

The core references for anyone learning music.

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Clockwise, each key is a perfect 5th higher and adds one sharp. Counter-clockwise, each is a 5th lower and adds one flat.

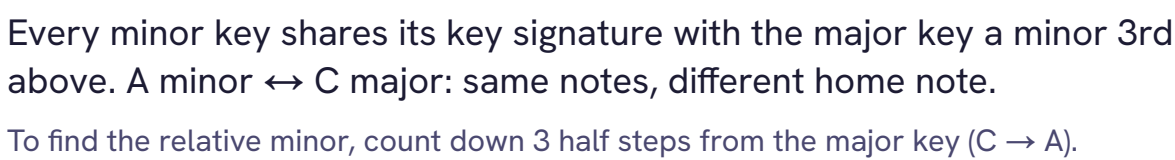


A musical staff in treble clef showing the C major scale. The notes are C, D, E, F, G, A, B, and C. The intervals between notes are labeled as W (whole step, 2 semitones) or H (half step, 1 semitone). Below the staff, the scale degrees 1 through 7 are listed with their corresponding note names: Tonic (C), Supertonic (D), Mediant (E), Subdominant (F), Dominant (G), Submediant (A), and Leading tone (B). The final C is the octave C.

1 2 3 4 5 6 7
Tonic Supertonic Mediant Subdominant Dominant Submediant Leading tone

Every major key uses the notes of its major scale. C major uses only white keys, so it has no sharps or flats.

Compared with major: the 3rd, 6th and 7th are lowered.



Order of sharps

F $\sharp$ C $\sharp$ G $\sharp$ D $\sharp$ A $\sharp$ E $\sharp$ B $\sharp$
 Father Charles Goes Down And Ends Battle

Order of flats

B, E, A, D, G, C, F
Battle Ends And Down Goes Charles' Father

Name the key

Sharp keys: the key is a half step above the last sharp.
Flat keys: the key is the second-to-last flat. (F major has one flat, B $\flat$.)

Sharp keys				Flat keys			
C	Am	0	—	F	Dm	1	B $\flat$
G	Em	1	F $\sharp$	B $\flat$	Gm	2	B $\flat$ E $\flat$
D	Bm	2	F $\sharp$ C $\sharp$	E $\flat$	Cm	3	B $\flat$ E $\flat$ A $\flat$
A	F $\sharp$ m	3	F $\sharp$ C $\sharp$ G $\sharp$	A $\flat$	Fm	4	B $\flat$ E $\flat$ A $\flat$ D $\flat$
E	C $\sharp$ m	4	F $\sharp$ C $\sharp$ G $\sharp$ D $\sharp$	D $\flat$	B $\flat$ m	5	B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$
B	G $\sharp$ m	5	F $\sharp$ C $\sharp$ G $\sharp$ D $\sharp$ A $\sharp$	G $\flat$	E $\flat$ m	6	B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$ C $\flat$
F $\sharp$	D $\sharp$ m	6	F $\sharp$ C $\sharp$ G $\sharp$ D $\sharp$ A $\sharp$ E $\sharp$	C $\flat$	A $\flat$ m	7	B $\flat$ E $\flat$ A $\flat$ D $\flat$ G $\flat$ C $\flat$ F $\flat$
C $\sharp$	A $\sharp$ m	7	F $\sharp$ C $\sharp$ G $\sharp$ D $\sharp$ A $\sharp$ E $\sharp$ B $\sharp$				

FOUNDATIONS

The distance between two notes, counted in half steps (semitones).

	INTERVAL	HALF STEPS	FROM C	SOUND
P1	Unison	0 	C-C	consonant
m2	Minor 2nd	1 	C-D _b	dissonant
M2	Major 2nd	2 	C-D	dissonant
m3	Minor 3rd	3 	C-E _b	consonant
M3	Major 3rd	4 	C-E	consonant
P4	Perfect 4th	5 	C-F	consonant
A4 / d5	Tritone	6 	C-F _♯	dissonant
P5	Perfect 5th	7 	C-G	consonant
m6	Minor 6th	8 	C-A _b	consonant
M6	Major 6th	9 	C-A	consonant
m7	Minor 7th	10 	C-B _b	dissonant
M7	Major 7th	11 	C-B	dissonant
P8	Octave	12 	C-C	consonant

The perfect 4th counts as consonant here; in some classical harmony it's treated as a dissonance.

