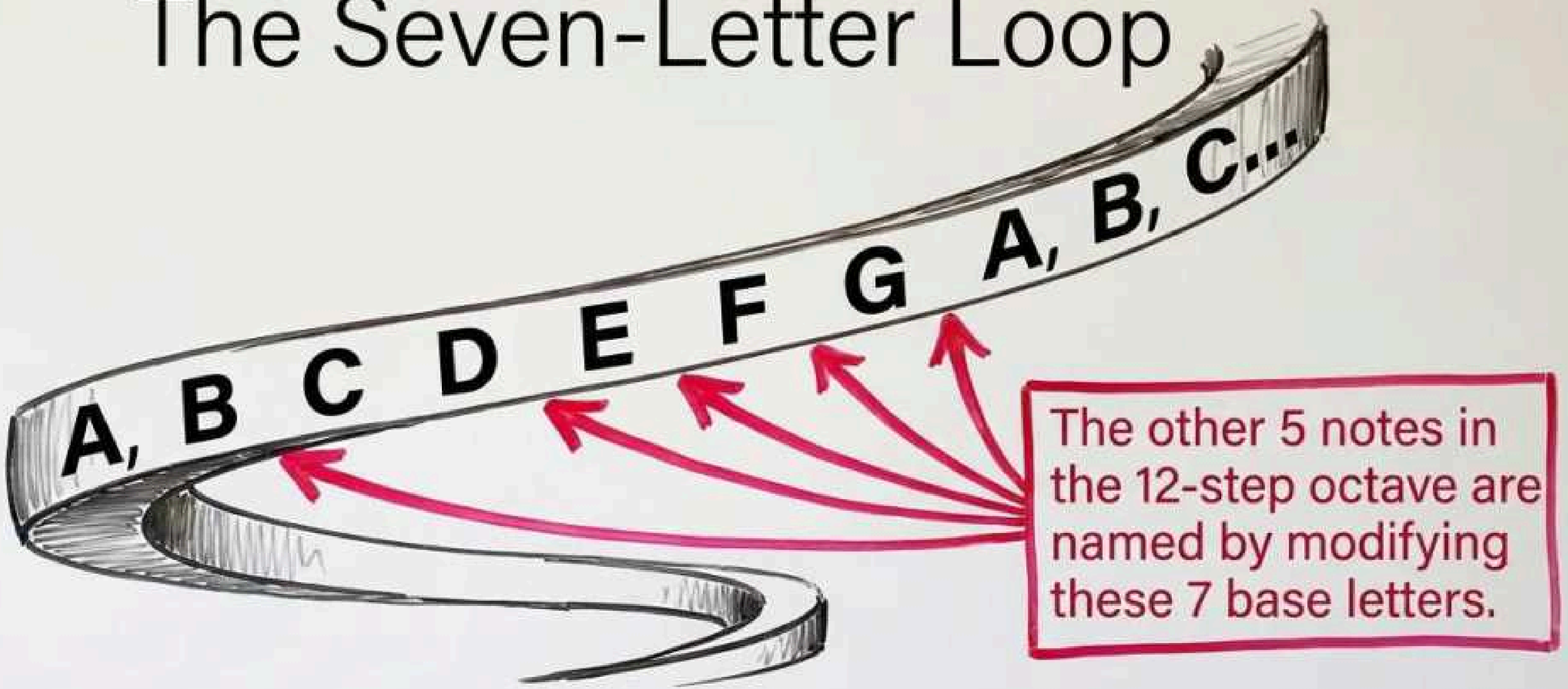
Dividing the Octave: 12 Equal Steps



- Western music divides the octave into 12 equal semitones.
- Equal temperament: Every step multiplies the frequency by the exact same amount (~1.06).

