



COMMUNITY EDITION

The Soundtrack Composer's Ultimate Guide to FL Studio

Learn to score films and games, compose orchestral music,
and launch your music career

Joshua Au-Yeung



Table of Contents

3

Designing Music with Themes, Leitmotifs, and Scales

Toolkit of the composer	2	What are scales?	10
Themes, motifs, and leitmotifs	3	Why are scales important for composing and how do you use scales to compose?	10
Motif	3		
Theme	3		
Leitmotif	4	Understanding modes	15
How to use motifs, themes, and leitmotifs	4	How to use modes	18
Understanding scales	6	Understanding sharps and flats	26
What is 12-tone equal temperament frequency (Hz)?	9	Using the Circle of Fifths chord wheel	28
Why does Western music use 12 notes?	10	Summary	32

Index

3

Designing Music with Themes, Leitmotifs, and Scales

In this chapter, we discuss music theory for composers. We will give a foundational background for how to apply music theory for film and game composing. We will discuss how the concepts of motifs, themes, and leitmotifs can be used to come up with musical ideas. We will discuss what scales are and how to use them. We will use scales to explain what modes are and how to use them. Finally, these concepts will allow us to use the Circle of Fifths chord wheel tool to show how scales relate to each other and how to smoothly transition from one music key to another within a song.

We will cover the following topics in this chapter:

- Toolkit of the composer
- Understanding and using themes, motifs, and leitmotifs
- Understanding scales

- Understanding and using modes
- Understanding sharps and flats
- Using the Circle of Fifths chord wheel

Toolkit of the composer

When you sit down to compose (usually at a piano and computer), you're faced with a blank canvas. At least that's how it's depicted in movies. It looks like there's nothing, and you have to invent. From an outsider's perspective, it seems like the music just pours out of you. That's the romantic fairytale way of thinking about composing music.

Music bursting out of you sounds lovely but isn't very reliable if you need to create music consistently on demand. Where does music come from? The notes we play aren't random. Certain note combinations and melodies sometimes sound really good together. It seems like sometimes all the notes flow and support each other. How does this come about? There must be some kind of relationship between note combinations that allow this to happen.

You've been given a film composing assignment. You've seen the story you need to create music for. How do you start? How can you make music that meets your desired style and stays consistent throughout? What frameworks are there to help guide the process? This chapter aims to answer all these questions.

When you actually get to the composing task, it can be a very technical art. You can compare composing to how a carpenter creates a sculpture out of wood. Yes, you need an idea of what you want to make before you sculpt, but the creation is hugely shaped by the tools you have available. The more mastery you have of your tools, the more opportunities you'll find. Understanding how to use your tools and what the bigger picture is behind the tools go hand in hand.

There are lots of tools at the composer's disposal and we will explore many throughout this book. In order to make the most of software tools, you need to have a conceptual understanding of music. In this chapter, we'll focus on the big-picture theory to figure out what you're composing. Then, in later chapters, we'll look at the tools to execute your vision. By the end of this chapter, you'll understand how music theory can be applied to compose music.

Themes, motifs, and leitmotifs

Before you begin composing, we need to come up with some parameters to compose around. Themes, motifs, and leitmotifs are tools for coming up with musical ideas. They can help us to understand the meaning of scenes and define the qualities we want our music to have.

If you've taken a writing or film critiquing course, you may already be familiar with the terms themes, motifs, and leitmotifs. However, there could be many interpretations of these terms depending on who is teaching, and these terms are usually not used in a musical context. In the context of our discussion, we'll define these terms as follows:

Motif

A **motif** is a fragmentary musical idea that cannot represent something concrete in a narrative. It's a group or phrase of notes that convey an idea. It's the smallest amount of music you can make meaningful. As you replay this group of notes at different points throughout the narrative, the motif will come to mean different things. The important part is that you keep coming back to this musical idea throughout the story. If you keep expanding this musical idea and extending it, it can evolve into a musical theme.

As an example of a motif, in the 1960 film *Psycho*, directed by Alfred Hitchcock, when the shower murder scene occurs, we hear the screeching of violins. It's a high-pitch, clashing, dissonant sound that is unpleasant and jarring. This sound becomes associated with the sound of murder.

Theme

A **theme** is a complete musical idea that can represent something concrete in a narrative, but it doesn't have to. It's a recognizable melody, upon which part or all of the composition is based. When you hear a musical theme, you know the song is referring to a specific story.

Whenever you watch a TV show, the show has a theme song. The song becomes associated with the show. The theme is often thought of as a sound that sums up the idea of the show.

In many live theater operas and stage shows, a live band plays music before the show begins. At this point, they'll play several musical themes for the show. It's often a mashup compilation of several musical pieces played throughout.

How do motifs compare to themes?

Motifs are small ideas that develop into a bigger theme. Motifs are the recurrent image, idea, or symbol that develops or explains a theme, whereas a theme is a central idea or message. A motif does not represent anything on its own. It's a small, short musical idea. The meaning of the motif depends on the visual that accompanies it. A theme is more used for a summary collection of visuals.

Leitmotif

A **leitmotif** is a fragmentary musical idea that must represent something concrete in a narrative.

The composer Wilhelm Richard Wagner is often credited with coming up with the idea of leitmotifs. He created operas and wanted everything in the opera to have meaning behind it. Every costume, every action, all the characters on the stage: they had to each have their own individual meaning.

We can assign different characters, actions, places, and events their own musical idea.

There's a great example of a leitmotif in the 1977 movie *Close Encounters of the Third Kind*, directed by Steven Spielberg. If you haven't seen it yet, the following will be a spoiler. If you haven't already seen the movie, you may want to watch it and then come back.

In the film *Close Encounters of the Third Kind*, humans and aliens try to communicate with each other but don't understand each other. The method of communication they end up using is a 5-note musical phrase. The 5-note melody is repeated constantly throughout the movie with different sounds and instruments, but you don't quite understand why until much later on. In the story's climax, we discover that the music is how humans and aliens can talk to each other. In this film example, the 5-note musical phrase is a leitmotif. It has a specific concrete meaning, and that meaning is the word *hello*.

How to use motifs, themes, and leitmotifs

When you're looking through your video footage and trying to figure out what music needs to be composed, one approach is to come up with a list of all the central characters, places, events, and other noteworthy items important to the plot. Then, try to come up with music motifs and leitmotifs that reflect those items. Once you've come up with the initial motifs and leitmotifs, you can expand on the idea until you have a full song.

Let's discuss an example. In the films *Star Wars*, *The Empire Strikes Back*, and *Return of the Jedi*, directed by George Lucas, every time you see the character Darth Vader, there's a specific song that plays. This song is *The Imperial March*, more commonly known as Darth Vader's theme. You associate the sound with Darth Vader throughout the film. Darth Vader's theme is so tied together with the character, it's hard to imagine that at one point there was no music. We just take it for granted that that music plays at the same time as the character appears.

Imagine we'd never heard the music to be used for Darth Vader. Let's think about the music for Darth Vader's theme and try to reverse engineer how composer John Williams might have come up with the music.

Pretend you were watching *Star Wars* on mute and saw Darth Vader on video for the first time. What information do you have to work with when trying to come up with musical ideas?

By looking at scenes where Darth Vader appears, we learn a few things. Vader is the villain of the movie. He's bad, strong, powerful, and commands an army. When he walks into a room, he commands the attention of everyone around him. He's always wearing black full-body armor. If you unmute and listen, when he speaks, he has a deep masculine voice that sounds menacing.

All we've done is look at the physical appearance of the character and we already have a lot of information to start coming up with music. John Williams chose to make Vader's theme in the style of a march. If we want to reinforce the physical appearance of the character as being some form of military commander, then music in the rhythm of a military march is a logical choice. If we want to articulate the idea of power, then we'll likely want to use instruments that can support that feeling. John Williams ended up using lots of low bass string notes, lots of percussion, and big brass instruments.

Thinking about leitmotifs can help you to choose what sounds and instruments you might want to use. You can look at the characters, places, events, or other significant items and see what meaning they have. Then, try to figure out what sounds go well to convey that meaning.

We've learned about motifs, themes, and leitmotifs and how they can be used to come up with musical ideas. Next, let's learn about scales.

