

# Chapter 1: The Keyboard

## **Pitch:**

- Designation for key pitches
  - Do = C
  - Re = D
  - Mi = E
  - Fa = F
  - Sol = G
  - La = A
  - Ti = B
  - **Repeats with higher pitches**

## **Letter Names and Key Groups:**

- 88 Keyboard = 52 white keys, 36 black keys
  - First white key on the left is A
  - Last white key on the right is C

## **Half and Whole Steps**



- Half step (semitone) is when a key is played right next to another
  - White to black
  - Black to white
  - Sometimes white to white
  - NEVER black to black
  - Smallest distance for keys to be played
- Whole step (whole tone) is made up of two semitones
  - Non-adjacent keys played (one key in between whole steps)

## **Accidentals**

- Sharp: #
  - Played to the right of a white note to raise the pitch by half a step
- Flat: *b*
  - Played to the left of a white note to lower the pitch by half a step
- White Key Accidental
  - B to C and E to F count as accidentals because they are half steps between each other
  - They can be labeled as sharps or flats



- Natural:

- This is just the white key (as opposed to G sharp/G flat, this is just the G key)
- This cancels out sharps and flats
- Double Sharps: 
  - Raises notes by two half steps (whole step)
  - D double sharp would be the E key
  - There is NO triple-sharp
- Double Flats: 
  - Lowers notes by two half steps (whole step)
  - D double flat would be the C key
  - There is NO triple-flat
- Enharmonic Pitches
  - Pitches that sound the same but look different on paper
  - D sharp = E flat, C sharp = D flat, etc.

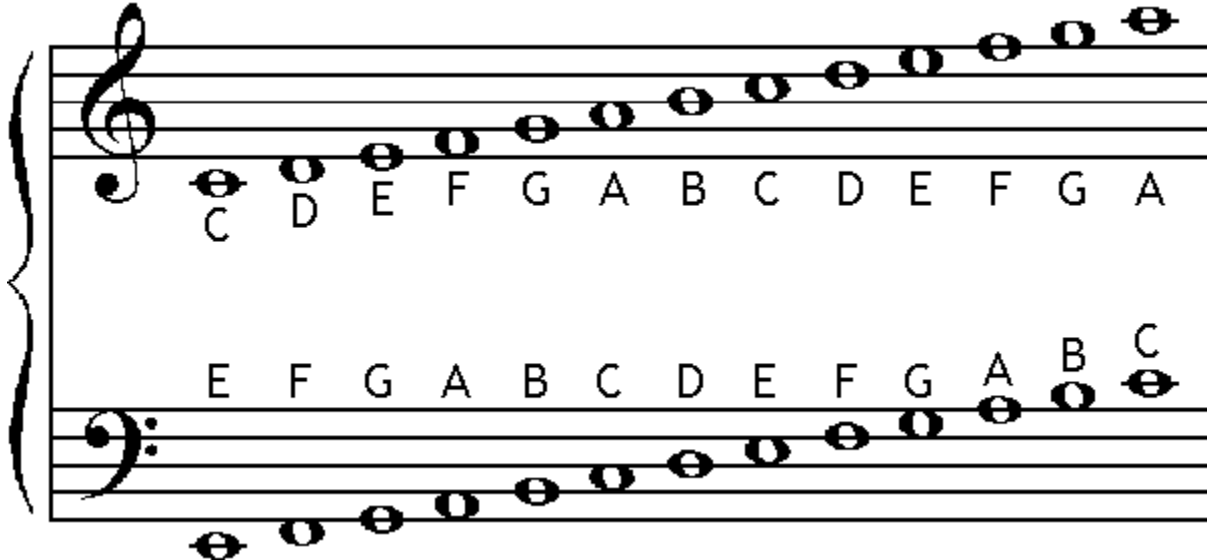
### **The Octave**

- The distance of eight keys on a keyboard is an octave
- Keys separated by an octave have the same letter with a pitch higher/lower than the other
- No certain way to label octaves aside from putting numbers next to letters (C3, C4, C5)
- There are four notes before C1 and there is a single note in the eighth octave: C8
- Middle C is C4

