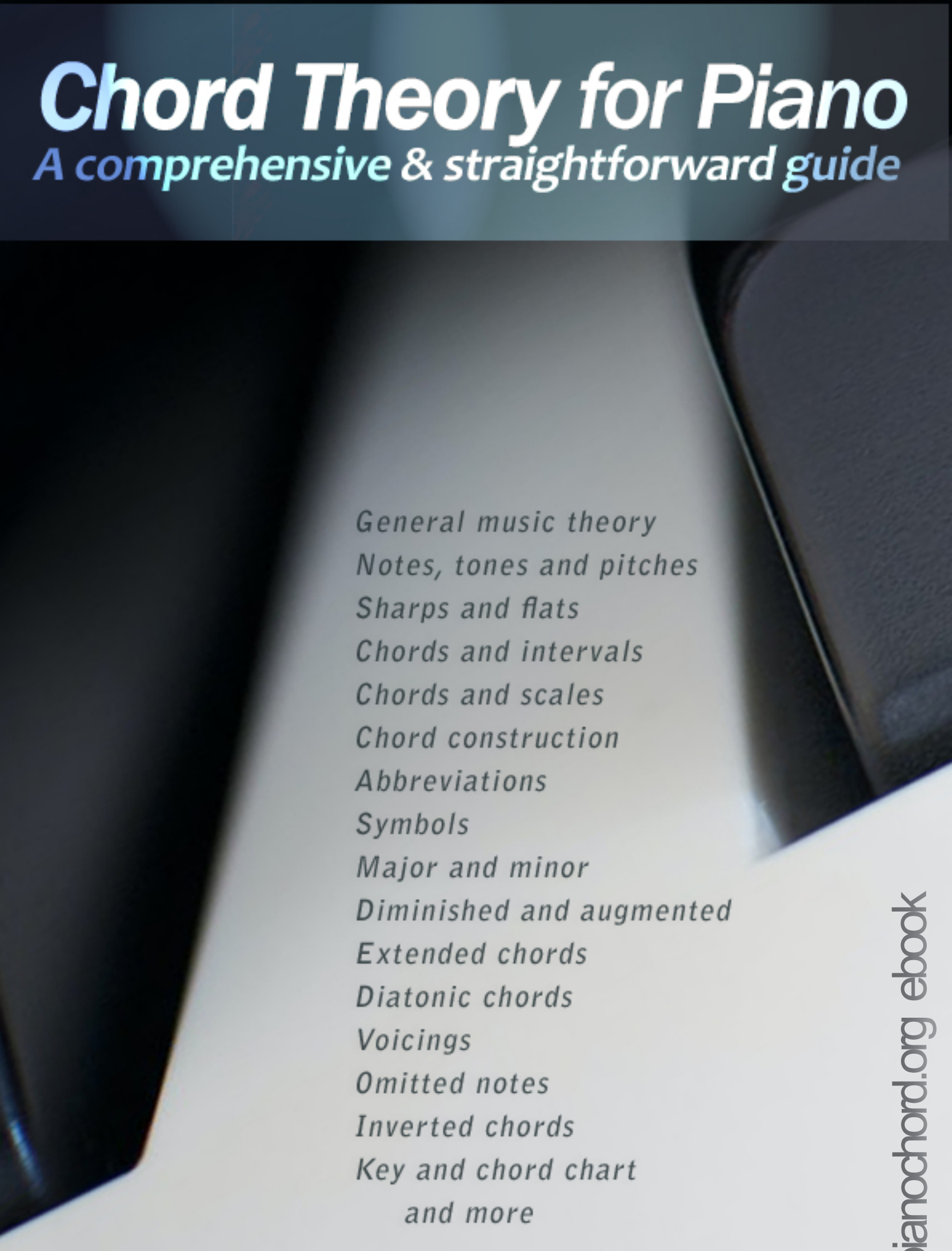
Chord Theory for Piano

A comprehensive & straightforward guide



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Introduction

Chords are often the first thing a beginner learns when studying music. They are essential for instruments like the piano and guitar but are less relevant for percussion instruments and only play a minor role in instruments such as the bass guitar or harmonica.

Understanding chord construction and categories is highly beneficial for musicians. Learning how chords are built and grouped into chord families helps in both playing and composing music.

One of the biggest mysteries for beginners is why some chords sound pleasant together while others do not. Music theory provides an explanation:

Diatonic chords are chords that share the same musical key, making them naturally harmonious. (This is explained further in the 'Diatonic Chords' chapter.)

Another key concept is *chord function*, which refers to how chords fit together in a progression to create pleasing musical movement.

By understanding these principles, musicians can create cohesive and engaging chord progressions.

General music theory

Before diving into the main topic of chords, it is helpful to take a brief journey through some fundamental aspects of general music theory.

Notes, tones and pitches

The terms *note, tone* and *pitch* can be confusing. Not at least notes and tones tend to be intermixed as synonyms. But there are distinctions. It can be reasonable to treat them as synonyms in some cases, but in precise music vocabulary they can be separated.

A tone refers to the actual sound produced by an instrument, while a note is the written representation of that sound. In music sheets, for instance, notes are used to give information about the duration of a tone (quarter notes etc.).

We usually say “notes in a chord” rather than “the tones in a chord”. But we could say: “I like the tones coming from your piano when you play that chord”.

A pitch, finally, refers to a frequency, measured in Hertz (Hz). The “Middle C”, for instance, which is the fourth C key on a full-size piano keyboard, has a pitch with a frequency of 261.6 Hz.