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The Seven-Letter Loop



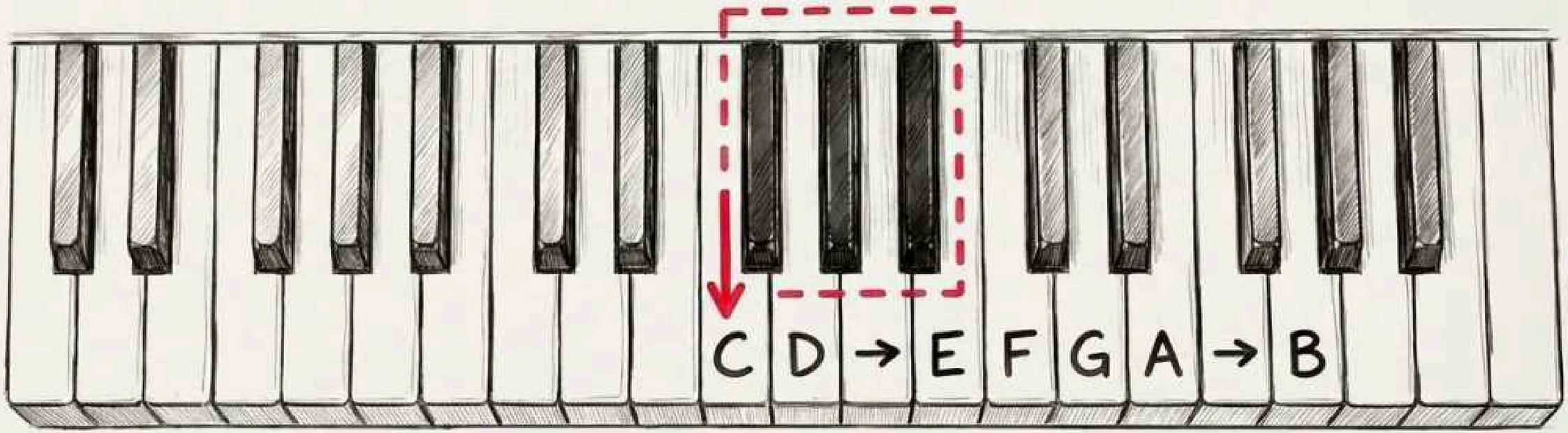
The pattern repeats every octave.
You only need to learn them once.

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The Professor's Whiteboard ¶1.8