Understanding scales

Try to learn any melodic instrument and sooner or later you'll learn about scales. If you're trying to compose songs, an understanding of scales is required.

When talking about scales, most music books dive straight into music notation, ask you to memorize scales, and leave you with a book of pages you'll likely never read. I've seen many of these books and lectures and found most of them completely forgettable. We're going to try another approach to help you see why we use scales and how to apply them. This will help you to understand music theory rather than memorize it. In fact, you don't have to memorize much at all; software can do almost all the work for you.

In this chapter, we'll explore answers to the following questions: what are scales, actually? Why do we have them? Why are they important for composing? And how can we apply the music theory of scales in our digital audio workstation?

Let's start by explaining what scales are. All sounds are made up of vibrating molecules in the air. They vibrate in pattern clusters we interpret as wavelengths. Frequency is the term we use to describe the number of wavelengths that pass through the air per second. The following figure shows an example of how we interpret vibrating air molecules as sound waves.

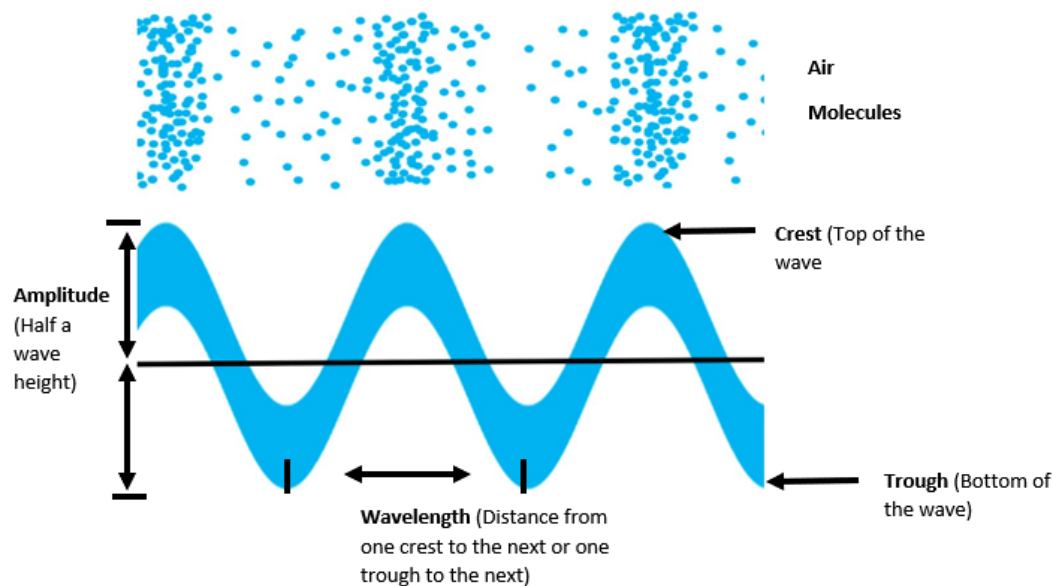


Figure 3.1 – Wavelength

Musical instruments cause air molecules to vibrate at specific frequencies. When air vibrates at a specific constant frequency, our ears interpret the noise as a note pitch. If you have a string instrument, you will be familiar with the idea of tuning your instrument strings to certain frequencies so that when you pluck a string, you get the desired pitch.

We give this a name depending on the audio frequency hit and call it a note pitch. For example, we give the frequency 220 Hz the name *A*, or more specifically *A3*, when played on a piano. A chord is defined as three or more notes played together. When you play three or more different audio wavelengths at the same time, you're creating chords.

What happens if we double the frequency of a note? The following figure shows a comparison of a wave form frequency of 220 Hz and 440 Hz.

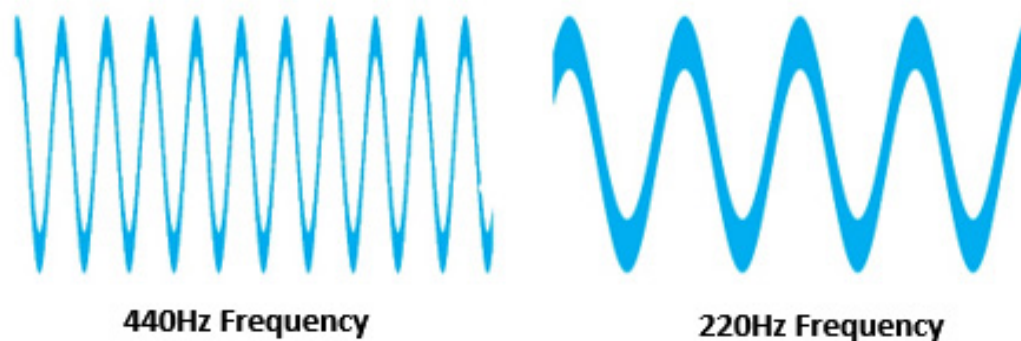


Figure 3.2 – Frequencies

The 440 Hz frequency sounds exactly twice as high as the 220 Hz frequency. We give this interval a name: an **octave**. An octave is an interval between one musical pitch and another with double the frequency. The two sounds played together sound good. This is true for any two sound frequencies where one is double the frequency of the other. All we've said so far is that a root note pairs nicely with a note an octave apart.

Okay, so the frequency 220 Hz is a note we know as *A3* and 440 Hz we know as *A4*. What about that range between 220 Hz and 440 Hz? Inside that interval, there is a range of frequencies to choose from. If we match the note 220 Hz with a note somewhere in the range of 220Hz and 440Hz, how do we know whether the combination of notes will sound good together?

Over time, we've noticed certain combinations of frequency ratios sound really good together. For example, if we use a note *A3* (frequency of 220 Hz) with a note that's an interval ratio of 3:2 (330 Hz), they will sound good together. That second note of 330 Hz is a note commonly known as *E3*. Trying to think in terms of interval ratios is confusing, though. Instead of trying to remember the names of interval ratios, we use some common terminology. In the case of a 3:2 interval ratio (*A3* paired with *E3*), we use the term **perfect fifth**.

The following table shows sound intervals that sound pleasant when accompanying a root note. The table is ranked from consonant to dissonant, **consonant** meaning the sound is in harmony with the root note and **dissonant** meaning the note doesn't harmonize well with the root note:

Interval Name	Frequency Ratio Relationship between the Notes
Root	1:1
Octave	2:1
Perfect fifth	3:2
Perfect fourth	4:3
Major third	5:4
Minor sixth	5:3
Minor third	6:5
Major sixth	8:5
Major second	9:8
Minor seventh	9:5
Minor second	16:15
Major seventh	15:8

Figure 3.3 – Consonant to dissonant

Take the perfect fifth as an example; the ratio relationship is 3:2. Our ears like the harmony of a root paired up with a sound that has a 3:2 frequency ratio. Our ears like hearing nice, evenly spaced intervals, such as 2:1, 3:2, 4:2, 5:4, and 5:3. As we venture away from these round intervals, our ears interpret the sound as more dissonant.

The most harmonious intervals are the perfect fifth, perfect fourth, major third, and minor third. If you're looking to pair notes with a root note, you'll often want to consider including these intervals.

An octave means you're comparing a root note with a note exactly double its frequency. Western music divides up an octave of music into 12 note intervals. Western music has 12 notes: A, A#, B, C, C#, D, D#, E, F, F#, G, and G#.

The following table organizes notes from smallest frequency to largest frequency assuming that we start with a root note frequency of 220 Hz. It shows the ratio between root notes in relation to other notes:

Pure Intonation Ratio Relationship between the Notes	Note	Interval Name	Pure Intonation Frequency (Hz)	12-Tone Temperament Frequency (Hz)
1:1	A3	Root	220	220
16:15	A#	Minor second (m2)	234.7	233.1
9:8	B	Major second (M2)	247.5	246.9
6:5	C	Minor third (m3)	264	261.6
5:4	C#	Major third (M3)	275	277.2
4:3	D	Perfect fourth (P4)	293.3	293.7
7:5	D#	Tritone	308	311.1
3:2	E	Perfect fifth (P5)	330	329.6
5:3	F	Minor sixth (m6)	352	349.2
8:5	F#	Major sixth (M6)	366.37	370
9:5	G	Minor seventh (m7)	396	392
15:8	G#	Major seventh (M7)	412.5	415.3
2:1	A4	Octave	440	440

Figure 3.4 – Note intervals

The preceding figure takes the range between 440 Hz and 220 Hz and divides it into 12 interval segments. You can see the note that the frequency is associated with. You may be wondering what the column is about with the title **12-Tone Equal Temperament Frequency (Hz)**.