Sharps (#) and flats (b)

To understand the theoretical music lingo, you must be familiar with *sharps* (#) and *flats* (b). These are called *accidentals* and are in opposition to the *naturals* (C, D, E, F, G, A and B).

If you see a chord symbol as C#, it is spelled "C sharp". And if you see a chord symbol as Db, it is spelled "D flat". The next thing you should know is that C# and Db is exactly the same thing as tones considered. They are written differently in different keys.

These equivalencies are demonstrated in the following list:

- C# = Db
- D# = Eb
- F# = Gb
- G# = Ab
- A# = Bb

Intervals

Precisely as it sounds, **intervals are distances between two notes**. The units for intervals are *semi-steps* and *whole steps*. There is one semi-step between C and C# and there is one whole step between C and D.

The distance between two notes, called an interval, determines the character of the sound they create when played together. The sound character of notes with only one semi-step in between is dissonant (lack of harmony among musical notes) because they almost collide. Play C and C# together on the piano and you will hear a quite unpleasant sound.

Notes with five scale steps between can sound rather firm (this interval constitutes the 5^{th} chord, or the *power chord*, which is used a lot in heavier rock styles). Thirds on the other hand is very often used in acoustic guitar fingerpicking songs and in classical music. They have a very pleasing sound.

What makes the whole thing with intervals a bit intricate is that some interval categories exist in different forms. There are, for instance, minor third and major third. These have the same intervals considering scale steps, but differ considering semi-steps. For the latter, there are no scale context involved and every note is counted.

Principally it is quite easy – you need to be able to count to thirteen and keep apart the name of intervals with the semi-step numerals …

Interval	Semi-steps	Scales degrees	Abbreviation
Perfect Unison	1	1	P1
Minor Second	2	b2	m2
Major Second	3	2	M2
Minor Third	4	b3	m3
Major Third	5	3	M3
Perfect Fourth	6	4	P4
Augmented Fourth	7	#4	A4
Perfect Fifth	8	5	P5
Minor Sixth	9	b6	m6
Major Sixth	10	6	M6
Minor Seventh	11	b7	m7
Major Seventh	12	7	M7
Octave	13	8	8va

Concerning the abbreviations: P stands for “perfect”, M stands for major and m stands for “minor”, which are so-called *qualities* that describe intervals. The octave can also be abbreviated P8 (perfect octave).

The augmented fourth (#4) can also be called a diminished fifth (b5), which is practically the same thing.

Besides the intervals included in the table above, there are also *compound intervals*, which continues on a second octave and examples of these are major 9^{th}, major 10^{th}, perfect 11^{th}, perfect 12^{th}, major 13^{th}, major 14^{th} and perfect 15^{th}. These are less common and follows the same pattern as the others. These are called compound intervals because they extend beyond one octave. For example, a major 9^{th} interval consists of an octave plus a major 2^{nd}.

Lastly, there are two types of intervals: *melodic intervals* when two notes are played separately and *harmonic intervals* when two notes are played simultaneously.

The relationship between scales and chords

The notes in chords are often referred to as intervals, such as a *third* or a *fifth*. The relationship between intervals, chords and scales is illustrated in the table below by comparing the C major scale and the C major chord from the perspective of scale steps. The scale steps explain why the second and third notes in the C chord (as well as other major triads) are referred to as third and fifth.

Scale steps	1	2	3	4	5	6	7
C scale	C	D	E	F	G	A	B
C chord	C		E		G		

The first note is not called the first, although it wouldn’t be illogical, but the *root*.

In addition, you may encounter terms such as *major third*, *perfect fifth* and *minor seventh*. In the next table, the C major chord is replaced with the Caug chord:

Scale steps	1	2	3	4	5	6	7
C scale	C	D	E	F	G	A	B
Chromatic scale steps					#5		
Caug chord	C		E		G#		

The augmented chord (abbreviated aug) consists of a root, a third and an *augmented fifth*. The augmented fifth in this case is a G# note, and outside the C scale. The degree for this note is written #5, indicating that it is a tone one semi-step above G. The third

row in the table displays the scale step #5, which is included in the *Chromatic scale* which include all notes.

Here comes a third example:

Scale steps	1	2	3	4	5	6	7
C scale	C	D	E	F	G	A	B
Chromatic scale steps							b7
C7 chord	C		E		G		Bb

The dominant seventh chord (abbreviated 7) consists by a root, a third, a fifth and a *minor seventh* and as can be noted from the table doesn't fully match the C major scale. The correct scale step for the fourth note in the chord is written b7, indicating that it is a tone one semi-step below B.

Hence, it is not always enough to describe the intervals in a chord by third, fifth, seventh et cetera. Sometimes the intervals need to be pinpointed by additional information like "minor" (third), "major" (seventh) and "perfect" (fifth).

What is a piano chord?

A chord is a group of notes played together, forming the harmonic foundation of music. All you need to do is placing your fingers in a random position on the piano keyboard and you will accomplish a chord. But it is not until you do it in an organized form that music is created.

Piano chords played together deliver *harmony* (in music, harmony is put in contradiction to melody). Chords can be used for everything from one-chord grooves to long progressions with key changes.

There are lots of different chords that can be organized in different groups and categories. One key difference between chords is the number of notes they contain. There are triads (three notes), four-note (sometimes called tetrachords) and five-note chords. In addition, chords with six or seven notes also exist. Follow this link to Pianochord.org to see an in-depth summary of chord types.

A term that sometimes is used to distinguish chords is *quality*. The main four chord qualities are major, minor, diminished and augmented.