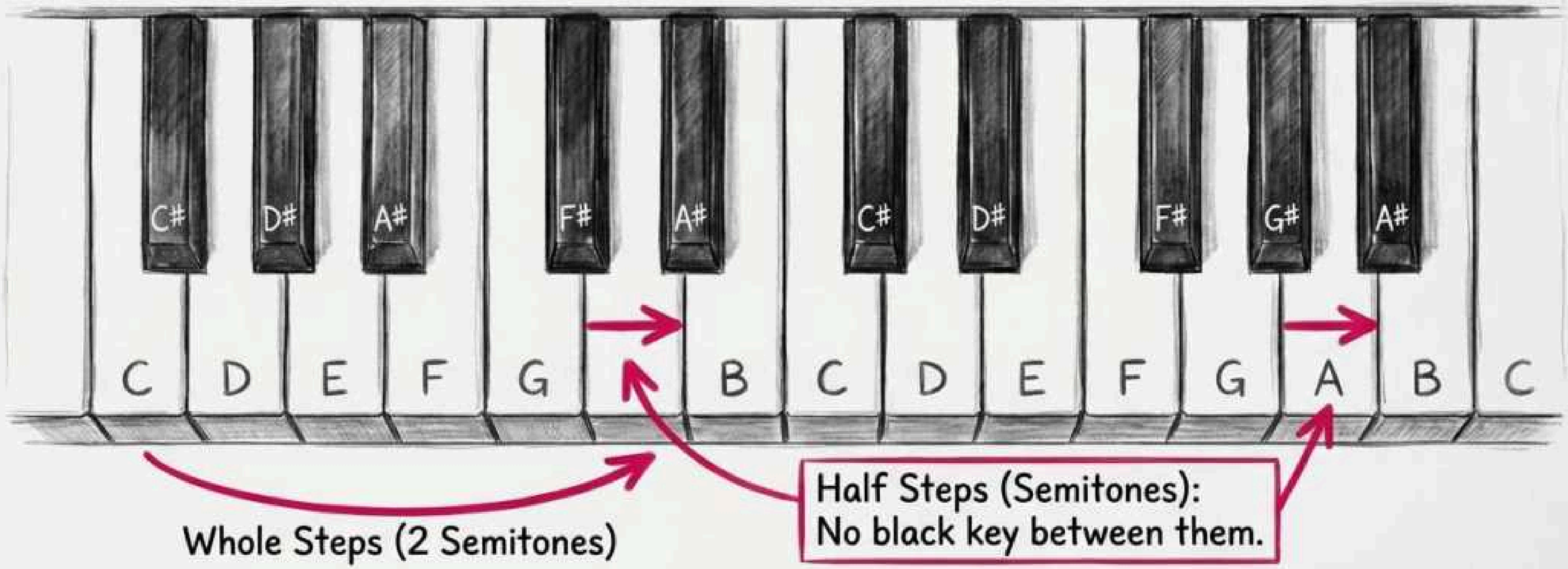
Keyboard Topography: Finding C

Find a group of <u>two</u> black keys. The white key to the left is <u>ALWAYS</u> C.



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Whole Steps and Half Steps



This pattern of whole and half steps is the key to everything that follows.

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Sharps, Flats, and Enharmonic Equivalents

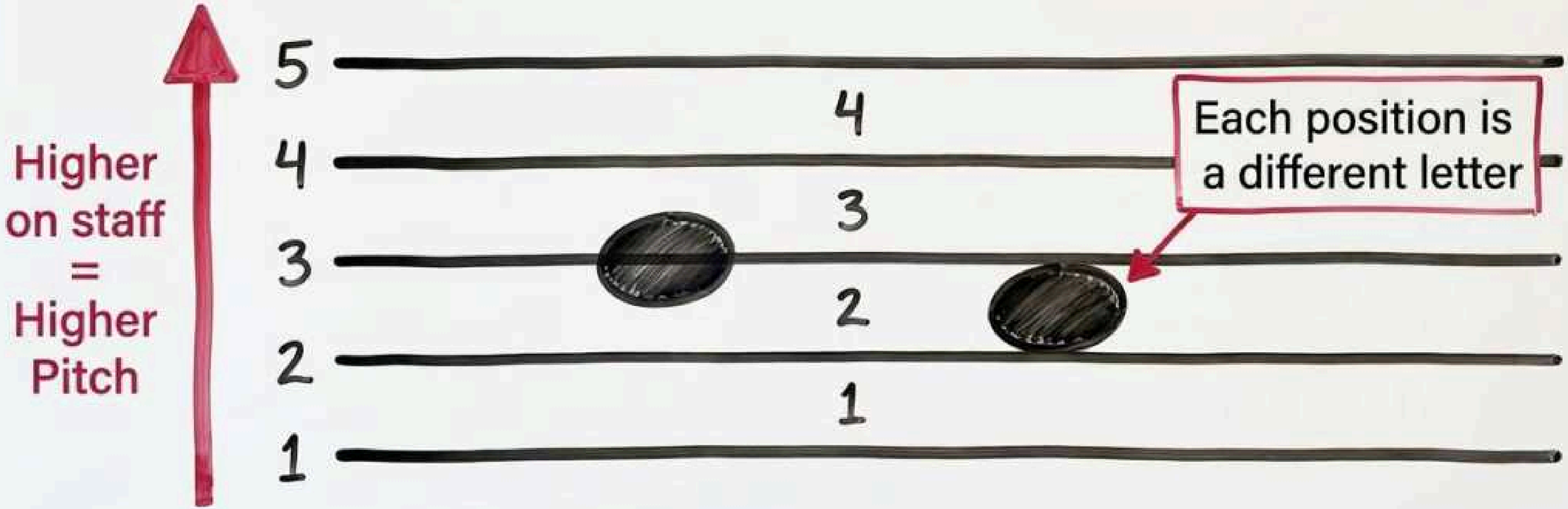


- # (Sharp) = Raises note by 1 semitone.
- ♭ (Flat) = Lowers note by 1 semitone.