What is 12-tone equal temperament frequency (Hz)?

In the **12-Tone Equal Temperament Frequency (Hz)** column, you'll notice that some frequencies don't line up perfectly with the ratio. For example, for a root note with a frequency of 220 Hz, a perfect fifth should be 330 Hz. However, in the **12-Tone Equal Temperament Frequency (Hz)** column, it says the frequency is 329.6 Hz. In reality, we don't tune our instrument pitch to 330 Hz; we actually tune our instruments to 329.6 Hz. Why would that be?

The reason we tune our instruments differently is so we can easily change keys on our instruments without retuning to a new key. For example, if we were to start with a root note of D# (308 Hz) and pair it with a note that has a frequency ratio of 3:2, that would mean we would need to pair it with an A# note that has a frequency of 462 Hz. But since our instrument is tuned to the key of A, the A# note is 469.3 Hz. This means that our instrument would sound out of tune. So, what do we do to fix this? We tune some notes slightly off intentionally. It's slightly off, but not really noticeably off. Tuning this way gives us the freedom to easily switch the key to our root note and have other notes in the scale sound approximately in tune.

Why does Western music use 12 notes?

Instruments like the violin and trombone allow you to hit notes that are different than 12 notes. You can play frequencies in between the 12 notes. Why are 12 note pitches commonly used? Why not more or less? What about the frequency of 226 Hz or 227 Hz? What about other interval ratios? How come they aren't appearing in this list?

Some musicians in the past have experimented with creating instruments that divide up the octaves into intervals other than 12, such as dividing an octave into 19 or 24 notes. If you play a string or brass instrument, it is possible to hit notes that are other intervals.

Over the years, we realized certain frequencies interval ratios sound good to our ears. Specifically perfect fifth, perfect fourth, major third, and minor third. Using 12 notes ensures we have easy access to the harmonious frequency ratios such as perfect fifths, perfect fourths, major thirds, and minor thirds. Although we could use additional intervals than 12, we find these usually sound more dissonant and are less pleasant to our ears. So, we use 12 notes because it enables us to create sounds that harmonize well.

What are scales?

Scales are select combinations of notes in an octave that complement each other. The notes are ordered from lowest to highest frequency. In Western music, we divide up octaves into 12 note intervals. Scales use fewer notes than 12. They are a selection of notes from the 12 that complement each other. Scales are frameworks that try to force you to play notes that sound good together.

Why are scales important for composing and how do you use scales to compose?

The mood of your music is largely set by the scale you choose. For example, if you only use notes that belong to a minor scale, your music is going to take on a sad or dark tone. If you only use notes that belong to a major scale, your music is going to sound happy and light.

By understanding the mood and tone that belong to each scale, you can choose a scale that matches your desired mood appropriately. In order to do that, we need to know what scales are available to us.

FL Studio offers support for finding what notes are included in a given scale. Let's explore tools to help us compose using scales:

1. Load up a melodic instrument such as FL Keys into the Channel rack. If you need a refresher on how to use the Channel rack or Piano roll, we discussed it in *Chapter 2, Navigating Through the Key Features of FL Studio*.
2. Open the Piano roll with your instrument and select the stamp tool.

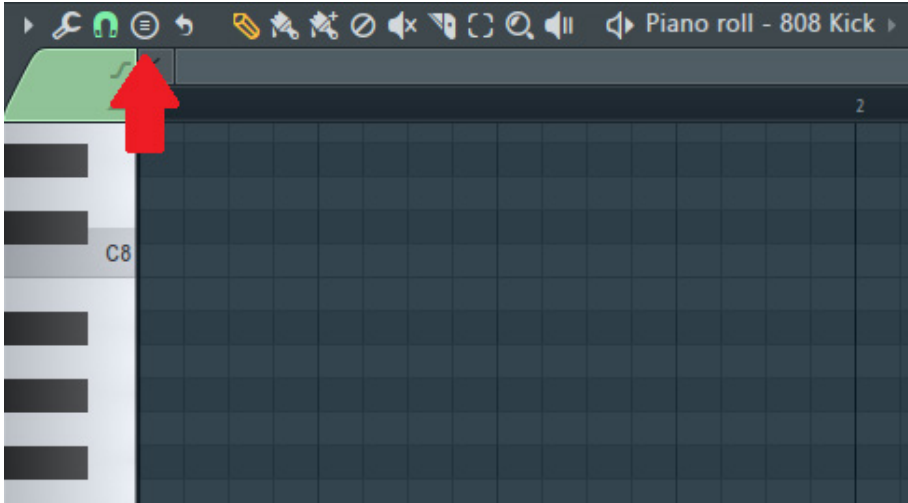


Figure 3.5 – Stamp tool

A drop-down menu will appear listing a large selection of MIDI note presets. It shows chords, scales, and suggestions for percussive sequences. Of interest to this chapter is the **Melodic Scales** selection.

3. Left-click on a scale such as the **Minor Harmonic** scale, as shown in the following screenshot:

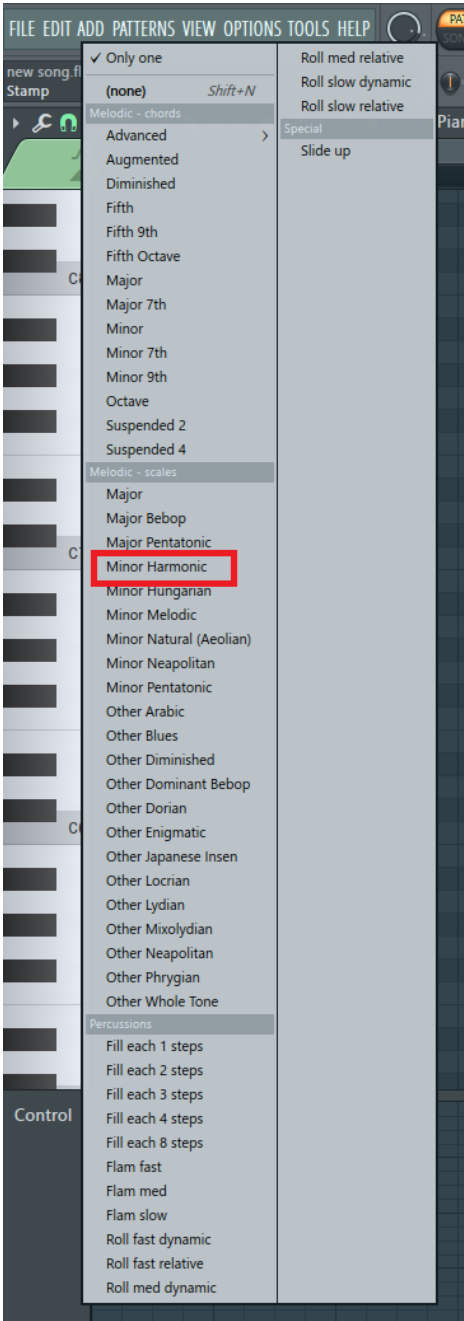


Figure 3.6 – Choose scale

This selects a series of MIDI notes (note pitches) that belong to the minor harmonic scale.

4. Left-click anywhere in the grid of the Piano roll to place the notes. After placing the scale notes, you will see something like the following screenshot.