Numbers are scale degrees of the major scale built on the root.

SYMBOL	CHORD	FORMULA			NOTES	
C	Major	1	3	5	C E G	
Cm	Minor	1	♭3	5	C E♭ G	
C° · Cdim	Diminished	1	♭3	♭5	C E♭ G♭	
C+ · Caug	Augmented	1	3	♯5	C E G♯	
Csus2	Sus2	1	2	5	C D G	
Csus4	Sus4	1	4	5	C F G	
SEVENTH CHORDS						
C7	Dominant 7th	1	3	5	♭7	C E G B♭
Cmaj7 · CΔ7	Major 7th	1	3	5	7	C E G B
Cm7 · C-7	Minor 7th	1	♭3	5	♭7	C E♭ G B♭
Cø7 · Cm7♭5	Half-diminished 7th	1	♭3	♭5	♭7	C E♭ G♭ B♭
C°7 · Cdim7	Diminished 7th	1	♭3	♭5	♭♭7	C E♭ G♭ B♭♭

↳ lowers a degree by a half step, ♯ raises it.

"Music is the universal language of mankind."

Henry Wadsworth Longfellow, Outre-Mer, 1835

CHORDS & HARMONY

Stack every other note of the scale on each degree to get the seven chords that belong to the key. Major keys always follow the same pattern: major, minor, minor, major, major, minor, diminished.



Numerals name chords by scale degree, so a progression works in any key

I Uppercase = major · ii Lowercase = minor · ° Diminished · + Augmented ·
7 Adds the 7th (V7, ii7)

What each chord does

Tonic Home, at rest	I	vi	iii
Predominant Moves away	IV	ii	
Dominant Tension, pulls home	V	vii°	

- iii is sometimes grouped with the dominant instead of the tonic.

CHORDS & HARMONY

I **vi** Uppercase = major · lowercase = minor

NUMERALS	IN C	STYLE
I V vi IV	C · G · Am · F	Pop anthem
vi IV I V	Am · F · C · G	Same chords, starting on minor
I vi IV V	C · Am · F · G	'50s doo-wop
I IV V	C · F · G	Rock, folk, country
ii V I	Dm7 · G7 · Cmaj7	Jazz's most common move

12-Bar Blues

C7 17	C7 17	C7 17	C7 17
F7 147	F7 147	C7 17	C7 17
G7 17	F7 147	C7 17	G7 17

The last measure (V7) is the turnaround back to the top; end the song on I7 instead.

CHORDS & HARMONY

Cadences are the chord moves that end a phrase, like punctuation.

Authentic Full stop	V I	$G \rightarrow C$
Plagal The "Amen" ending	IV I	$F \rightarrow C$
Half Comma, unfinished	I V	$C \rightarrow G$
Deceptive Surprise	V vi	$G \rightarrow Am$

RHYTHM

NOTE	REST	NAME	BEATS IN 4/4
		Whole note	4 beats
		Half note	2 beats
		Quarter note	1 beat
		Eighth note	½ beats
		Sixteenth note	¼ beats

A dot adds half the note's value: a dotted half note = $2 + 1 = 3$ beats.

Time signatures

Top number: how many beats in a measure. Bottom number: which note gets the beat (4 = quarter, 8 = eighth).

TIME	WHAT IT MEANS	USED FOR
4 4	4 quarter-note beats per measure	Most pop, rock and hip-hop C (common time)
3 4	3 quarter-note beats per measure	Waltz
2 4	2 quarter-note beats per measure	March, polka
6 8	6 eighth notes, felt as 2 beats of 3	Littering, rolling (compound time)