Enharmonic Equivalents:
Two names for the exact same pitch.
(Context determines which name we use, as we will see in Lecture 3).

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The Staff: Writing Sound Down



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The Professor's Whiteboard

¶ 1.12

Clefs: The Rosetta Stone of the Staff



Treble (G) Clef

Curl marks the G above middle C.
Used by: Singers, violins, right hand.



Bass (F) Clef

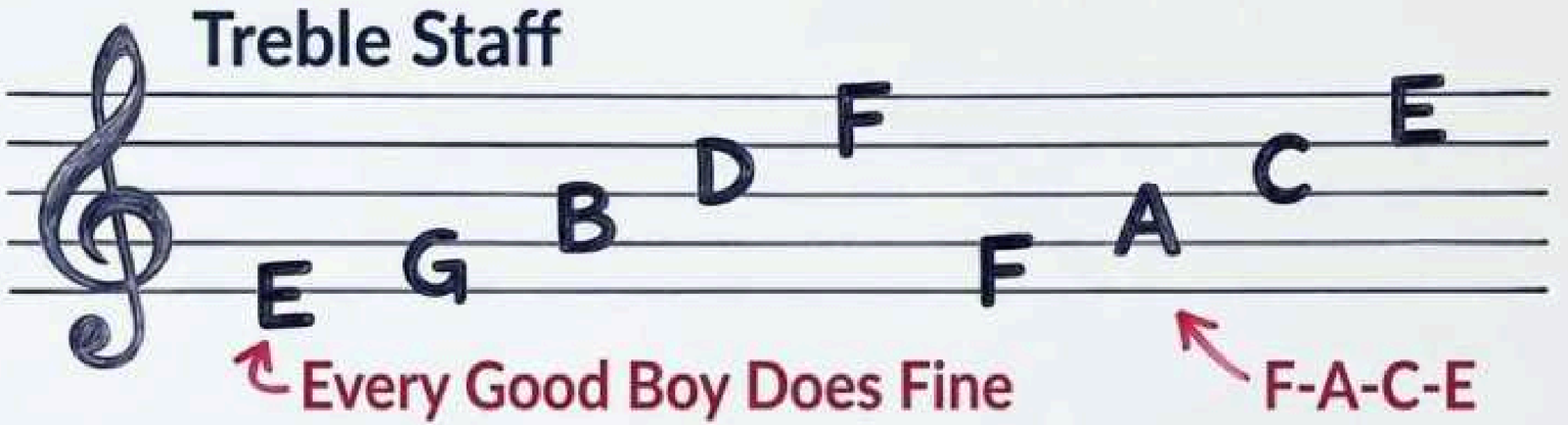
Dots mark the F below middle C.
Used by: Cellos, left hand.