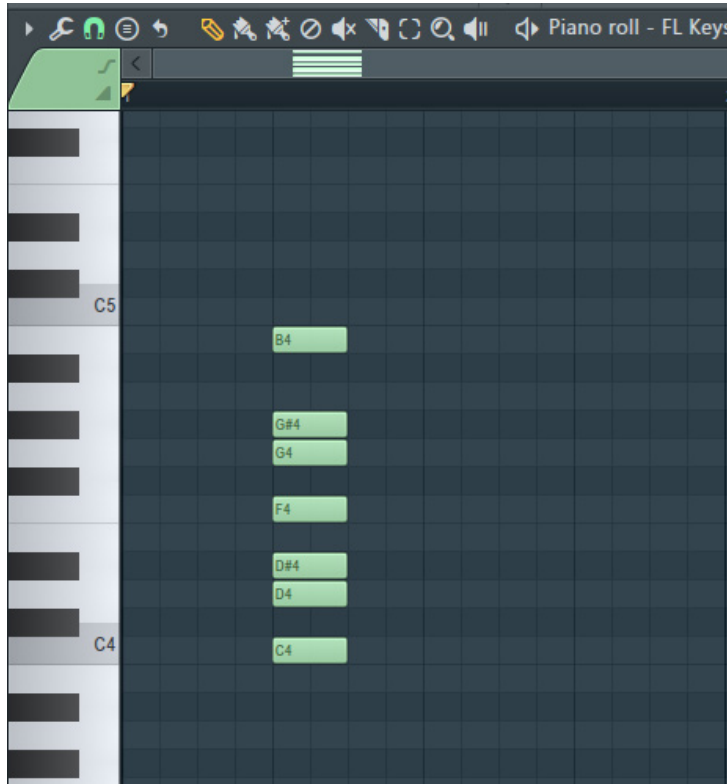


Figure 3.7 – Place notes

The notes you see belong to the minor harmonic scale. In the preceding figure, we happened to start with a tonic note of C. **Tonic note** means the first note of a scale. The notes that belong to the minor harmonic scale with a tonic note of C are C, D, D#, F, G, G#, and B. As long as I only use these included notes, I will be using notes that fit in the minor harmonic scale. Music in a harmonic minor scale tends to sound sad, beautiful, or dark, so by choosing notes in this scale, I can make my music sound sad, beautiful, or dark.

5. Using the Piano roll makes changing keys super easy. Left-click on any of the notes in the Piano roll you added. You'll notice they all get selected as a group. Shift all the notes one pitch higher as shown in the following screenshot:

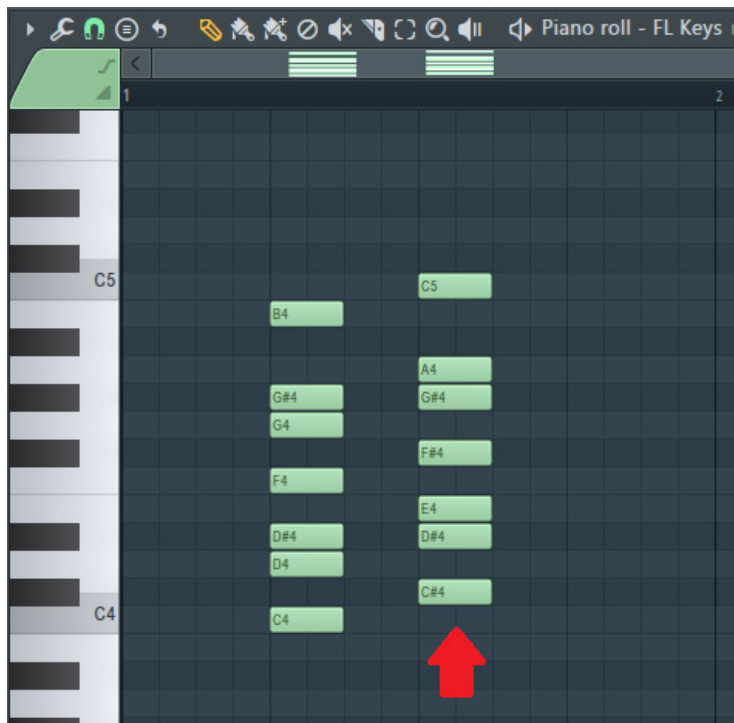


Figure 3.8 – Transpose key

By dragging all the notes up one pitch, we have transposed the notes to a new key. In this case, our notes now have a tonic note of C#. This means we are now using the minor harmonic scale of C# minor instead of C minor. The notes in this C# minor harmonic scale are C#, D#, E, F#, G#, A, and C.

Wow, transposing music to a new key was easy. We didn't have to do any calculations to transpose the notes. All we did was select the notes and move them up or down one an increment and FL Studio did all the work of transposing. If you ever had the task of trying to figure out how to transpose music, you'll realize this is a game changer. Changing musical keys in a Piano roll is incredibly easy, with almost no effort being required in trying to figure out what notes to use.

You have learned what scales are and how to change keys. But you don't yet know how to use them to get the desired tonal moods. For that, we need to introduce the concept of modes.

Understanding modes

Modes are scales, but a specific type of scale. They have some useful applications when composing music and we can use them to create specific moods.

Let's take a look at some more of the scales in the stamp tool of the Piano roll we saw in the preceding section. If you open the stamp tool again, you'll notice there are a series of scale names. Some of these scales may feel unfamiliar to you if you haven't studied music theory before. For example, you can see the scales **Aeolian**, **Pentatonic**, **Dorian**, **Locrian**, **Lydian**, **Mixolydian**, and **Phrygian**, as shown in the following screenshot, as well as many others:



Figure 3.9 – Modes

What are these? These are modes. Modes are a type of scale. The seven modes in their logical order are **Ionian**, **Dorian**, **Phrygian**, **Lydian**, **Mixolydian**, **Aeolian**, and **Locrian**. They are related to each other. To explain how, we need a visual.

Use the stamp tool to select **Major Scale** and place this on a C note.

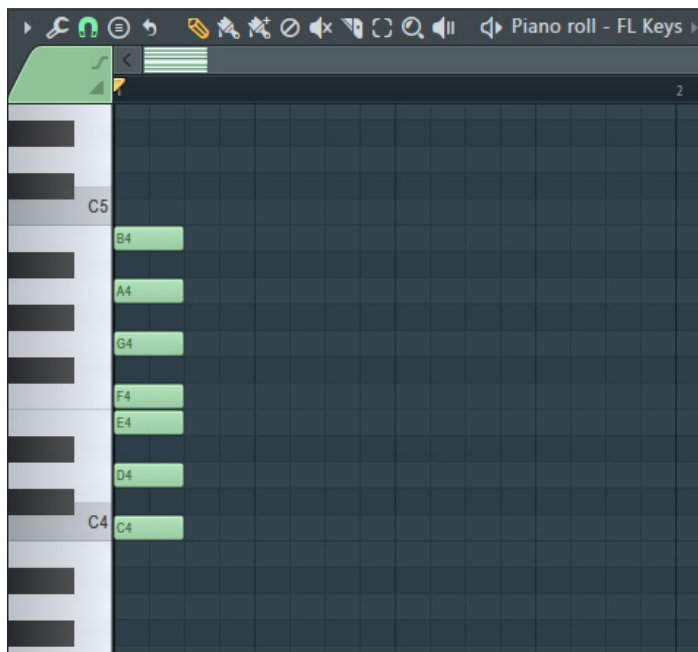


Figure 3.10 – Major Scale, also known as Ionian mode

The scale in the previous screenshot is commonly known as a **C major scale**. It's also called the **Ionian mode for C**. The term *major scale* is just a more common name for the Ionian mode. The Ionian mode is a combination of notes made up of the following:

- Root
- Major second
- Major third
- Perfect fourth
- Perfect fifth
- Major sixth
- Major seventh

When we play notes in the Ionian scale, it's generally recognized as a happy melody. Let me say this again. *Major scale = Ionian mode*. They are the same thing.

What happens if we use the same notes, but start using the second note in the Ionian mode? In other words, we take the tonic note of the Ionian scale and make it the seventh note as shown in the following screenshot.