Major and minor

A common way to categorize chords is by distinguishing between *major* and *minor*. There is a difference in sound between these: major tends to sound cheerful or neutral whereas minor has more of a sad character. You will hear more major chords in fast rock songs and lots of minor chords in ballads.

If the chord name only consists of a single letter, such as C, it is a common major chord (also called a major triad). A major chord consists of three notes: the 1st, the 3rd and the 5th notes in the related major scale.

In the C major scale, we have these notes:

1	2	3	4	5	6	7
C	D	E	F	G	A	B

For the C major chord, we can locate the root, the 3rd and the 5th as C, E and G. These are also called the root, the major 3rd and the perfect 5th.

Next, we have chords with names such as Cm, Dm and Em with the “m” standing for *minor*. In minor triads there are notes. The notes in Cm are C, Eb (E flat) and G. This chord is built based on the C minor scale, in which we have these notes:

1	2	b3	4	5	b6	b7

C	D	Eb	F	G	Ab	Bb

In the majority of chords, the 3rd decides whether a chord is major or minor. The interval between the root and the third note in a minor chord is called a minor third.

Diminished and augmented

Diminished (abbreviated "dim") and *augmented* (abbreviated "aug") are two less common chord categories compared to major and minor. Dim and aug chords are quite uncommon and are mainly used for transitions between two chords.

Diminished

There are three categories: the diminished triads, the diminished seventh and the half-diminished seventh.

In diminished triads are both the 3rd and the 5th flattened.

In the diminished 7th (dim7), a minor 3rd, resulting in a double flat 7th interval, is added to the diminished triad. You may also find the alternative degree symbol (°), as in C°, being used occasionally.

The third category is the half-diminished 7th chord. This chord is identical to the diminished 7th except for the 7th note that is a flat instead of a double flat (it could also be seen as a minor 7th with a lowered 5th). The half-diminished is commonly written as m7b5 or m7(b5). Half-diminished 7th chords could also be written with a symbol (ø), as in Cø.

Comparing the major chord with the different diminished chords:

C: C - E - G

Cdim: C - Eb - Gb

Cdim7: C - Eb - Gb - A (Bbb)

C half-diminished 7: C - Eb - Gb - Bb

(The B double flat (Bbb) in Cdim7 is used since the last tone is theoretically a major sixth.)

A peculiar thing with the dim7 chords is that they are symmetrical (they consist of only minor 3rd intervals), meaning that all inversions can be played with the same shape. This circumstance results also in that many dim7 chords share the exact same notes. For example, Edim7, Gdim7/E, Bbdim7/E, C#dim7/E will all share the same notes.

Augmented

In a triad augmented chord there are the root and two major thirds. The augmented triad differ from the major triad in the case of the 5th, which is raised, or *augmented*, one semi-step. Besides the aug abbreviation, you may find the alternative plus symbol (+), as in C+, also being used.

Comparing the C Major Chord with Caug and Caug7:

C: C – E – G

Caug: C – E – G#

Caug7: C – E – G# - A#

Seventh chords

The next big group of chords is the seventh chords, named so because they include the seventh scale degree, making them four-note chords. **A seventh chord consists of the 1st, 3rd, 5th and 7th scale degrees.** Although the standard way to play these chords involve four notes, it is relatively common that one note is omitted (in that case normally the 3rd or 5th, see "Omitted notes" in a later chapter for more information of this approach).

The fourth note, the 7th, differs between the major seventh and the minor seventh chords. This is explained by the fact that a major seventh chord is based on a major scale whereas a minor seventh chord is based on a minor scale.

Major 7th

When a B note is added to the C major triad, it creates a new tone flavor and a chord that is called Cmaj7 ("maj" stands for major).

With Cmaj7 as an example, we can locate the root, the major 3rd, the perfect 5th and the major 7th as C, E, G and B. Let's see how these notes corresponds with the C major scale:

1	2	3	4	5	6	7
C	D	E	F	G	A	B

Cmaj7 has a richer, more complex sound than a standard C major chord. These chords are widely used in various music styles, particularly in jazz and melancholic ballads.

Minor 7th

For the C minor chord, a Bb note can be added to create another flavor and that chord is called Cm7 ("m" stands for minor).

With Cm7 as an example, we can locate the root, the minor 3rd, the perfect 5th and the minor 7th as C, Eb, G and Bb. Let's see how these notes corresponds with the C minor scale:

1	2	b3	4	5	b6	b7
C	D	Eb	F	G	Ab	Bb

Cm7 could be considered as richer in sound than the ordinary C minor. This group of chords are used in many music styles such as pop, blues and jazz.

Dominant 7th

The Dominant 7th chord (also known as only 7th chord) adds a minor 7th interval to the major triad chord. As the name implies, the added tone is seven scale steps from the root.

If we take C7 as an example, we can locate the root, the major 3rd, the perfect 5th and the minor 7th as C, E, G and Bb. Let's see how these notes corresponds with the C major scale:

1	2	3	4	5	6	b7	7
C	D	E	F	G	A	Bb	B

The b7 degree is colored gray since it isn't part of the major scale. The last tone in the dominant 7th, however, corresponds with the minor scale, giving the dominant 7th chord its characteristic tension.

These chords are especially common in blues. But they are present in most styles and often function in chord progressions as the second last chord because they resolve strong to the "home chord". One example is the following progressions:

C - F - G7 - C

Try instead to play C - F - G7 without the last C chord and the unstable character of the dominant 7th chord will be noticeable, it wants to continue to another chord.

Extended chords

Extended chords contain more than four notes. They are called "extended" because they include an additional 3rd interval. (More information on intervals is provided in the first chapter.)

