

# MUSIC THEORY

## For Worship Teams

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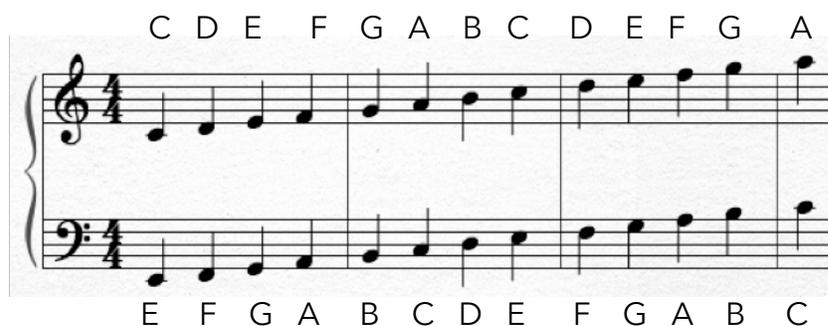
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### 1. Foundation

- The musical alphabet is made of 7 **notes**, "A" Through "G", with sharps (#) and flats (b) in between.
  - o Notice that every black key on our keyboard has two names. For example, "A#" and "Bb" are exactly the same pitch with two different names.



- Notes are written on a **staff**. Each line and space represent a different musical **pitch** and a different note name.



- Notes are lined up to make **melodies**.
  - o Melody:



- Notes are also stacked to make **chords**.

- o Chords:



- Songs are made up of **melodies** and **chords** that **harmonize** the melody, played in **rhythm**.

F            C        F    Gm/Bb D/A   Gm    F/C   C    F

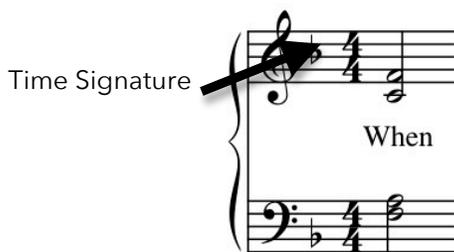
## 2. Rhythm & Time

### Measures

Notes in songs are organized into groups by using **bar lines** or **measures**. In the example above you can see that vertical lines on the staff divide the music into four measures or four bars.

### Time Signature

Songs are also written in different **time signatures**. These time signatures help organize the beats of the song and give the song its rhythm. Time signatures are written like this:



The top number of a time signature tells us how many beats are in each measure. The bottom number tells us what type of note value counts as one beat. Here are some examples of different time signatures:

4/4 - is the most common time signature and is often referred to as **common time**. There are four beats in a measure and the quarter note is equal to one beat.

2/4 - There are two beats in each measure and the quarter is equal to one beat.

3/4 - There are three beats in each measure and the quarter note is equal to one beat.

6/8 - There are 6 beats in each measure and the eighth note is equal to one beat.

### **Note Values**

Musical notes are given different values in order to know how long to hold a note. These different note values are what create rhythm.

 - Whole note - 4 beats in common time

 - Half note - 2 beats in common time

 - Quarter note - 1 beat in common time

 - Eighth note -  $\frac{1}{2}$  beat in common time

 - Sixteenth note -  $\frac{1}{4}$  beat in common time

 - Dotted notes - a dot after a note means to add half of the notes value to it.

A dotted half note would be worth 3 beats in common time.

### **Tempo**

We also need to know how fast or slow to play a song. This is called **tempo**. For our purposes we will refer to tempo in **beats per minute** (BPM). You can use a metronome to hear tempos at different BPM. 60 BPM would be the same speed as a second hand on a clock, and 120 BPM would be twice as fast.

### 3. Key Signatures (part I)

Songs are written in different musical keys. In order to understand keys, let's look at some different musical scales. A musical **scale** is a climbing set of 8 notes in a given key. Remember that in music, there are only 7 different notes available to us. In the key of C major, these notes are C, D, E, F, G, A, B, and C.

The space between notes, or **interval**, is important to understand. You may refer to the keyboard on the first page. When we move from one piano key to the very next piano key, whether it be black or white, we call this a **half step**. Whenever we move from one piano key and skip over a piano key, we call that a **whole step**.