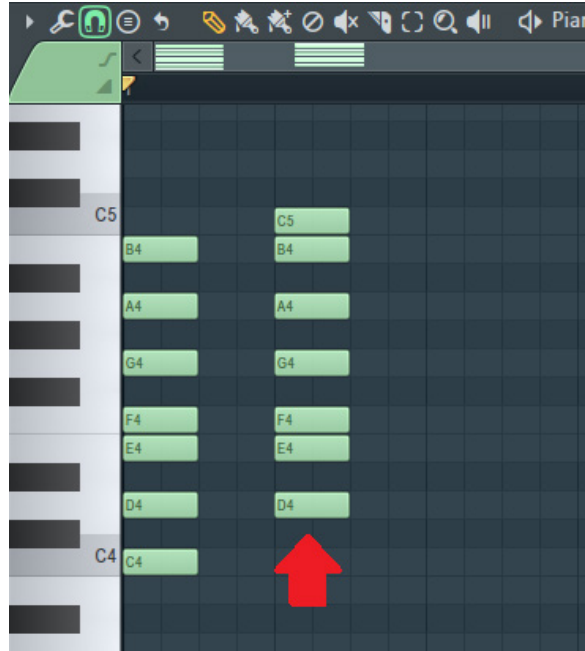


Figure 3.11 – Dorian mode

This new scale uses the same notes but starts with a tonic note of *D*. This is called the **Dorian mode**.

What just happened here? We did something quite incredible, but you might not realize the implications yet. Even though we are using the same notes as the Ionian mode, we made a new mode. This sounds like it's not a big deal until you realize that music played in the Ionian mode sounds quite different to music shifted to be played in the Dorian mode. Notes played in the Dorian mode have a distinct personality that sounds different than in the Ionian mode.

In the Ionian scale, there are seven possible different notes in the scale to choose from. Correspondingly, there are seven possible modes. As we just saw, if we shift up one note from Ionian, we end up with Dorian. If we keep shifting up, we'll end up with Phrygian, Lydian, Mixolydian, Aeolian, and finally Locrian. If we shift up one more, we'll have gone up an octave and are back to the Ionian mode again.

This is a big deal, and you'll start to realize how big a deal it is when you start composing melodies. The tonic note you start with will result in different moods for your song. Start on a tonic note of an Ionian mode and your music will sound happy and light. Start with a tonic note of an Aeolian mode and your music will sound sad, beautiful, and dark.

How to use modes

Music has a different mood depending on what mode is used. If you are composing for soundtracks, you can choose a mood and then figure out the mode that will best reflect it.

The following list details modes and the moods associated with them, along with some real-life examples. I encourage you to quickly google the songs so you have an idea of what music can be created using different modes:

- **Ionian mode:** Major key, happy music.

Let It Be – The Beatles

Free Fallin – Tom Petty

- **Dorian mode:** Jazzy. It's a minor scale with a raised sixth.

PokemonGo Theme Song

Ballad of the Goddess – Hajime Wakai & Takeshi Hama (The Legend of Zelda: Skyward Sword)

Halo – Martin O'Donnell and Michael Salvatori

- **Phrygian mode:** Dark, emotional.

Time in a Bottle – Jim Croce

Dr Who theme song – Murray Gold

- **Lydian mode:** Jazzy, worldly, triumphant sounds. It's a major scale with a raised fourth.

Six Feet Under theme – Thomas Newman

Superman Theme song – John Williams

E.T. theme song – John Williams

- **Mixolydian mode:** Great for triumphant sounds with brass and strings. It's a major scale with a lowered seventh.

Staff Roll – Super Mario Galaxy

Bundle of Joy – Michael Giacchino (Inside Out Film)

- **Aeolian mode:** Minor key, sad, beautiful, melancholic, dark.

Manners Maketh Man – Henry Jackman and Matthew Margeson (Kingsman: The Secret Service)

The Medallion Calls – Klaus Badelt, Hans Zimmer (Pirates of the Caribbean)

The Game Is On – David Arnold and Michael Price (Sherlock)

- **Locrian mode:** A bit strange sounding. Not used very often unless you want odd-sounding music. Mostly used for jazz.

If you're trying to achieve a mood and tone for your music, consider choosing a mode that fits your mood/tone and compose notes that fit within it.

What notes are in my scale?

How do I know what notes to use for a scale? The nice thing with FL Studio is that you don't have to worry about what notes are in any given scale. The Piano roll stamp tool helps you instantly find the notes to be used.

In the stamp tool, you'll notice that there are a lot more scales than the ones we have covered so far in this chapter. Each of these scales provides its own unique mood. For example, using a blues scale makes your music sound like blues genre music. I encourage you to experiment with picking different scales and see how they change the mood and tone of your compositions.

If you need to check what notes are in a given scale, a great website with visual references is www.pianoscales.org. This website lists lots of available scales.

In order to find the section on modes, navigate to the **Jazz Scale Piano** tab as shown in the following screenshot:

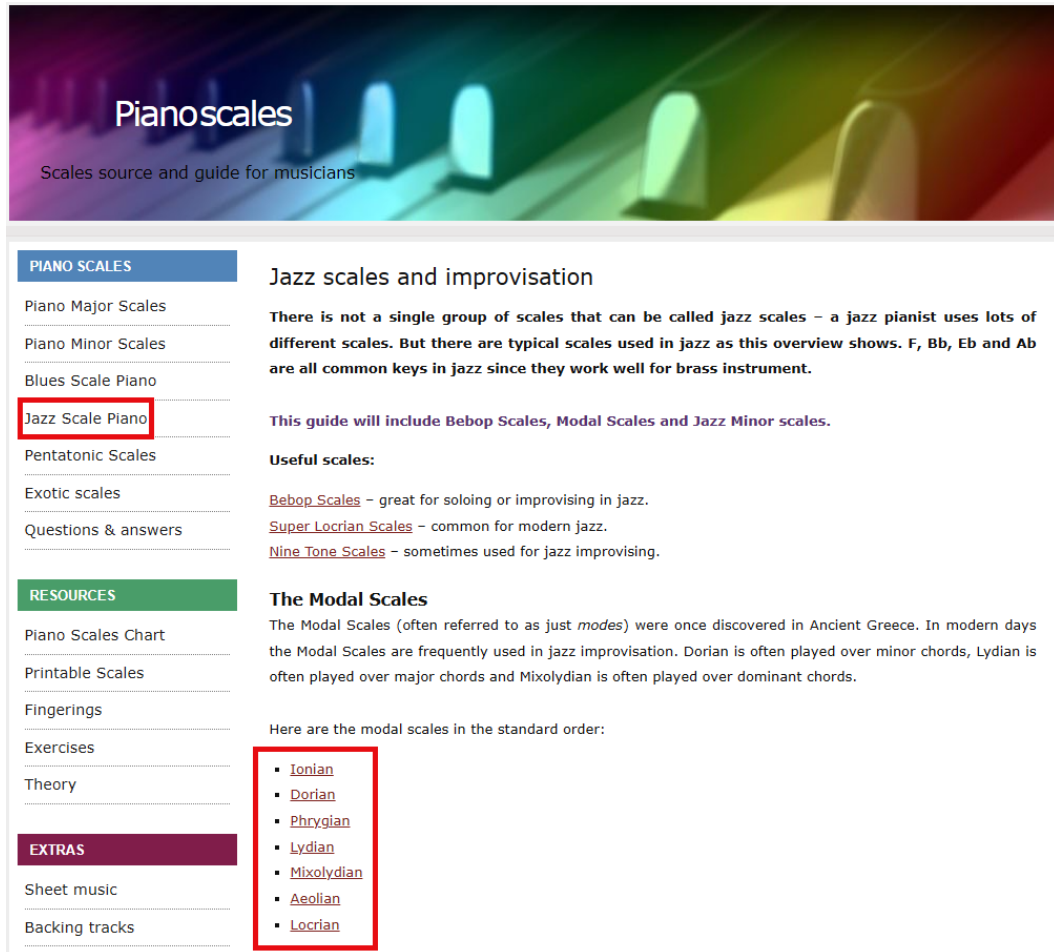


Figure 3.12 – Jazz scales and improvisation

Once on the **Jazz Scale Piano** page, you'll see a list of the modal scales. If you select one of them, you will see notes used for the mode starting with a chosen tonic note.

You'll then see a list of piano diagrams illustrating what notes are allowed to be used for the mode, as shown in the following screenshot.

Pianoscales
Scales source and guide for musicians

PIANO SCALES

- Piano Major Scales
- Piano Minor Scales
- Blues Scale Piano
- Jazz Scale Piano
- Pentatonic Scales
- Exotic scales
- Questions & answers

RESOURCES

- Piano Scales Chart
- Printable Scales
- Fingerings
- Exercises
- Theory

EXTRAS

- Sheet music
- Backing tracks
- Membership

Ionian Mode

The **Ionian Mode** is the first of the seven **modes**. The obvious thing to notice is that the **Ionian Mode** is exactly the same as the **Major Scale**.