For example, a 7th chord can be extended with a third, resulting in a 9th chord. This can be illustrated in the following comparison:

- Cmaj7: C E G B
- Cmaj9: C E G B D

The extended third is the D, since it is the third scale step from B in the C major scale: B-C-D.

Chords can be extended further; a major 9th could be extended with a 3rd and create an 11th chord. The final possible extension occurs when an 11th chord is expanded by a 3rd, resulting in a 13th chord.

Can we go on and extend the 13th to a 15th chord? Let's try and see what happens:

- Cmaj13: C E G B D F A
- Cmaj15: C E G B D F A C

What happens is that the eight note collide with an already used note. The hypothetical Cmaj15 has duplicated notes (two C notes). We are simply running out of notes – major and minor scales include seven notes.

It is possible to include notes outside the key and create a chord with, let's say C, E, G, B, D, F, A, C#. We could theoretically construct a chord with 12 notes and play it on the piano. Groups of notes that are not standardized as chords are sometimes referred to *tone clusters* (which won't be explained further in this guide).

Major 9th

The Major 9th chord (maj9 chord) adds a ninth note to the major seventh chord. For the Cmaj7 chord, a D note can be added to create yet another flavor and that chord is called Cmaj9.

With Cmaj9 as an example, we can locate the root, the major 3rd, the minor 5th, the major 7th and the major 9th as C, E, G, B and D. Let's see how these notes corresponds with the C major scale:

1	2	3	4	5	6	7	8	9
C	D	E	F	G	A	B	C	D

The last note in the chord (D) is covered by a second octave. This is the case for all extended chords.

The major 9th chord is not as common as the major 7th chord. It is for example utilized in jazz and bossa nova.

The only diatonic (*diatonic chords* are explained in a separate part later on in this ebook) major 9th chord can be found on the IV degree in a major scale. In C major, this would be Fmaj9 (F - A - C - E - G).

Minor 9th

If we take Cm9 as an example, we can locate the root, the minor 3rd, the 5th, the minor 7th and the 9th as C, Eb, G, Bb and D. Let's see how these notes corresponds with the C minor scale:

1	2	b3	4	5	b6	b7	8	9
C	D	Eb	F	G	A	Bb	C	D

The Minor 9th (m9), which is less common than the minor 7th chord, has a kind of mystic and ambient sound.

The minor 9th can be found as diatonic chords on the ii and vi degrees in a major scale. In C major, this would be Dm9 (notes: D - F - A - C - E) and Am9 (notes: A - C - E - G - B) whereas Em9 (notes: E - G - B - D - F#) would be a non-diatonic chord because of the F# note.

Dominant 9th

The Dominant 9th chord (also known as only 9th chord) adds a ninth to the dominant seventh chord.

With C9 as an example, we can locate the root, the major 3rd, the perfect 5th, the minor 7th and the major 9th as C, E, G, Bb and D. Let's see how these notes corresponds with the C major scale:

1	2	3	4	5	6	b7	8	9
C	D	E	F	G	A	Bb	C	D

The b7 degree is colored gray since it isn't part of the major scale.

The 9th chord, which is less common than the 7th, is frequently used in styles like funk and jazz.

6th

The 6th chord is a four-note chord that adds the sixth degree note in the major scale to the major triad. The chord is sometimes referred to as major 6th. This is not an extended chord, but placed here for educational reasons – it can be memorized easier when compared to the 13th chord, that follows next).

With C6 as an example, we can locate the root, the 3rd, the 5th and the 6th as C, E, G and A. Let's see how these notes corresponds with the C major scale:

1	2	3	4	5	6	7
C	D	E	F	G	A	B

The 6th chord is relatively common, but less common than the 7th chord. It has a somewhat ambiguous sound character.
The major 6th chord can be found on the IV and V degrees in a major scale. In C major, this would be F6 (F - A - C - D) and G6 (G - B - D - E).

Minor 6th

The minor 6th chord is a four-note chord that adds the sixth degree note in the minor scale to the minor triad.

With Cm6 as an example, we can locate the root, the minor 3rd, the perfect 5th and the major 6th as C, Eb, G and A. Let's see how these notes corresponds with the C minor scale:

1	2	b3	4	5	6	b7
C	D	Eb	F	G	A	Bb

The 6th degree is colored gray since it isn't part of the minor scale.

The minor 6th chord does not fully align with its corresponding minor scale, making it an anomaly in music theory. It may seem illogical that the last note in the chords isn't an A flat instead of a natural A, but it is a convention for chords that dictates the 6th interval always being a major (the same is true for the 13th interval, see below).

The minor sixth chord can be a substitute for a common minor chord, but can sound somewhat dissonant because it often diverges from the related musical key. The minor 6th can be considered as *atonal*, meaning it doesn't match the same key as its associated triad (E minor). This call for an explanation. If we have a chord progression such as C – Am – G, we could substitute Am with Am7 or Am9 and still only using notes in the key of C major. But if we substitute Am for Am6, it wouldn't fully coincide with the C major key since the fourth note in Am6 is an F sharp note, which is outside the C major key.

The only diatonic minor 6th chord can be found on the ii degree in a major scale. In C major, this would be Dm6 (D - F - A - B).

Major 13th

With Cmaj13 as an example, we can locate the root, the major 3rd, the perfect 5th, the major 7th, the major 9th, the perfect 11th and the major 13th as C, E, G, B, D, F and A. Although it is possible by using both hands, seven note-chord, are normally not played in full version simultaneously. It is common that one or more notes are omitted (see below).