## Chapter 2: The Staff

### **Memorize These:**

- Treble Clef Line Notes: **E**very **G**ood **B**oy **D**eserves **F**udge
- Treble Clef Space Notes: **F**ACE rhymes with “space”
- Bass Clef Line Notes: **G**ood **B**oys **D**eserve **F**udge **A**lways
- Bass Clef Space Notes: **A**ll **C**ows **E**at **G**rass



- The notehead is the oval-shaped part of a musical note (like on the staff above)
- Each clef has 5 lines and 4 spaces
- The higher the line/space, the higher the pitch (vice versa for lower)

### **Ledger Lines**

- Ledger lines are temporarily added for notes that go above the lines on clef
- Extends the staff higher or lower
- They are added to individual notes; they are not connected

### **Noteheads**

- They can be open or filled
- They touch lines on spaces
- The notes on the lines are the same size
- They slant to the right

### **Notating Stems**

- Downward stems are on the left side of the notehead
- Upwards stems are on the right side
- Stems are about an octave long
- Stems above the center line should be facing down (vice versa for below)
- Stems in the center usually go the direction of notes around it

### **Notating Accidentals**

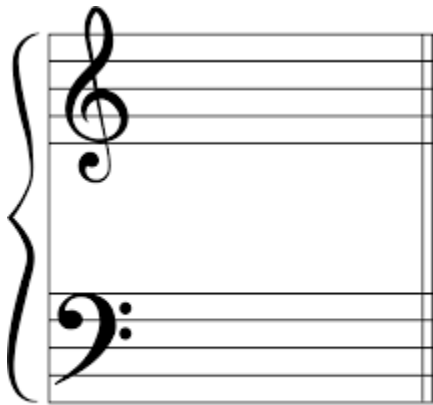
- Sharp symbols should be angles of 25 degrees

- Flats have their “b” part similar to where noteheads are placed and their stems are about two staff spaces tall
- Naturals have their horizontal lines slanting upwards

## Clefs

- Treble, Bass, C (alto and tenor)
- Treble:
  - High-pitched instruments (flute, oboe, clarinet, violin, right-hand piano)
  - Starts at G
  - G clef
- Bass:
  - Low-pitched instruments (double bass, trombone, bassoon, cello, left-hand keyboard)
  - Starts at F below middle C on the fourth line
  - Octaves 2, 3, and 4
  - F clef
- C Clef:
  - Moveable clef
  - Always points to middle C
  - Alto: Fixes middle C into the third line and is used mainly for viola players because their range extends above middle C
  - Tenor: Fixes middle C into the fourth line and is used for lower instruments like a trombone because their notes get too high for the bass clef
- Bass clef is an octave lower than Treble and Alto

## The Grand Staff



### Grand Staff

- 
- Located between the two staves, there is middle C (C4)
- Ledger lines can be written in between and above
- Ottava Sign:
  - **8va**
  - Notes should be played an octave higher

- Avoids having to use excessive ledger lines
- Bassa sign **8vb** (octave lower)

## Chapter 3: Rhythm and Meter

- Noteheads, stems, flags, rests, dots, and ties to indicate pitch duration
- Beat: Constant pulse through a song
- Rhythm: Varies and changes and forms around the beat

### **Pulse and Tempo**






- Pulse is the beat; the steady feeling throughout a song
- Tempo is the speed of that pulse (represented in BPM [beats per minute])
- The average tempo ranges between 80 - 120
- Can be indicated by Andante and Allegro

<b><i>Largo</i></b>	very slow	(40 - 60 bpm)
<b><i>Adagio</i></b>	slow	(60 - 76 bpm)
<b><i>Andante</i></b>	at a walking pace	(76 - 106 bpm)
<b><i>Moderato</i></b>	moderate	(106 - 120 bpm)
<b><i>Allegro</i></b>	fast	(120 - 168 bpm)
<b><i>Vivace</i></b>	quick	(140 - 168 bpm)
<b><i>Presto</i></b>	very fast	(168 - 200 bpm)

### **Note Values**

- Duration refers to the length of time that a sound or silence is
- Notes indicate pitch and duration













Note Value	Whole	Half	Quarter	Eighth	Sixteenth
Symbol					

- Flags always go on the right side of the note and curve toward the notehead
- Longest is whole
- It is possible to go lower than a sixteenth by adding more flags to the notes which doubles the fraction (sixteenth -> thirty-seconds -> sixty-fourths)
- A double whole-note is the longest duration in Western music (twice a whole note)