C

Notes: C, D, E, F, G, A, B, C

C# / Db

Notes: C#, D#, E#, F#, G#, A#, B#, C#

D

Notes: D, E, F#, G, A, B, C#, D

D# / Eb

Notes: D#, E#, F##, G#, A#, B#, C##, D#

E

F

Figure 3.13 – Ionian mode

Using the website, it's easy to identify what notes can be used for playing a song in any scale.

We've learned about scales and modes. But is there a reference to visually see what scale to use when composing? Yes, there is: it's called using ghost notes (muted notes).

Using ghost notes for scale reference

Here's a little trick that's helpful when composing within a scale. It's called using ghost notes (aka muted notes). Ghost notes can be used to visually identify what notes are in your chosen scale:

1. Add a melodic instrument to the Channel rack. For example, choose **FL Keys**.
2. Name the instrument in the Channel rack, such as **Ghost Notes**.
3. Create a duplicate of the instrument in the Channel rack and give it a different name, such as **Piano**.

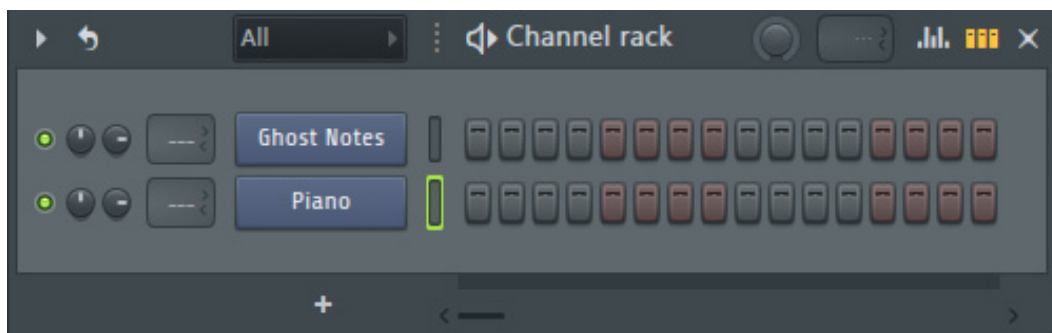


Figure 3.14 – Created instrument called Ghost Notes

4. Open up the Piano roll for the instrument called **Ghost Notes**.
5. Open up the stamp tool and select a desired scale and add it to the Piano roll. For example, you can select the major scale.

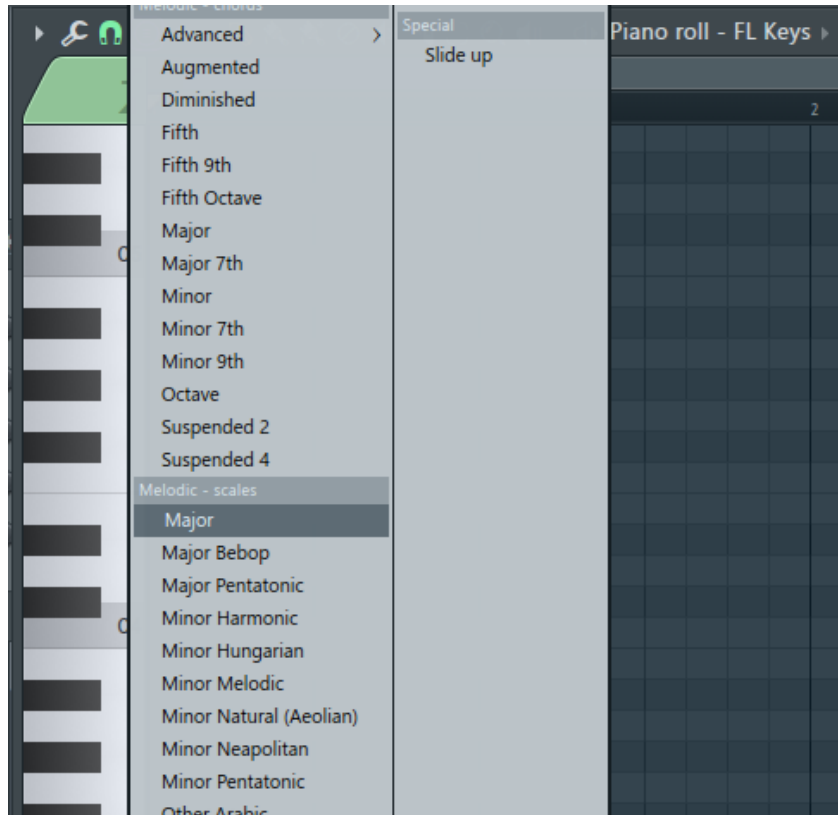


Figure 3.15 – Major scale

6. Mute the notes in the scale you added. You can use the mute tool at the top of the Piano roll and then drag over the notes you want to mute. Another method is to double right-click next to the notes you want to mute and hold and drag over the notes you want to mute.

The following screenshot shows the muted notes in the scale.

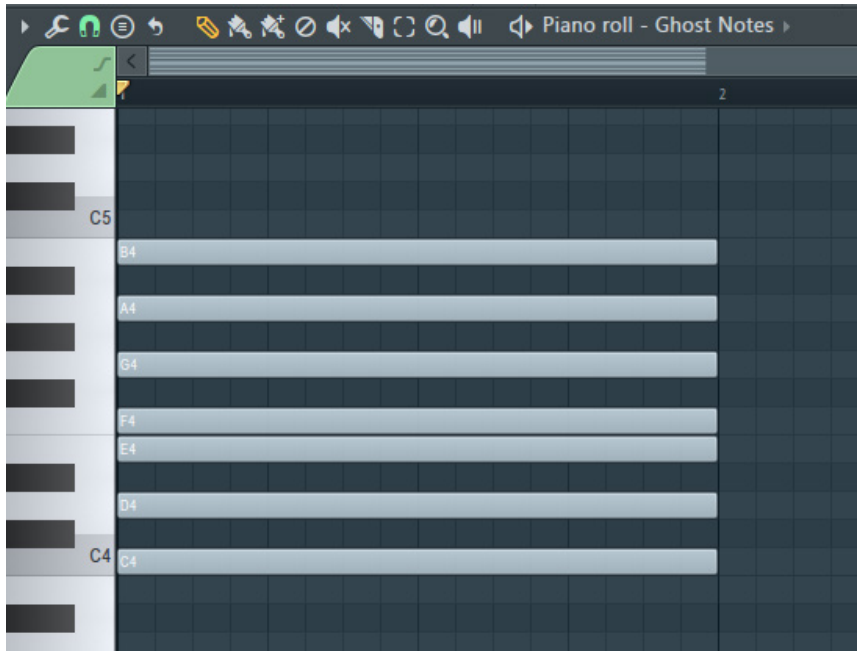


Figure 3.16 – Muted notes for reference

When the pattern is played, the instrument will be silent. However, the notes act as a visual reference to help us when composing. They provide us with a visual to guide what notes are allowed to be used.

7. Switch instruments in the Piano roll, such as to the one we named **Piano**.
8. In the Piano roll grid, you'll see a faint outline of the muted notes played by the **Ghost Notes** instrument. These are notes in the scale that can be used.

The following screenshot shows that although we are composing notes for the **Piano** instrument, we can see the notes used in the **Ghost Notes** instrument.