Let's see how the chord in its theoretical form corresponds with the C major scale:

1	2	3	4	5	6	7	8	9	10	11	12	13
C	D	E	F	G	A	B	C	D	E	F	G	A

From this theoretical chord version, we could leave out the 11th to get a six-note chord:

C – E – G – B – D – A

Or we could leave out both the 9th and 11th to get a five-note chord:

C – E – G – B – A

These are two of the most common way to play this chord. Also notice that the 13th note is similar to the 6th note that is part of the 6th chord, but on the next octave.

The major 13th can also be played as a polychord. With Cmaj13 as an example, the left hand plays a C7 chord and the right hand plays a Dm chord.

The major 13th chord is most common in jazz and can function as a substitution for chords such as major 7th and major 9th.

Minor 13th

The minor 13th (m13) chord is in theory a seven-note chord, but is normally played with one or more notes omitted.

With Cm13 as an example, we can locate the root, the minor 3rd, the perfect 5th, the minor 7th, the major 9th, the perfect 11th and the major 13th as C, Eb, G, Bb, D, F and A.

Let's see first see how the chord in its theoretical form corresponds with the C minor scale:

1	2	b3	4	5	b6	b7	8	9	b10	11	12	13
C	D	Eb	F	G	Ab	Bb	C	D	Eb	F	G	A

The 13th degree is colored gray since it isn't part of the minor scale.

Thus, the minor 13th chord doesn't match with the relevant scale. In opposite with the b6 degree (Ab), the 13 degree (A) is a major 13th. This is a convention for chords that dictates that the 13th interval is always a major.

From the theoretical chord version in the table, we could leave out the 11th to get a six-note chord:

C – Eb – G – Bb – D – A

Or we could leave out both the 9th and 11th to get a five-note chord:

C – Eb – G – Bb – A

These are two of the most common way to play this chord. Also notice that the 13th note is similar to the 6th note that is part of the minor 6th chord.

The minor 13th can also be played as a polychord. With Cm13 as an example, the left hand plays a Cm7 chord and the right hand plays a Dm chord.

The sound character of the 13th minor is a little dissonant – the 13th note is outside the relevant minor scale – and therefore it's not always a fitting substitute for minor 7th and minor 9th (as the minor 6th chord, it is atonal). Instead, its functionally is closer to that of dim and aug chords, often used as an in-between chord.

Dominant 13th

The Dominant 13th chord (also known as only 13th chord) is in theory a seven-note chord, but as the major and minor 13th chords it is normally played with one or more notes omitted.

With C13 as an example, we can locate the root, the major 3rd, the perfect 5th, the minor 7th, the major 9th, the perfect 11th and the major 13th as C, E, G, Bb, D, F and A.

Let's see how the chord in its theoretical form corresponds with the C major scale:

1	2	3	4	5	6	b7	8	9	10	11	12	13
C	D	E	F	G	A	Bb	C	D	E	F	G	A

The b7 degree is colored gray since it isn't part of the major scale.

From the theoretical chord version, we could leave out the 11th to get a six-note chord:

C – E – G – Bb – D – A

Or we could leave out both the 9th and 11th to get a five-note chord:

C – E – G – Bb – A

These are two of the most common ways to play this chord.

The dominant 13th can also be played as a polychord. With C13 as an example, the left hand plays a C7 chord and the right hand plays a Dm chord.

The 13th chord is most common in jazz and can function as a substitution for chords such as 7th and 9th.

Altered chords

Altered chords, or alterations, refer to chords in which one or more notes are altered. Some altered chords contain multiple alterations. For example, a flattened fifth in a C9 chord would result in a C9b5. This can be illustrated in the following comparison:

- C9: C E G Bb D
- C9b5: C E Gb Bb D

The flattened note is sometimes marked with a minus sign (-) instead of the flat sign (b), as in C9-5. They are often enclosed in parentheses to indicate the modification, such as in C9(b5).

Altered chords can also include sharpened notes, as in C9#5. The alteration can once again be illustrated by a comparison:

- C9: C E G Bb D
- C9#5: C E G# Bb D

The sharpened note is sometimes marked with a plus sign (+) instead of the sharp sign (#), as in: C9+5.

Altered chords are commonly used in jazz. These chords often introduce atonal elements by including notes outside the key. They are often used as passing chords or substitutions, often leading back to the I chord. This will be illustrated with two chord progressions:

An altered chord can function as a passing chord by being placed directly before or after its non-altered version. Both are often played within the same measure:

Bm7 - E7 - E7b9 - Amaj7

Using an altered chord as a substitution can be made by replacing its non-altered version with it:

Bm7 - E7b9 - Amaj7 (instead of Bm7 - E7 - Amaj7)

Chord categories overview

The chord categories presented so far include a majority of the most essential types of chords. Here is a list with an overview of chord categories:

Triads

Chords that include three notes:

- Major
- Minor
- Diminished
- Augmented
- Sus2
- Sus4

7th

Chords that Include the 7^{th} scale degree.

- Major 7
- Minor 7
- mMaj7
- Dominant 7
- Diminished 7
- m7b5
- Augmented 7

Extended chords

Chords that stack additional thirds on seventh chords:

- Dominant 9
- Dominant 11
- Dominant 13
- Major 9
- Minor 9
- Major 11

- Minor 11
- Major 13
- Minor 13

Other major and minor chords

Notice that some of these chords are represented below another header.

- Major 2 (same as add2)
- Major 6
- Minor 6
- Major 6/9
- Minor 6/9
- Major 11 (maj9#11)
- Major 7#5
- Major 7b5

Alterations

This group includes chords with a raised or lowered note, typically the fifth or the seventh.