### Rests

- Duration of silence is indicated by rests
- Each note has a corresponding rest size









Note Name	Note Value	Rest
Whole		
Half		
Quarter		
Eighth		
Sixteenth		

- Whole rest is below the 4th line. Half rest is above the 3rd line
- Flags on the eighth and sixteenth are the same as their corresponding notes

### Dots

- Duration of notes are lengthened via dots
- Dots are placed to the right of notes

- Dots increase duration by one-half

Note Value	Symbol and Equivalent Value	Equivalent Rest
Dotted Half		
Dotted quarter		
Dotted Eighth		
Dotted Sixteenth		

### Ties

- Ties extend the duration of notes by combining them via the curved line
- Ties only join notes of the same pitch
- Ties are drawn from notehead to notehead
- They can be drawn across barlines
- Rests are never tied

### Dotted Rhythms

- Subdividing songs (+ = and)
  - Two parts = 1 + 2 + 3 + 4 +
  - Four parts = 1 e + a 2 e + a 3 e + a 4 e + a

### Meter

- Recurring pattern of strong and weak pulses
- Greater rhythmic stress pulses have strong beats
- Lesser rhythmic stress pulses have weak beats
- 3 common patterns (duple, triple, and quadruple)
- Duple is every other beat is strong
- Triple is every three beats is strong
- Quadruple is every 4 beats is strong

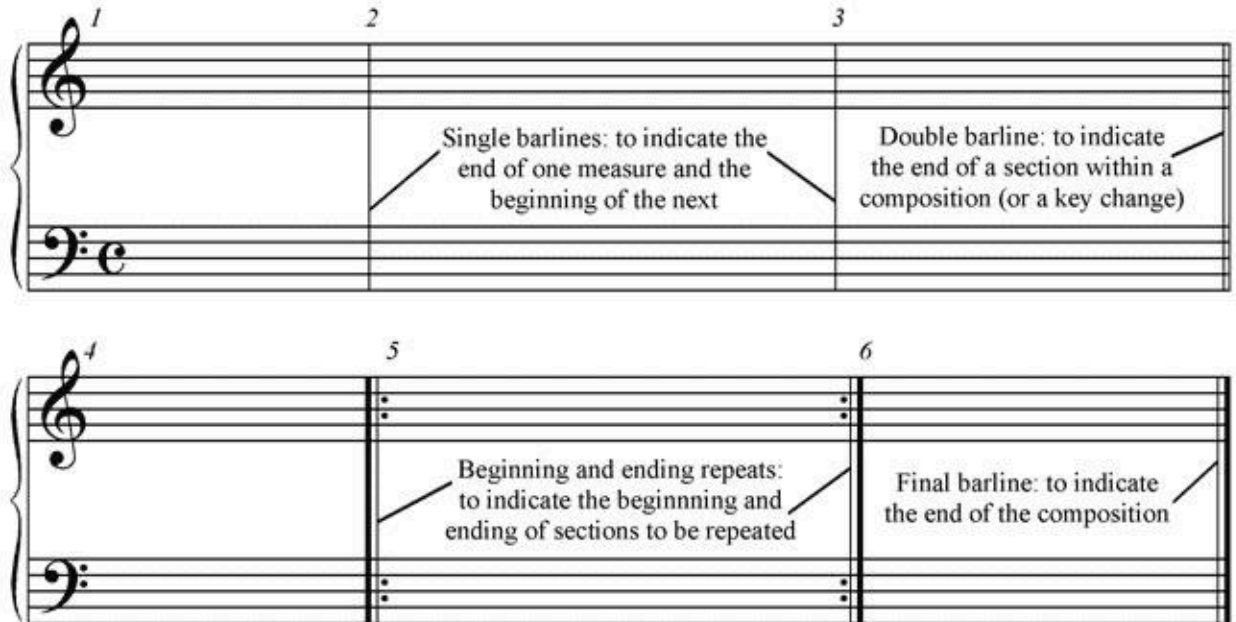
### Barlines and Measures



- Barlines on sheet music are how you tell



- The initial beat is called downbeat
- Beat before downbeat is called upbeat
- There are measures, sections, repeated sections and end of composition



## Time Signatures

- Used to indicate the meter for a piece of music
- Two numbers placed on top of each other