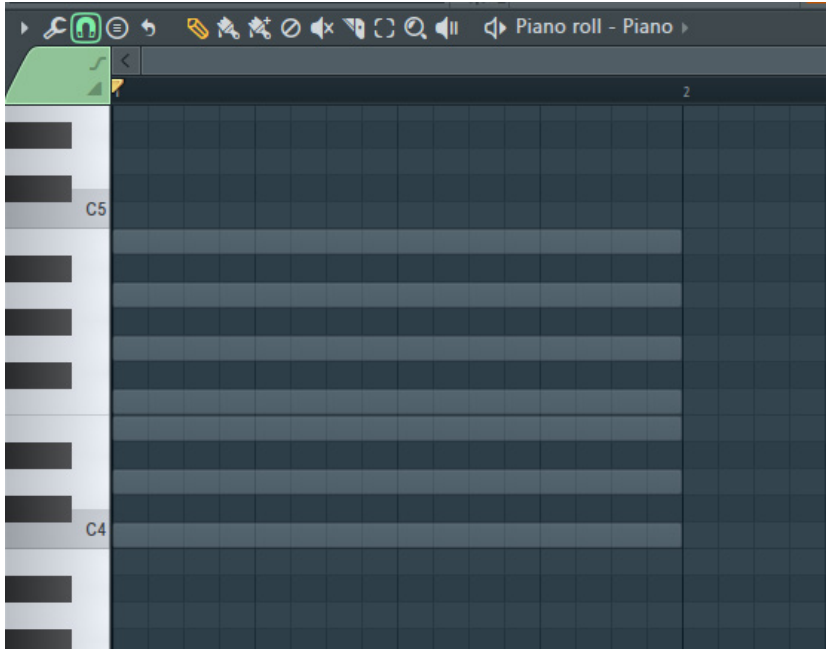


Figure 3.17 – Muted notes in scale

In the preceding screenshot, we have the **Piano** instrument open in the Piano roll. The faded notes are the muted notes from the **Ghost Notes** instrument.

9. Any of the notes you see in the **Ghost Notes** instrument are acceptable choices that fit into the C major scale. You can now add notes with ease as you know all the notes that can be used.

The following screenshot shows an example of adding notes that overlap the ghost notes.

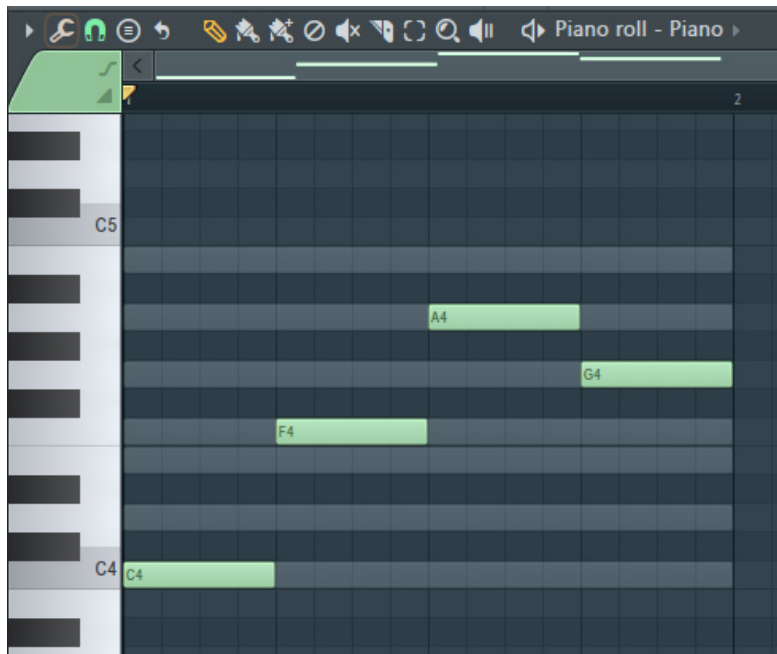


Figure 3.18 – Adding notes

This technique can be used for any scale and can save you a lot of time. You no longer have to spend effort figuring out what notes are in a given scale. You can just use the stamp tool to plunk down scale notes and instantly start composing over them.

We have learned how to compose with scales; next, let's learn how music terminology helps us use scales.

Understanding sharps and flats

Later in this chapter, we'll explain how to use the music chord wheel tool for composing. But the chord wheel requires that you first understand what sharps and flats are. On a piano, you'll notice there are white notes and black notes. The white notes are whole tones. We assign whole tones the letter names *C*, *D*, *E*, *F*, *G*, *A*, and *B*. The black notes on a piano are semitones between the white notes. We call these **sharps** and **flats**. Sharp are indicated by a # symbol. Flats are indicated by a b symbol. The following diagram shows piano notes with note labels.

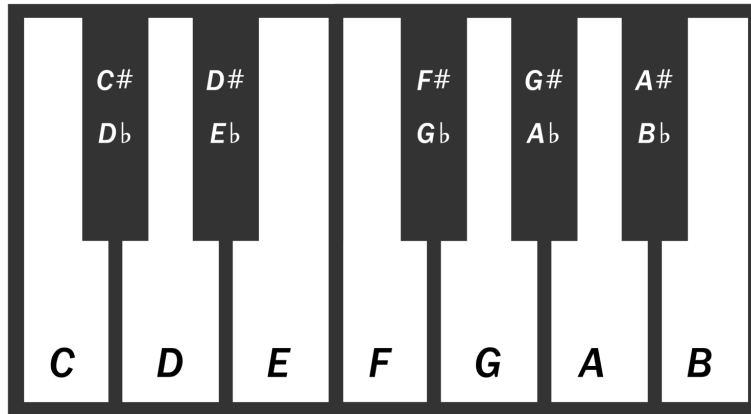


Figure 3.19 – Sharps and flats

You'll notice the black notes each have two names on them. For example, the black note between the *C* and *D* note has the name *C#* and *Db*. *C#* and *Db* mean the same note.

To clarify, sharps and flats don't mean black notes. Sharp just means a raised note by a semitone and a flat just means to lower a note by a semitone. This allows you notation freedom, such as if you wanted to do something with double sharps and double flats.

Why do we have two different terms of sharps and flats for the same note? The reason is to help clarify information for the reader.

Here's an example of how music notation would be confusing if we didn't have rules for when to use sharps and flats. If we were to have a *C* chord: *C*, *E*, and *G*, and I wanted the minor version of that *C* chord, what would I call the notes? The correct way is to call them *C*, *Eb*, and *G*. This way, we can maintain the same note names as the major key. If we were to use the sharp naming for this chord, it would be *C*, *D#*, and *G*. Either way you name it, we're lowering by a semitone, but one way maintains the letter naming. Maintaining the lettering makes it easier for musicians trying to read the music.

Sharps or flats are listed at the beginning of sheet music to tell a musician what key a song should be played in. It's listed in what's called a **key signature**. The following screenshot shows an example of a key signature:



Figure 3.20 – Key signature

https://upload.wikimedia.org/wikipedia/commons/1/1d/Db_minor_key_signature.png

A key signature shows the symbols treble clef and bass clef and then lists the number of sharps or flats to the right. This tells the musician what sharps and flats are to be used for the piece. The musician can then use this information to figure out what key the song should be played in.

We know what sharps and flats are and key signatures. With this information, we can now learn how to use **the Circle of Fifths chord wheel**.

Using the Circle of Fifths chord wheel

The **Circle of Fifths chord wheel** is a visual tool used by musicians as a cheat sheet for music theory. It's a diagram containing a list of key signatures and it conveys a large amount of information very quickly to the reader.

The Circle of Fifths diagram can be used for a variety of purposes. It can be used as a reference for transposing music from one key to another. Live musicians may use it to assist with improvising when trying to figure out what key to use. As a composer, you'll likely want to use this tool whenever you want to change keys, such as changing back and forth from major to minor. The following diagram shows a simple version of the Circle of Fifths.

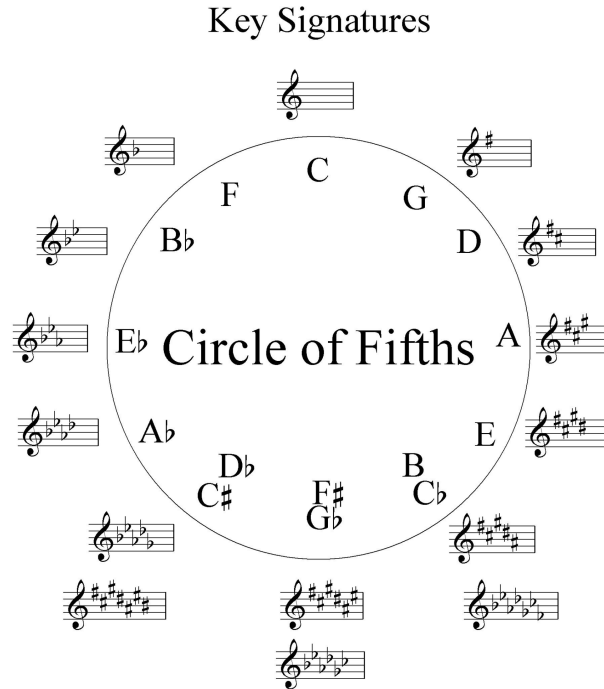


Figure 3.21 – Circle of Fifths

https://commons.wikimedia.org/wiki/File:Music_Scale_Theory_-_Circle_of_Fifths.png

Starting at the top center, the inner circle lists the name of the major key (Ionian mode), in this case, C. The outside of the circle lists the music theory key signature notation for the key. It starts with the key of C, which has no sharps and flats in the scale.