An 8-note major scale will always start with the note name of the key or scale and climb up until you arrive at the note name you started with. The notes of the same name that are 8 notes apart are called an **octave**. C to C is an interval of an octave, as is D to D and E to the next highest E.

If you play the C major scale, you will notice that the whole steps (W) and half steps (H) will fall like this:

1	2	3	4	5	6	7	1
<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>
V	V	V	V	V	V	V	V
<b>W</b>	<b>- W</b>	<b>- H</b>	<b>- W</b>	<b>- W</b>	<b>- W</b>	<b>- H</b>	

The interval between each step of a scale needs to be: **whole, whole, half, whole, whole, whole, half**. If these intervals are not there, the scale (and therefore the song) won't sound right to our ears.

Let's play a D major scale:

D E F G A B C D

If you play these notes on a keyboard as is, it will not sound correct because the intervals are not right.

1	2	3	4	5	6	7	1
<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
V	V	V	V	V	V	V	V
<b>W</b>	<b>- H</b>	<b>- W</b>	<b>- W</b>	<b>- W</b>	<b>- H</b>	<b>- W</b>	

*Incorrect pattern of intervals* →

We need to modify some of the notes so that the intervals are correct. If we raise the "F" to an "F#" and the C to a "C#" then we will find that our whole steps and half steps fall into place and the scale sounds correct.

1	2	3	4	5	6	7	1
<b>D</b>	<b>E</b>	<b>F#</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C#</b>	<b>D</b>
∨	∨	∨	∨	∨	∨	∨	∨
<b>W - W - H - W - W - W - H</b>							

The same problem would arise in any other key in which we choose to play a scale. Playing from "E" to "E" would need a different set of #'s or b's to correct the intervals, and playing from "Bb" to "Bb", still another set of #'s or b's. This particular set of #'s or b's needed to make scale or key sound correct is called the **key signature**. Every scale or key has it's own key signature or set of #'s and b's that need to be added to it's seven notes in order for it to sound correct.

Now try playing another scale using the patterns of whole steps and half steps. Can you figure out what you need to modify to correct the scale?

Understanding how songs are grouped into keys will help us think about music in bite-sized pieces. If we know what key we are in, then we know that we only have those seven notes and certain chords to deal with. Instead of looking at every note on the piano or every fret on the guitar, we can mentally forget about every note except the seven notes in the key we are playing in!

## 4. Key Signatures (part II)

As we have seen, music can be composed in different keys. Each **key** has a different set of sharps (#) and flats (b) in the **key signature**. Key signatures are written like this:



The Sharps and Flats are always written in the same order:

**# = F# C# G# D# A# E# B#**  
**b = Bb Eb Ab Db Gb Cb Fb**

It is helpful to memorize these. For the sharps, one can use an acronym such as:

### **#: Fat Cows Go Down And Eat Barley**

The flats spell the word "**BEAD**" and then **G, C, F**

There are many ways to remember the order of sharps and flats. Find one that works for you! (You may also notice that they are exactly opposite of each other!)

When the key signature is written in sharps, one can figure out the key by looking at the last sharp and then going up one note. The note above the last sharp is the name of the key.



Step 1: The last sharp in this key is "C#"

Step 2: Go **up** one note name from "C#"

Step 3: The name of the key is "D"

- When the key is written in flats, look at the last flat in the key signature and go back one flat. (The Second to last flat in the key signature is the name of the key)



Step 1: The last flat in this key is "Eb"

Step 2: Go **backwards** from there and look at the second to last flat

Step 3: The name of this key is "Bb"

- One tricky key signature is when there is only one flat, since you cannot go back and look at the second to last flat. It is probably best just to memorize that this key is the key of "F".

- When there are no sharps or flats, it is the key of "C".

## Keys when using chord charts

- Often in worship music we often use chord charts, and we are not given a key signature on a staff. Instead, we are told what key we are in, or we can figure it out using our knowledge of chords. In this case, it is still helpful to know what sharps or flats are in a key. Therefore, we saw above how to work forward when given a key signature to arrive at the name of a key. Now we can work backwards when given the name of the key to arrive at the key signature.

Lets look at a key written in sharps:

Step 3: The name of the key is "A"

Step 2: Go **down** one note from "A"

Step 1: The last sharp in this key is "G#". Since sharps always come in the same order, the key of A has three sharps (F#, C#, G#).