**4**  
**4**

### Four-four Time Signature

- The top number indicates how many beats (pulses) are in each measure (bar)
- The bottom number represents the note value (4 in four-four signatures means a quarter note)

## Beaming

- In four-four, every measure must have the equivalent of four quarter notes

- Beams are the lines that indicate the location of beats within the measure (they join notes together)
- Beaming multiple notes together which usually are the same value
- Sometimes there is mixing like an eighth note and two sixteens (one beam touches the eighth, two beams touch the sixteenth notes)

### **Incomplete Measures**

- Measures can be incomplete which has a piece that must be accounted for later
- Pieces that contain an upbeat, their first measure is the first complete measure in the score, not the upbeat measure
- When a piece begins with a pickup, the last measure is an incomplete measure to make up for the missing rhythmic values

## Chapter 4: Scales and Modes

- Chromatic scale: Series of all 12 half steps between two notes (octave apart)
- Scale: a collection of pitches arranged in ascending/descending order
- The scales are used in most old songs and Western music today (the tonal system or tonality)
- Scales use patterns of whole and half steps

### **Diatonic Scales**

- Diatonic scale: any collection of seven natural pitches that includes five whole steps and two half steps
- This can be represented by their white notes (C Major Scale: C, D, E, F, G, A, B, C)
- The half steps are separated by two or three whole steps
- Use the letter names only once in each scale with the initial note being shown at the top again to end the scale

### **The Major Scale**

- Steps in a scale are known as scale degrees (1, 2, 3 [with ^ above their heads])
- The 1 shows the start and end of the scale and is called the tonic
- All scales are named after their tonics (C Major = C scale, D Major = D scale)
- Major Scale: Two whole steps, a half step, three whole steps, and a final half step
  - W W H W W W H
- Tetrachords: Divides the scale into two equal halves
  - W W H **W** W W H (the bolded W represents the divider of the tetrachords)
- Most songs have a key of composition which means the song is based on the scale, therefore most if not all notes will be in pitches from the chosen scale

### **Applying the Major Scale Pattern**

- Major scales can be played on any note
- Must follow the major scale pattern for discerning notes
- The seventh degree in a scale is called the leading tone (it leads up to the tonic)
- Make sure to use sharps and flats so as to not reuse letter names

### **Transposing the Major Scale**

- To move a scale up, every degree must be moved by half a step to maintain the scale pattern
- The C Major scale doesn't use any sharps or flat
- Moving a piece of music from one key to another is called transposing

### **Scale Degree Names and Solfege Syllables**

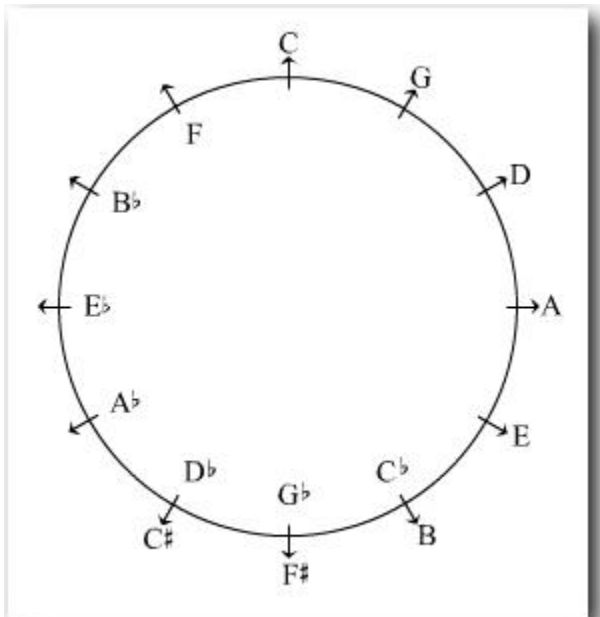
Scale Degree	Scale Degree Name
<b>1</b>	<u>tonic</u>
<b>2</b>	<u>supertonic</u>
<b>3</b>	<u>mediant</u>
<b>4</b>	<u>subdominant</u>
<b>5</b>	<u>dominant</u>
<b>6</b>	<u>submediant</u>
<b>7</b>	<u>leading tone</u>