- 7#5
- 7b5
- 7b9
- 7#9
- 7#11
- 9#11
- 13#11
- 13b9
- 13#9
- 7#5#9
- 7#5b9
- 7b5#9

- 7b5b9

Suspended

A suspended chord (or sus chord) is a musical chord in which the (major or minor) third is omitted, replaced usually with either a perfect fourth or a major second.

- Sus2
- Sus4
- 7sus4
- 7sus4b9
- 9sus4

Added

An added tone chord is a non-tertian chord (chords built in thirds) named from its extra "added" note.

- add9
- add2
- add4
- add6

Added chords are normally written out with "add" and a number, for example add9 or add2, which are the most common variants. When the typical add numbers doesn't "cover" the case, there could also be letters involved, for example F#5addG describing an F#5 chord with an added G note. Observe that if the G note were the bass note, the chord would instead be called F#5/G.

Rare

As the header inform, these are chords seldom used.

- Italian sixth (augmented sixth with three notes: b6 - 1 - #4)
- German sixth (augmented sixth with four notes: b6 - 1 - 2 - #4)
- French sixth (augmented sixth with four notes: b6 - 1 - 3b - #4)

The list includes a majority of the chords out there, but there are still some less important chords not mentioned. One, rather important chord that not should be forgotten though is the 5^{th} chord (a.k.a. power chord), which is not formally a chord since it only consists of two notes as an interval.

Abbreviations in chord names

Abbreviations often used in chord names are explained below:

m / min Minor (“min” is less common than "m")

maj / M Major (“M” is less common than "maj")

sus Suspended

add Added

dim Diminished

aug Augmented

dom Dominant (not a very common abbreviation)

no3 No third (means that this tone is omitted)

no5 No fifth (means that this tone is omitted)

Symbols in chord names

Symbols are sometimes used together with, or instead of, abbreviations.

This is a sharp symbol, meaning that the note is raised one semi-step. For example, Em7#5 includes a raised fifth (E, G, C, D).

b This is a flat symbol, meaning that the note is lowered one semi-step. For example, Em7b5 includes a lowered fifth (E, G, Bb, D).

+ A plus sign can stand for augmented or indicate that a note is raised. For example, C+ stands for Caug, and Em7+5 stands for Em7 with a raised fifth. The plus sign has the same meaning as the # (sharp) symbol, in the second case.

- A minus sign indicates that a note is lowered. For example, Em7-5 includes a lowered fifth. The minus sign has the same meaning as the b (flat) symbol.

△ Major, or major seventh, (a delta symbol).

° Diminished (a degree symbol, not a zero).

ø Half-diminished (letter o with stroke).

When chord names are written out on sheets, the symbols are often in superscript text, as the following examples show:

$C^{\#}$, D^{b}, $F^{\triangle}7$, G°, $A^{\varnothing}$.

Diatonic chords

Diatonic chords are chords built by notes that all match a related key. Non-diatonic chords, on the other hand, contain notes that are not part of the key. Let's say we have a song in the C major key. C and F would be examples of diatonic chords whereas C# and F# would be examples of non-diatonic chords.

A musical scale can be *harmonized* into a set of chords with roots for each tone in the scale. If the C major scale would be harmonized into triads it would look like this:

C	D	E	F	G	A	B
C	Dm	Em	F	G	Am	Bdim

The same C major scale can be harmonized into seventh chords:

C	D	E	F	G	A	B
Cmaj7	Dm7	Em7	Fmaj7	G7	Am7	Bm7b5

One advantage diatonic chords is that they naturally sound harmonious when played together. In the chapter "Key and chord chart", you can get a wider picture of how chords can be grouped based on keys.

Enharmonic chords

Enharmonic chords are chords that have more than one name in the sense they shared the same notes. This phenomenon occurs most commonly in minor 7th and major 6th chords, such as Dm7 and F6:

Dm7	D	F	A	C
F6	F	A	C	D

Although the note order differs, Dm7 and the third inversion of F6 contain the same pitches, making them enharmonic equivalents.

A unique feature of diminished 7th chords is that they have four enharmonic equivalents within the same chord structure! For example, Cdim7, Ebdim7, Adim7 and Gbdim7, all consisting of the same notes:

Cdim7	C	Eb	Gb	A
Ebdim7	Eb	Gb	A	C
Adim7	A	C	Eb	Gb

Gbdim7	Gb	A	C	Eb

The order of notes is obviously deviating, but, for example, Edim7 and the 2nd inversion of Cdim7 would be fully identical.

How chords are played

This chapter deals with concepts such as voicings and how chords are executed in different situations.

Once you know which notes belong to a chord, you can play it in various ways. A chord can be played by pressing down all the relevant keys simultaneously (sometimes referred to as *block chords*) or each at a time (*broken chords*). As you make progress, you will find more ways of altering the outcome.

Hands

Which hand should you use to play chords on the piano? It depends.

For musical accompaniment (e.g., playing in a band or with a singer), you can play chords with one or both hands, depending on the complexity of the piece. When playing chords with many notes, using two hands can be beneficial (follow this link to Pianochord.org for an guide to two-hands chord), but there are no strict principles for what notes are played in left hand and right hand specifically.

Some piano techniques involve breaking up chords into two parts. For example, in *stride piano*, the left hand plays the root note first, followed by the full chord in a higher octave.

When playing solo, the left hand typically plays the chords, while the right hand plays the melody. This arrangement is more natural, as it balances harmony and melody effectively.