Now let's look at a key written in flats:

Step 3: The name of the key is "Db"

Step 2: We use the order of flats to go **forward** one flat from "Db" ("Db" is the second to last flat in the key)

Step 1: The last flat in this key is "Gb". The key of "Db" has 5 flats (Bb, Eb, Ab, Db, Gb).

\*Note: Every key that does not have a flat in its name is written in sharps except for the key of F (one flat) and the key of C (no sharps or flats).

## 5. Chords

- We looked briefly at intervals of whole steps, half steps, and octaves but now let's look at intervals of 3rds and 5ths. To find these intervals, start with a given note and count up the musical alphabet. For example, a 3<sup>rd</sup> above C is an E, and a 5<sup>th</sup> above C is a G.

Adding these two intervals is what makes up a basic C chord. This type of three-note chord is called a **triad**.

It can be helpful to remember that a basic **chord is made up of numbers 1, 3 and 5**.



The "1" of a chord is called the **root** and is the note that gives the chord its name. To build a chord, start with the root, then count up to the "3" and the "5". Don't forget to add any #'s or b's from your key signature!

Each degree of the scale can be built into a triad. When the key signature is applied, some triads are automatically major, some are minor, and one is diminished.



- Just as before: there are only 7 notes in music and there are only 7 basic triads in music.

- It can be so helpful to memorize these triads. Having these memorized will serve you greatly as you begin to use this information in practical ways. You'll be able to find any note of any chord quickly, then you just need to apply the key signature and you'll be all set!

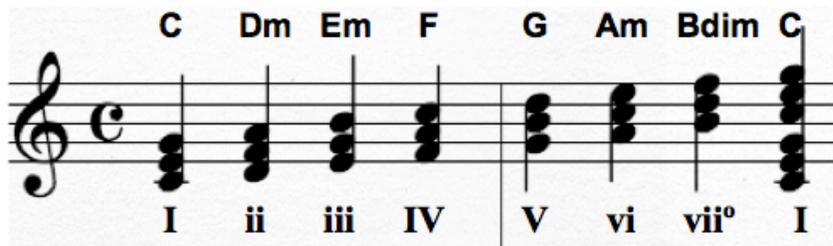
<b>5</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>3</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>1</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>A</b>	<b>B</b>	<b>C</b>

Try saying them over and over like this:

**C - E - G**  
**D - F - A**  
**E - G - B**  
**F - A - C**  
**G - B - D**  
**A - C - E**  
**B - D - F**

## 6. Chords as Roman Numerals (Nashville Number System)

- Just as each scale degree can be labeled with a number, each triad can be labeled with a Roman numeral. Major chords are capital numerals, and minor chords are lower case. The "degree" simple means that the vii chord is diminished.



- It is helpful to think of chords this way because the Roman numerals don't change with the key signature.

\*Note: Thinking of chords in this way becomes very practical when transposing music and in understanding how chords work together to form chord progressions, etc.

- For example, if one is playing a song in the Key of C with this chord progression: **| C | G | Am | F |** it could also be thought of as a **| I | V | vi | IV |**

- Now if we decide to play the same song, but in the key of G, the chord progression will still be **| I | V | vi | IV |**, but the chords will be **| G | D | Em | C |**

- Earlier, we memorized the 7 basic chords. This is helpful to be able to quickly name the Roman numerals for a chord progression.

-We remember that the triads are built from intervals of 1, 3 and 5. Therefore, when we have these triads memorized we can quickly move from the I chord to find the V chord; and of course, the IV chord is one below the V, and the vi chord is one above. Building mental relationships like this helps us to quickly find the chord we are looking for.