- 
- Can also use Solfege Syllables
  - Do, Re, Mi, Fa, Sol, La, Ti (all in the same order)
- The most important ones are the tonic (degree 1, Do), the dominant (degree 5, Sol), the subdominant (degree 4, Fa)
- These represent the backbone of tonality in Western music

Scale Degree	Name	Function
1	<a href="#">tonic</a>	The most stable scale degree. All of the other scale degrees revolve around it.
2	<a href="#">supertonic</a>	Located a <i>step</i> above the tonic ( <i>super</i> = above). It tends to resolve <i>down</i> to the tonic or <i>up</i> to the mediant.
3	<a href="#">mediant</a>	Located <i>halfway</i> between the tonic and the dominant. It is relatively stable, but not as stable as either the tonic or the dominant. It also tends to resolve <i>down</i> to the tonic.
4	<a href="#">subdominant</a>	Located a <i>step</i> below the dominant ( <i>sub</i> = below). It may move <i>up</i> towards the dominant, <i>down</i> to the median, or function as a "lower dominant."

5	<a href="#">dominant</a>	A relatively stable scale degree that often resolves directly to the tonic.
6	<a href="#">submediant</a>	Located <i>halfway</i> between the tonic and the subdominant. It tends to resolve <i>down</i> to the dominant. Otherwise, it can also function as a steppingstone in the motion from the dominant to the tonic (5→6→7→8).
7	<a href="#">leading tone</a>	Located a <i>half step</i> below the tonic. It has a strong upwards pull towards the tonic except when it is part of the descending scale starting on 1.

## Circle of Fifths



- 
- Top of the circle is C major
- Moving clockwise: each key starts on the fifth degree of the predecessor and adds one sharp, until C# major which has 7 sharps
- Moving counterclockwise: each key starts on the fourth degree of the predecessor and adds one flat until C-flat major which has 7 flats
- Enharmonic keys: where the sounds are the same (C# [7 sharps] and D flat [5 flats], F# [6 sharps] and G flat [6 flats], B major [5 sharps] and C flat [7 flats])
- Adding accidentals across the circle is always 6
- Each major key has a relative minor key (C major and A minor both have no accidentals)

## Using the Circle

- Want to write the B major scale:
  - B has five sharps
  - The sharps are in order of the sharps sequence on the circle (F C G D A)
- Want to write the A-flat major scale:
  - A-flat has four flats
  - The flats are in order of the flats sequence on the circle (B E A D)

## Pentatonic and Blues Scales

- Scale that contains five pitches
- Major and minor pentatonic scales
- Major pentatonic is the 1st, 2nd, 3rd, 5th, and 6th degree of a major scale
  - C Major: C, D, E, G, A
- Same concept for minor pentatonic scale

- The Blues Scale (C, E-flat, F, F-sharp, G, B-flat)
- A chromatic variation of the minor pentatonic with a raised fourth

### **Chromatic and whole-tone scales**

- If a half step is spelled A to B-flat: diatonic (two different letter names)
- If a half step is spelled A to A-sharp: chromatic (same letter name and chromatic change)
- The chromatic scale is only half steps
  - Uses every key within an octave span (12 keys)
  - Twelve-tone scale
- The whole tone scale is all whole tones
  - Symmetrical Scale

## Chapter 5: Key Signatures

- The tonic is the most important key of a song (a song with the tonic E is played in E major scale)
- Key signatures are placed at the beginning of the staff to make it easier to find sharps and flats
- Order of sharps (F, C, G, D, A, E, B)
- Order of flats (B, E, A, D, G, C, F)

### **Function of the Key Signature**

- Indicate pitches requiring accidentals for the entire musical piece (regardless of octave)
- They are placed after the clef but before the time signature

### **Sharp Keys**

- Fat Cats Go Down Alleys Eating Birds (**Memorize**)
- In a sharp major key signature, the last sharp is always the leading tone
- The tonic is always a half step above the last sharp
- Making a sharp key signature: Ex: A major
  - Find the sharp that is half a step below A (G#)
  - Add all of the sharps up to that point (F#, C#, and G#)
  - Build the signature with the sharps

### **Flat Keys**

- BEAD + Greatest Common Factor (**Memorize**)
- Aside from F major, the next to last flat in the signature is always the tonic
  - F major has one flat (B flat)
- Making a flat key signature: Ex: E flat major
  - Find E in the order of flats and add flats to that point (B flat, E flat)
  - Add one more flat in order (A flat)
  - Build the signature with the flats

### **Key Signature Transposition**

- When transposing to another key, the sharps or flats need to be accounted for when transposing keys (C major to E major requires the 4 sharps to come with it)



## Chapter 6: Meter Types

- Three different types:
  - Simple
    - Divided into two parts
    - 1 and 2 and 3
    - Number on top of time signature is 2, 3, or 4
  - Compound
    - Divided into three parts
    - 1 la le 2 la le 3
    - Number on top of time signature is 6, 9, or 12
  - Irregular
    - Number on top of time signature is 5, 7, 11, etc.