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¶ 1.13

Decoding the Staff: Memory Aids



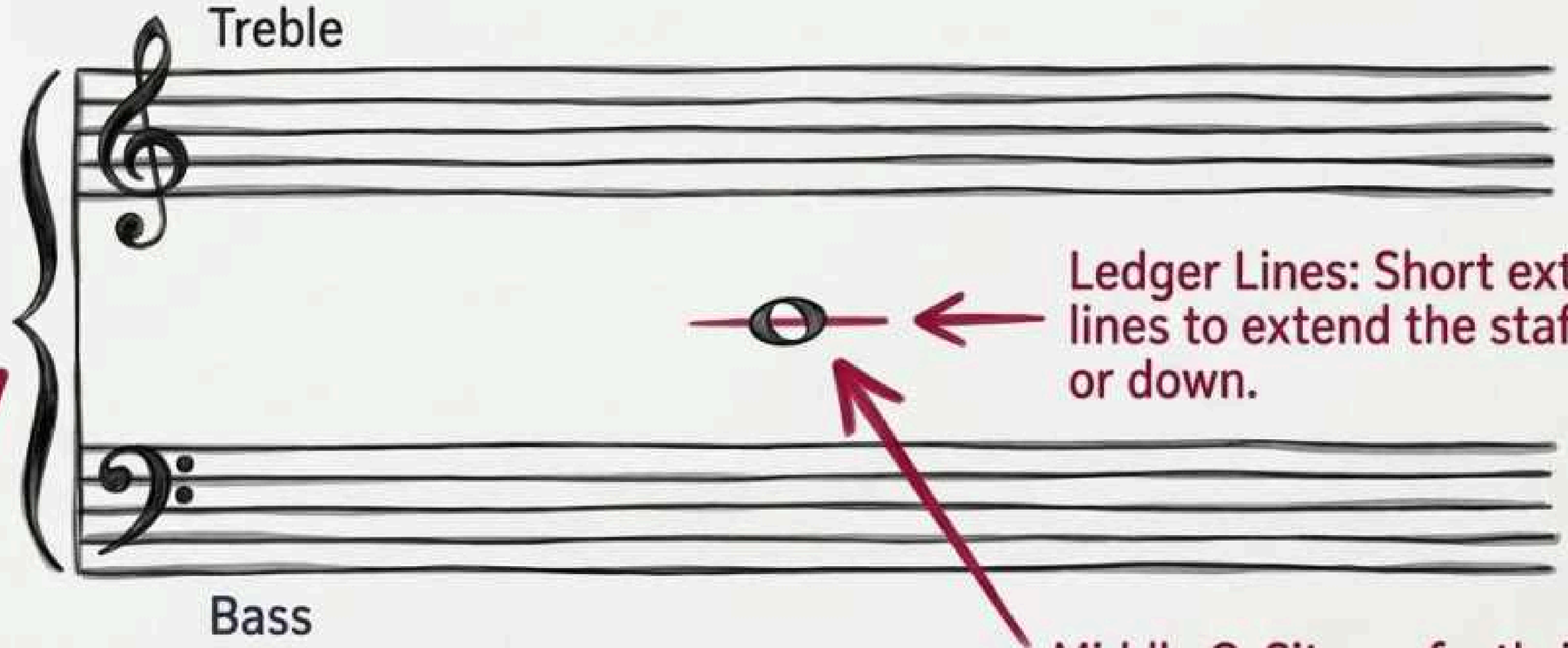


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¶ 1.14

Middle C and the Grand Staff



Ledger Lines: Short extra lines to extend the staff up or down.

The Grand Staff: Joined for piano.

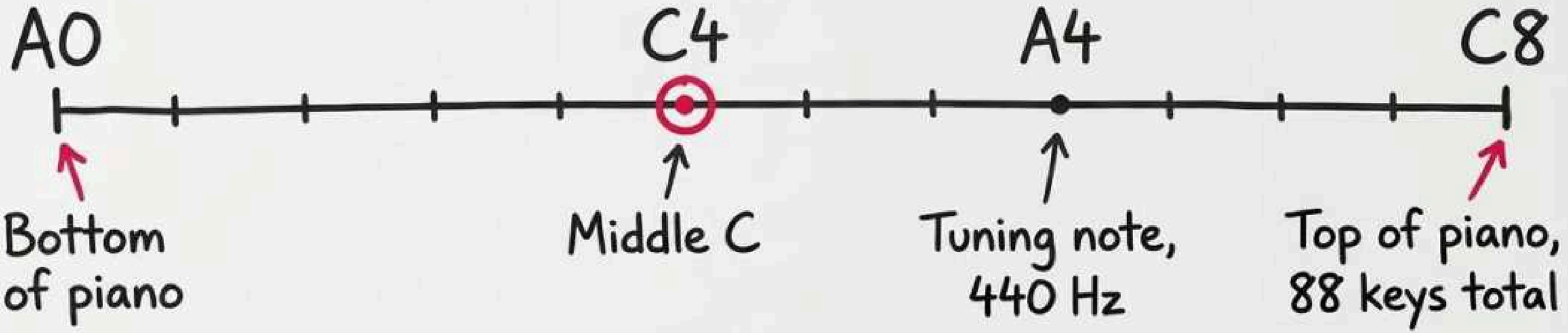
Middle C: Sits perfectly in the middle, on its own ledger line, bridging the treble and bass worlds.