Below is a chart of key signatures and corresponding Roman numeral chords:

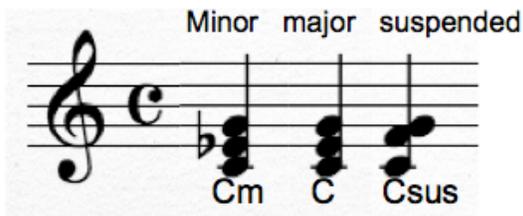
<b>I</b>	<b>ii</b>	<b>iii</b>	<b>IV</b>	<b>V</b>	<b>vi</b>	<b>vii°</b>
C	Dm	Em	F	G	Am	Bdim
C#	D#m	E#m	F#	G#	A#m	B#dim
Db	Ebm	Fm	Gb	Ab	Bbm	Cdim
D	Em	F#m	G	A	Bm	C#dim
D#	E#m	Fxm	G#	A#	B#m	Cxdim
Eb	Fm	Gm	Ab	Bb	Cm	Ddim
E	F#m	G#m	A	B	C#m	D#dim
F	Gm	Am	Bb	C	Dm	Edim
F#	G#m	A#m	B	C#	D#m	E#dim
Gb	Abm	Bbm	Cb	Db	Ebm	Fdim
G	Am	Bm	C	D	Em	F#dim
G#	A#m	B#m	C#	D#	E#m	Fxdim
Ab	Bbm	Cm	Db	Eb	Fm	Gdim
A	Bm	C#m	D	E	F#m	G#dim
A#	B#m	Cxm	D#	E#	Fxm	Gxdim
Bb	Cm	Dm	Eb	F	Gm	Adim
B	C#m	D#m	E	F#	G#m	A#dim

## 7. Beyond Basic Chords

- We've memorized the 7 basic triads. Now we will look at the variations of these chords.

### Major, Minor and Suspended Chords

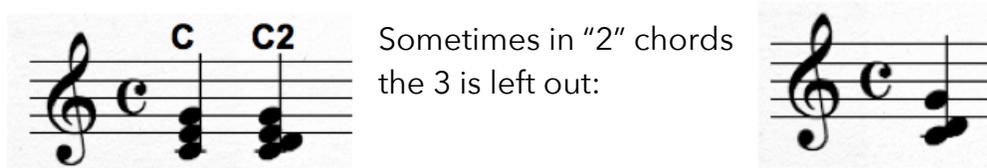
- In a triad (made up of intervals 1, 3 and 5), the "3" is the note that makes the chord **major** or **minor**. When a chord is major, simply lower the 3rd one half step (one key on the piano, or one fret on the guitar) and the chord becomes minor. If the chord is minor, then raise the 3rd one half step and it becomes major.



- A **suspended chord** is made when the 3rd of a major chord is raised one half step. This could also be called a "4", such as "Asus4".

### Chords with numbers

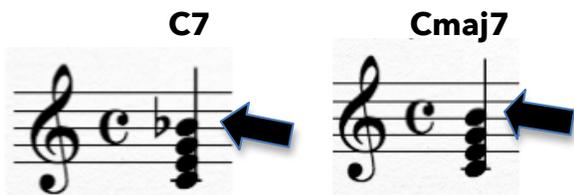
- When a chord has a number in its name, such as "C2", this means that you take your basic chord of 1, 3, 5 and add the note that is a *second* interval above the 1 of the chord (or the *root* of the chord). In the C2 chord, this means you add a "D". The same goes for any other number that you may see in a chord's name (ex. C6 - add the 6<sup>th</sup> or an "A").



\*Note: The numbered interval that is added to a chord will always follow the key signature unless otherwise noted.

- When a chord asks for a 7 to be added it may be either a minor 7<sup>th</sup> interval or a major 7<sup>th</sup> interval.

- Just like how the 3<sup>rd</sup> interval could be raised or lowered to make the interval major or minor, so can the 7<sup>th</sup>.



- If the chord is calling for a major 7<sup>th</sup> interval, it will always specify this by inserting "maj". Example: Gmaj7

- The lowercase "m" in a chord (ex. Gm7) always applies to the 3<sup>rd</sup> interval in the triad being minor. It never applies to the 7<sup>th</sup> being major or minor. Therefore, a chord that does not specify "maj" is asking for the minor 7<sup>th</sup> interval.

Example: G7.

- A chord with a "5" in it means to leave the 3rd out completely. It is calling for only the 1(root) and the 5<sup>th</sup>. Example, "D5":



### Augmented & Diminished Chords

- **Augmented** - An Augmented Chord is a major chord with the 5th raised one half step. It is often written as "Caug" or with a "+" sign such as "I+" or "C+".

- **Diminished** - A diminished chord is a minor chord with the 5th lowered one half step. It is often written as "Cdim" or with a "°" such as "vii°" or "C°".