### **Simple Duple Meter**

- Two beats per measure divided into two equal parts per beat (subdivides into four equal parts)
- Conducting in duple meter
  - Start with hand in raised position
  - Bring it down for 1st beat (downbeat)
  - Sway hand back to center for and upwards for 2nd beat (upbeat)
- Common time signatures: 2/2, 2/4, 2/8 (half note, quarter note, eighth note)
- 2/2 can be referred to as cut time with C and a line through it (Alla Breve)

### **Simple Triple Meter**

- Three beats per measure divided into two equal parts per beat (subdivides into four equal parts)
- Conducting in triple meter
  - Start with hand in raised position
  - Bring down for 1st beat (downbeat)
  - Sway hand to the right for 2nd beat
  - Sway hand back to center and up for 3rd beat (upbeat)
- Have the same common time signatures as duple meter: 3/2, 3/4,  $\frac{3}{8}$

### **Simple Quadruple Meter**

- Four beats per measure divided into two equal parts per beat (subdivides into four equal parts)
- Conducting in quadruple meter
  - Start with hand in raised position
  - Bring down for 1st beat (downbeat)
  - Sway hand to the left for 2nd beat

- Swing hand to the right for 3rd beat
- Sway hand back to center and upwards for 4th beat (upbeat)
- Common time signatures: 4/2, 4/4, 4/8
- 4/4 is referred to as common time with a C symbol

### **Compound Meter**

- Divided into three equal parts
- The beat in compound meter is always a dotted value
- Simple duple vs compound duple
  - Simple has four divisions per measure ( $2/4 [2 \times 2 = 4]$ )
  - Compound has six divisions per measure ( $6/8 [2 \times 3 = 6]$ )
- Time signatures are not the same for compound meters (6/8 is a compound duple meter NOT 2/8)
- Top number divided by 3 ( $6/3 = 2$  beats per measure,  $9/3 = 3$  beats per measure,  $12/3 = 4$  beats per measure)
- Bottom number is note value of the division of the beat since there is no number to represent dotted notes
  - Bottom value is equal to three of the duration of the note represented by the bottom number ( $8 = 3$  eighth notes,  $4 = 3$  quarter notes,  $2 = 3$  half notes)

### **Compound Duple Meter**

- Same beat pattern
- Same conducting pattern
- Most common time signature: 6/8 (6/16 and 6/4 are much less common)

### **Compound Triple Meter**

- Same beat pattern
- Same conducting pattern
- Most common time signature: 9/8 (there is also 9/16 and 9/4)

### **Compound Quadruple Meter**

- Same beat pattern
- Same conducting pattern
- Most common time signature: 12/8 (there is also 12/16 and 12/4)

### **Triples, Duplets, and Tuplets**

- Duplets and triplets are types of tuplets (quadruplets, quintuplets, sextuplets, etc.)
- First two are the most common
- Triples:
  - Dividing a beat into three rather than two parts

- Triplet symbol is a 3 written above the group of notes
- Triplet notes are performed faster to maintain the same beat pattern
- Duplets:
  - Dividing a beat from a compound meter into two rather than three equal parts
  - Duplet symbol is the number 2 written above the group of notes
  - Only occur in compound meters
  - Duplet notes are performed a little slower to maintain the beat pattern

### **Irregular and Mixed Meter**

- AKA Asymmetric Meter
- Combines 2 and 3 beat patterns
- Most common meters are quintuple meter (five beats per measure) and septuple meter (seven beats per measure)
- Combines duple and triple meters in various patterns (2 + 2 + 3, 2 + 3 + 2, 3 + 2 + 2)
- Use beams and accents (>) to determine the pattern
- Irregular time signatures:
  - 5/4 (2 + 3 quarter notes or 3 + 2 quarter notes)
  - 5/8 is the most common (2 + 3 or 3 + 2 eighth notes)
  - 7/8 (grouped in various ways of 2s and 3s)
- Mixed meter is when time signatures change within the piece