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¶ 1.15

Octave Numbers: Naming Notes Exactly



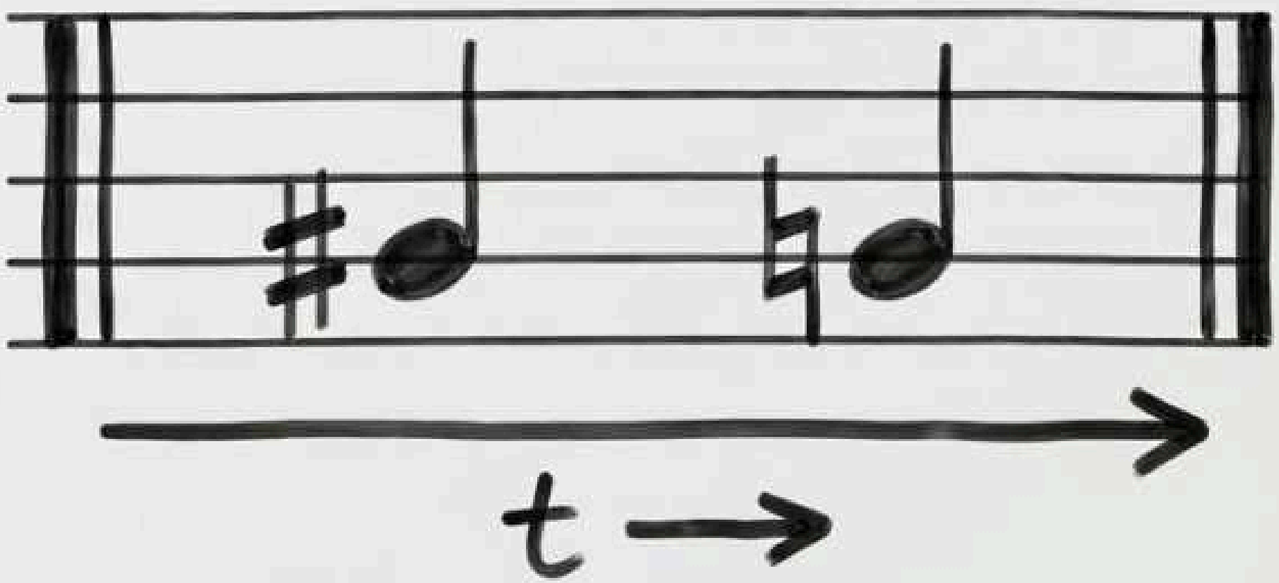
Crucial Rule: Octave numbers change at each C, not at each A!

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¶ 1.16

Accidentals and Time



- #/♭ : Raises/lowers the pitch.
- Natural symbol (♮) : Cancels an earlier sharp or flat.

Duration Rule: An accidental lasts until the end of the measure in which it appears.

Global Rule: Longer-lasting changes go in the Key Signature at the start of the staff.

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¶ 1.17

A Map of a Particular Landscape



Everything in this lecture describes Western music. Its 12-note equal temperament system is just one choice among many.

Other traditions divide the octave differently, using tuning systems with more or fewer steps.

Theory is a map. It is useful, but it is not the only way to organize sound.

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The Professor's Whiteboard

¶ 1.18

Application: Find Your Notes



Homework Question: Choose a short tune you know well. Try to hum or play its first four notes on a keyboard. Which keys did you press? Which letters are they?

Coming up next: Lecture 2 — Turning from pitch to time: Rhythm, Beat, and Meter.

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