Fingerings

The fingers to use when playing piano chords vary. Here are some tips to help you develop good fingering habits:

- In general, avoid using the thumb for the black keys.
- But for the most time (i.e. when the first note is not a black key) you should involve the thumb.
- Always strive for the most natural position for the hand.
- The most common fingerings for triads using left-hand are, in order: little finger, middle finger and thumb.
- The most common fingerings for triads using right-hand are, in order: thumb, middle finger and little finger.

- In sheet music, finger numbers are used to indicate which fingers to use. The numbering system assigns 1 to the thumb and 5 to the little finger, regardless if the left or right hand is concerned.

Omitted notes

Not all notes in a chord are always played. There can be multiple reasons for this. One reason is the limitations of the instrument. For example, on a six-string guitar, it is impossible to play a seven-note chord without omitting a note.

Another reason is that too many notes can be unnecessary. In a music arrangement, the chord notes can get company from melody notes. Furthermore, the melody voice can include more than one note. The result is simply too many notes blended on the same time. On the piano, it is common to simplify four- and five-note chords by reducing them to three notes.

By omitting the least important note – the one that contributes the least to the overall sound of the chord – it is still possible to maintain the essence of the chord. The most redundant tone in a chord is the tone that doesn't define the chord harmonically. In most chords, this is the 5^{th}. (Notice, however, that it is not common to omit the 5^{th} from triads.)

In dominated 7^{th}, 9^{th}, 11^{th} and 13^{th} chords it is possible to remove the third instead. Removing the third in major and minor chords is usually not advisable, as the third determines whether the chord is major or minor.

In general, the root note (the first note in the chord), the third, the seventh and the extended third (for example, the 13^{th} scale note in a 13^{th} chord), should be included. In extended chords, multiple notes are sometimes omitted. In a 13^{th} chord, for instance, it is common to remove the 5^{th} and the 11^{th}.

When chords are modified in this way, the new version is often referred to as a *voicing* (more about voicings will follow).

Inverted chords

When the order of notes is shifted, the chord is inverted. A triad chord can be played in three configurations. C major can be used as an example:

- C – E – G (root position)
- E – G – C (1st inversion)
- G – C – E (2nd inversion)

More inversions are possible for chords that include more notes.

To indicate that a chord is played inverted it is written as [root note] [slash sign] [bass note]. For example, the second inversion of the C major chord is written C/E.

It is quite common to combine inversions with omitting notes. The chords could be so much more comfortable to play when doing this, in some situations.

Inverted chords are not always indicated in chord names. Sometimes, when for example C is written, it is up to the musician to decide if he or she wants to use an inversion. For a pianist, the difference in sound is not always that significant, it is more a question of playing with economical movement.

Chords with alternate bass notes

It makes sense to discuss chords with alternate bass notes next, as they are closely related to inverted chords.

They function similarly to inverted chords, but instead of using a chord tone as the bass note, an external note is used. For this reason, slash chords, as they are often called, affect the overall sound more than standard inversions.

Similar to the inverted chord, a slash sign is used in the chord name between the root note and the bass note replacement. For example, a C major chord with D as bass note is written C/D.

Slash chords can create bass lines in chord progressions. The progression:

C – G – Am – G – F – Em – Dm

Can include a slash chord and create a bass line:

C – G/B – Am – G – F – Em – Dm

It can also be dominated by slash chords and result in the same bass line:

C – G/B – F/A – C/G – F – C/E – Dm

Here are two additional examples in which the bass line is illustrated:

1. Am/C – Em/B – Am – Em/G – Dm/F – Em – Dm (bass line C, B, A, G, F, E, D)

2. C – G/B – Am – Am7/G – F – C/E – Dm (bass line: C, B, A, G, F, E, D)

Voicings

Voicings refer to how a chord is arranged and how its notes are distributed. Voicings are variations of a chord, often played across different octaves or with certain notes omitted (removed from the chord).

Instead of playing a standard C Major chord (C, E, G) in one octave, the left hand can play the root note in a lower octave while the right hand plays the triad. This technique, known as a triad-over-root voicing, adds extra bass and creates a fuller sound.

When it comes to four-note chords, one typical voicing is to separate them in two parts. The left hand plays the root whereas the right hand plays the rest, which is called a *part over root voicing*. It will add depth to the chord thanks to the wider span between bass and treble.

In general, there are two types of voicings: *closed* and *open voicings*. Closed voicings are chords played similar to the main chord version. In open voicings the notes are spread out over a wide range.

Rootless voicings omit the root note, which may seem unusual, but as long as other essential chord tones remain, the chord's harmonic function is preserved. It can be seen as the voicing implies the chord, since the other important notes are still there. So why play rootless voicings? One reason is that the root note can be replaced with another note which extend the chord and makes it more colorful. This allows the chord to be extended without increasing the number of notes, making it easier to play. In cases a bass player is involved, he will take care of the roots.

Substitutions

In music, a chord substitution refers to replacing one chord with another. Chord substitutions typically occur in two ways: an extended chord replaces a triad, or an altered chord replaces a similar chord type.

The principle of substitutions is that they use the same root note as the chord that is replaced. D7 could be substituted for D13, but not for A9. (This principle can, however, be stretched. In these cases, the function of the chords is replaced as well, for example replacing the I chord with a iii chord. This will not be treated in this article though).

Typical chord types that are used as substitutions

Extended 9th, 11th and 13th chords are often used as substitutions for regular triads, seventh chords as well as other extended chords.

For example, a C major triad can be substituted with C7, C7 can be replaced by C9, and C9 can be extended to C13, and so on.

As long as the root note remains the same, there are no specific rules in which ways substitutions can be made. C7 can be substituted for C7#9, C9 or C11. This kind of chord swapping is a standard approach in jazz.