## Chapter 7: Intervals

- Distance between two pitches
- Two pitches played simultaneously, the result is **harmonic interval**
- Played one after another, **melodic interval (ascending or descending)**
- **Interval size** is the number of letter names or lines and spaces it encompasses
  - Interval C-F is a fourth (C, D, E, F)
- Doesn't matter what accidentals are applied, size is **generic** and remains the same
- **Quality**
  - Unisons, fourths, fifths, and octaves form **perfect intervals**
  - Seconds, thirds, sixths, and sevenths for **major and minor intervals**
- **Augmented intervals** are one half-step larger than a perfect or major interval
- **Diminished intervals** are one half-step smaller than a perfect or minor interval
- Intervals between unison and octave are **simple intervals**, while anything larger than an octave is a **compound interval**
- Flipping notes is **interval inversion**
- Intervals that don't need to resolve (stable) are **consonant** while **dissonant** intervals are less stable as if they need to resolve

### **Interval Size**

- Interval name = quality + size
- Unison, second, third, fourth, ..., seventh, octave
  - Unison is the same note
- Count based on how many letters are between two notes (including the notes)
- Count the lines (two lines and one space = 3 letter names)
- Odd intervals: line to line or space to space
  - Third: stacked
  - Fifth: one space/line in between
  - Seventh: two lines/spaces in between
- Even intervals: line to space or space to line
  - Second: adjacent
  - Fourth: line and space between
  - Sixth: two lines and two spaces between
- Ascending A-B is a second (A, B)
- Descending A-B is a seventh (A, G, F, E, D, C, B)
- Accidentals have no effect on size

### **Interval Quality**

- Major and minor intervals are never perfect intervals
- Major intervals vs minor intervals
  - Major = M, sounds happier

- Minor = m, sounds darker
- Minor intervals are a semitone smaller than major
- Perfect interval = P
  - Unisons, 4ths, 5ths, and octaves
  - 0 semitones in perfect unison, 12 semitones in perfect octave
  - Perfect 4th contains 5 semitones (F-B-flat is the only perfect 4th with white keys that requires an accidental)
  - Perfect 5th contains 7 semitones (B-F# is the only pair that requires an accidental)
  - When counting, you don't count the initial key
- Augmented = A, aug, or +
  - C-G# has increased one half-step from perfect 5th (8 semitones)
- Diminished = d, dim, or °
  - C-G-flat has decreased one half-step from perfect 5th (6 semitones)

### Spelling and Identifying Perfect Intervals

- Counting method
  - Start with the letter and count the semitones above that letter to get the interval you want
  - You also need to know the letters it encompasses
  - A4 - C#5 has four semitones and encompasses A, B, C (major third)
  - A4 - D-flat5 also has four semitones and encompasses A, B, C, D (diminished fourth, one semitone smaller than P4)
- White-Key method
  - All white-key fourths and fifths are naturally perfect (5 and 7 semitones)
  - Exception is B and F which are 6 semitones and are called a tritone
    - To fix this you need either a B-flat or F# (NOT both)
  - Whenever fourths and fifths have the same accidental, they are perfect aside from B and F (either a b-flat or f# is needed)
- Identifying Perfect Intervals
  - Start with the white key equivalent (F to C-flat → F to C)
  - Then add accidentals to see the change (C-flat is one semitone smaller, makes it a diminished fifth)
- Spelling Perfect Intervals
  - Make an augmented fourth above C:
  - Start with white key: C - F (perfect)
  - Augmented = semitone larger
  - C was a given, don't change, instead raise F to F#
  - C - F# = augmented fourth above C

## Intervals in the Major Scale

- Second, third, sixth, and seventh are always major
- Finding a major interval
  - Bottom note is scale degree 1
  - Is the top note in the major scale of the key
  - If yes, then the interval is major or perfect
  - If no, then the interval has been altered from major or perfect
- E to G
  - Start with E major
  - G is sharp in E major, top note G is not in the E major
  - E to G# is a major third
  - The interval E-G is a semitone smaller, minor third
- If there is an accidental on the bottom note, ignore it at first and just use the natural pitch
- Then determine the interval
- Factor accidental back in and determine how the interval changes