Remember earlier in this chapter we learned that a perfect fifth is a nice and neat way of saying we moved from a root note to a second note with a frequency interval relationship of 3:2 – for example, moving from the note C to G. This results in a combination of notes that sound very good when played together. If we were to move a perfect fifth from the root note C, we would land upon the note G. The key G has a single sharp in the scale. If we were to move up a perfect fifth from the root note G, we would land on the note D. The key of D has two sharps in the scale.

Trying to recall this from memory is tedious. You're likely already getting confused trying to keep track of all these letters unless you have a piano in front of you to look at. The Circle of Fifths will make it so that you won't have to memorize any of the information.

The Circle of Fifths makes it easy to figure out what notes are in each scale. On the diagram, you move a perfect fifth each time you increment clockwise around the Circle of Fifths. For example, start at the key of C at the top center. If you move one increment to the right, you'll land on the key of G, which is exactly a perfect fifth.

As you continue moving clockwise around the circle, the number of sharps increases by one each time until you reach the key of C# major.

If you start with the key of C and move anticlockwise around the circle, you'll be moving down a perfect fifth. Moving key signatures anticlockwise increments in flats until you reach the key of Cb major.

In other words, this diagram shows how all the major scale keys related to one another. It shows the difference in sharps and flats between scales.

So, the Circle of Fifths can help us identify what notes are in a major key. Is that all this diagram does? Oh no...it does much more. We're just getting started. Let's take a look at a slightly more detailed diagram of the Circle of Fifths.

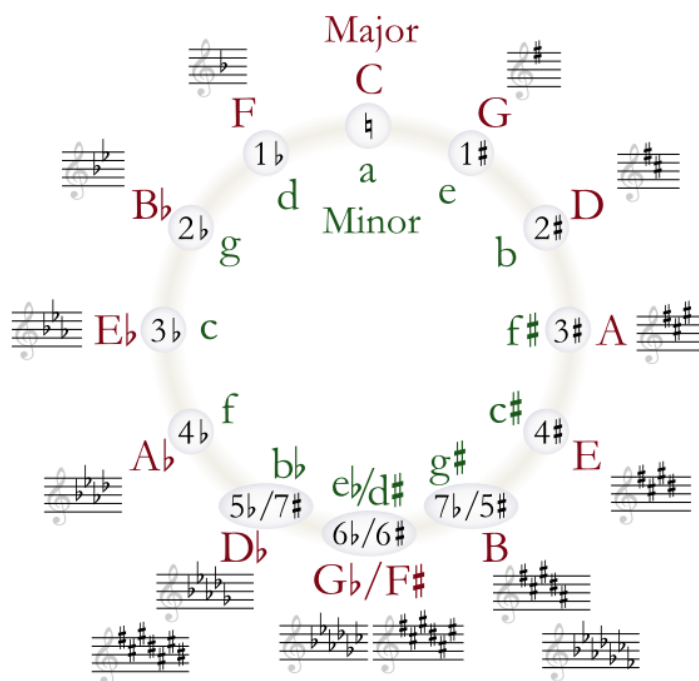


Figure 3.22 – Detailed Circle of Fifths

https://upload.wikimedia.org/wikipedia/commons/4/40/Circle_of_fifths_deluxe_pale_beads.png

In the innermost circle, it lists the relative minors of the Circle of Fifths. These are the minor scales that use the same notes as the major keys. They have the same key signature.

Whoa...there are multiple scales that use the same notes and it all lines up this neatly? Is this a coincidence? No, it's not. In fact, it must be exactly this way. Let's explain why.

Remember earlier in this chapter we learned about modes. All modes use the same notes for a given a scale; they just use a different tonic note. The first mode we call Ionian and it means the same thing as the major scale. The fifth mode we call Aeolian and it is the same thing as the natural minor scale. The natural minor uses the same notes as the major scale but starts with a different tonic note.

In theory, you could list out all the modes using a Circle of Fifths diagram if you could be bothered, but it would be overly detailed to look at. Instead, in most cases the Circle of Fifths diagram lists just the major and/or minor keys for each key signature.

Okay, there are a lot of super cool features in this diagram, but how do I use this in practice? When you're composing, there are times when you want to change the key of a song. This Circle of Fifths diagram can help you change keys.

Why would you want to change the key of a song? Let's take a huge step back and look at how we interpret changes in sound.

If you want your music to feel like it's increasing in energy, there are several ways to do so. You could increase the velocity or articulation intensity (discussed in *Chapter 4, Orchestral MIDI Composing*), increase the speed, or in the case of the topic of this chapter, increase the pitch of the sound itself.

By changing keys and transposing notes to another key, you can increase or decrease note pitches and make it sound like the music energy level is increasing or decreasing. If you want to make it sound like your music is changing in energy, one way to do this is to move to a new key. Also, changing keys adds variation, which can be useful. It allows you to essentially play the same melody twice while not sounding repetitive to the listener.

Let's get back to the Circle of Fifths. If we want to change keys, how do we use the Circle of Fifths to do so? By moving clockwise to the next key on the Circle of Fifths, you increase the number of sharps in the key, but only by one. If we were to start with the key of C, which has no sharps, and move one increment to the right on the Circle of Fifths, we would end up in the key of G, which has one sharp. This means that the scale itself has only slightly changed. It's a slight transition to the listener.

On the other hand, if you were to start with the major key of C and transition to the key of F# major, it would sound like an extreme change to the listener. We'd be adding six sharps. What does this mean? It means that if you want to change keys, it sounds less jarring to the listener if you move clockwise or anticlockwise around the Circle of Fifths by small increments at a time. Large movements around the Circle of Fifths sound like extreme jumps to the listener.

If you were to start with the key of *C* major and wanted to change keys using the Circle of Fifths, a good choice would be to move one increment clockwise to *G* major, or one increment anticlockwise to *F* major. Either of these changes in keys would be a subtle transition to a listener. The more key increments you jump at once, the more jarring the transition will be.

The Circle of Fifths chord wheel has multiple benefits. It allows you to quickly identify what key signature belongs to each scale so you know what notes can be played. It also allows you to identify what scales can be smoothly transitioned into when changing keys.

Summary

In this chapter, we learned about a series of tools and frameworks that can be used when creating music. We learned about motifs, leitmotifs, and themes and how to use them to come up with ideas for what to compose.

We learned about scales, what they are, how they help us figure out what notes to use, and how to apply them in practice. We learned about modes and how they're used. We learned how to use the FL Studio Piano roll stamp tool to easily add notes for any given scale without having to learn and memorize the scale details. Finally, we learned how to use the Circle of Fifths chord wheel tool to see how scales relate to each other and how to smoothly transition between scales.

In the next chapter, we'll learn techniques for composing orchestral compositions.

Index

Symbols

12-tone equal temperament
 frequency (Hz)
 about 9

C

Circle of Fifths chord wheel
 using 28-32
C major scale 16
composer
 toolkit 2

I

Ionian mode for C 16

K

key signature 28

L

leitmotifs
 about 3, 4
 using 4, 5

M

modes
 about 15-18
 using 19
 using, 18
modes, usage
 ghost notes for scale reference,
 using 22-26
 notes 19-21
motifs
 about 3
 using 4, 5
 versus themes 4
music terminology
 sharps and flats 26-28

O

octave 7

P

perfect fifth 7

S

scales

- 12-tone equal temperament
 - frequency (Hz) 9
- about 6-10
- need for, composing 10-14
- using, for compose 10-14
- Western music, using 12 notes 10

T

themes

- about 3
 - using 4, 5
 - versus motifs 4
- tonic note 13