Applications in progressions

As the last part of this sum-up of chord substitutions, examples will be given how progressions containing substitutions can look like.

ii - V - I with substitutions:

Dm7 - G13 - Cmaj7

Em7 - A7 - Dmaj9

Gm9 - C7#5 - Fmaj9

Am11 - D7 - Gmaj7

Bbm7 - Eb7#9 - Abmaj7

Cm7 - F9 - Bbmaj13

I - vi - ii - V with substitutions:

Cmaj7 - Am7 - Dm7 - G13

Ebmaj7 - Cm7 - Fm9 - Bb11

Dmaj9 - Bm11 - Em7 - A7

I - VI - ii - V with substitutions:

Cmaj7 - A7 - Dm7 - G13

Dbmaj9 - Bb11 - Ebm7 - Ab7

Ebmaj7 - C7 - Fm9 - Bb11

Notice that some of substitutions might be atonal (meaning that the substituting chord may have notes that don’t match the relevant key).

Key and chord chart

A chart with keys and chords showing the relationship of chords in all the keys can be seen below. From left to right you can see the key and the chords that belong to it.

Key	I	ii	iii	IV	V	vi
C#	C#	D#m	E#m	F#	G#	A#m
F#	F#	G#m	A#m	B	C#	D#m
B	B	C#m	D#m	E	F#	G#m
E	E	F#m	G#m	A	B	C#m
A	A	Bm	C#m	D	E	F#m
D	D	Em	F#m	G	A	Bm
G	G	Am	Bm	C	D	Em
C	C	Dm	Em	F	G	Am
F	F	Gm	Am	Bb	C	Dm
Bb	Bb	Cm	Dm	Eb	F	Gm
Eb	Eb	Fm	Gm	Ab	Bb	Cm
Ab	Ab	Bbm	Cm	Db	Eb	Fm
Db	Db	Ebm	Fm	Gb	Ab	Bbm
Gb	Gb	Abm	Bbm	Cb	Db	Ebm
Cb	Cb	Dbm	Ebm	Fb	Gb	Abm

Match chords into progressions

In essence, the table gives tips on which chords to play together. Chords on the same rows will always sound good in different progressions because they belong to the same key.

For an example, look at the chord chart and the column that begins with C. Here we find C major, D minor, E minor, F major, G major and A minor. Every one of these chords always sound nice together. Try the following chord progression:

C - Em - Am - F - G - C

Each chord blends into the next one (sometimes we want some dissonance in our music, more about that later).

This simple progression can be more colorful by including seventh chords:

Cmaj7 - Em7 - Am7 - Fmaj7 - G7 - Cmaj7

... which can be modified even further by other extended chord types:

Cmaj9 - Em9 - Am11 - Fmaj7 - G13 - Cmaj7

One more area in which the chart can assist us is in writing our own songs. As we recognize chords that match, we can use them together then composing music.

To help you out in some keys here are some shortcuts that can come handy:

- Chords in the key of G: G, Am, Bm, C, D and Em
- Chords in the key of C: C, Dm, Em, F, G and Am
- Chords in the key of D: D, Em, F#m, G, A and Bm
- Chords in the key of A: A, Bm, C#m, D, E and F#m
- It is also possible to play in minor keys and here are some common minor keys and chords:
- Chords in the key of A minor: Am, C, Dm, Em, F and G (you can substitute Dm for D and Em for E)
- Chords in the key of E minor: Em, G, Am, Bm, C and D (you can substitute Am for A and Bm for B)

Chords can also be divided based on their *functions*. This relates to how they function in a musical context. For example, how chords relate to each other in a chord progression based on the musical key. Chords are commonly written out in Roman numerals and this indicate which function they have (more about this will follow).

Beyond the diatonic chord matches

The table above is very useful because it explains fundamental relationships between chords and provides guidelines on how chords can be combined into progressions. But sometimes, we want to create harmonic relationships that surprise the listener. To achieve this, we must step outside the “diatonic zone” and accept some dissonance.

Of course, not all dissonance is created equal – some choices enhance the music, while others may sound unpleasant. We cannot throw together all kinds of chords and expect great sounding music.

A common approach is to incorporate chords that introduce only slight dissonance into a progression. The B major triad, for example, contains two notes that match the G major / E minor keys. This is a chord that can replace B minor in chord progressions

based on these keys. Even less dissonance occurs if we use B7, since B7 include three notes that match the G major / E minor keys. To present it from a “mathematical” perspective: B has 33% dissonance and B7 has 25% dissonance when used in the G key.

Instead of playing the progression Em – Bm – Am, we can change it to Em – B7 – Am.

By replacing a diatonic chord with a non-diatonic chord that still closely aligns with the key, we unlock many new harmonic possibilities.

Ways to continue from here ...

Music theory becomes more meaningful and effective when combined with practical application. For example, pianists can deepen their understanding by actively engaging with chord identification. Enhance your music theory through interactive tools provided by PianoChord.org.

Technology can accelerate learning by providing real-time feedback and visualization. Two essential tools for pianists include:

Piano Chord Converter – A tool that allows users to select notes on a virtual keyboard and instantly see the chord name and variations. This helps develop quick chord recognition and reinforces theoretical knowledge.

Chord Inversion Trainer – An interactive tool where users can click to shift between root position and inversions, seeing the structural relationships between chord voicings.

By integrating practical application, interactive visualization, and consistent hands-on practice, pianists can establish a deeper, more intuitive understanding of music theory. The combination of theory, ear training, and interactive tools creates a dynamic and engaging learning experience.