## Major/Minor Intervals

- A major interval decreases, it becomes minor (and vice versa)
- Major second = 2 semitones, minor second = 1 semitone
- Major third = 4 semitones, minor third = 3 semitones
- Major sixth = 9 semitones, minor sixth = 8 semitones
- Major seventh = 11 semitones, minor seventh = 10 semitones
- Diminished/Augmented
  - When a minor interval is decreased by a half-step, it becomes diminished
  - When a major interval is increased by a half-step, it becomes augmented
  - (smaller) dim  $\longleftrightarrow$  m  $\longleftrightarrow$  M  $\longleftrightarrow$  aug (larger)
- Keep the same letter names, even with double sharps and double flats

## Spelling and Identifying Major/Minor Intervals

- Using the pattern from bottom notes: C4 - B5
- Natural Seconds
  - M, M, m, M, M, M, m
- Natural Thirds
  - M, m, m, M, M, m, m
- Natural Sixths
  - M, M, m, M, M, m, m
- Natural Sevenths
  - M, m, m, M, m, m, m
- White-Key Method
  - Ignore the accidentals and figure out the quality of the white-key interval

- Add accidentals back to determine the effect
- B - C#
  - Use B - C
  - This is a minor second
  - Apply the sharp, add a semitone to the top
  - B - C# = major second
- Spelling Intervals
  - Write down white-key interval
  - Add accidentals to make it smaller or larger as needed
  - Major third above E:
    - Start with E - G
    - This is a minor, need an extra semitone
    - Change to E - G#
    - E - G# = major third above E

### **Hearing Intervals**

- Consonant Intervals (pure/stable sounding)
  - Unison, 8ve, P5, Major and minor thirds and sixths (M3, m3, m6, M6)
- Dissonant Intervals (unstable sounding)
  - M2, m2, M7, m7, and all augmented/diminished intervals
- P4 can be considered either depending on context
- These categories are not absolute

### **Interval Inversions**

- Reverse the order of the two pitches
  - Raise the lower pitch an octave
  - Lower the upper pitch an octave
  - Inversion of F - A (M3) to A - F (m6)
  - Inversion of C - F (P4) to F - C (P5)
- Letter names do not change
- An interval and its inversion create a perfect octave
- $P4 + P5 = P8$
- Interval sizes invert to equal nine
  - 2nd inverts to 7th ( $2 + 7 = 9$ )
  - 3rd inverts to 6th ( $3 + 6 = 9$ )
  - 4th inverts to 5th ( $4 + 5 = 9$ )
  - Octave inverts to Unison ( $1 + 8 = 9$ )
  - These all apply vice versa
- Quality changes
  - Perfect remains perfect

- Major  $\rightarrow$  Minor
- Minor  $\rightarrow$  Major
- Aug  $\rightarrow$  Dim
- Dim  $\rightarrow$  Aug
- Spelling with Inversion
  - Want minor seventh above F#
  - m7  $\rightarrow$  M2
  - M2 = E - F#
  - Invert: F# - E = m7 above F#

### **Compound Intervals**

- Intervals that go beyond an octave (ninths, tenths, elevenths, etc.)
- Augmented Octave and above are compound
- Identifying Compound Intervals
  - Simplify the interval to a simple one: C4 - E5  $\rightarrow$  C4 - E4 (or C5 - E5)
  - Figure out the simple interval: C4 - E4 = third
  - Then add 7 to the simple:  $3 + 7 = 10$ , C4 - E5 = tenth
- Compound intervals have the same quality as their simple variants
  - C4 - E4 = M3
  - Add 7
  - C4 - E5 = M10
- Spelling
  - Reduce the compound to simple
  - Spell the simple
  - Add the octave(s) back to create compound
- Example:
  - P11 above middle C
  - 11th  $\rightarrow$  4th
  - C4 - F4
  - Add the octave: C4 - F5 = P11



## Chapter 8: Minor Scales

- Major scales are bright and cheerful, minor scales are dark and sad

### **The Natural Minor Scale**

- Five whole steps, two half steps
- W H W W H W W
  - Half steps between degrees 2 and 3, 5 and 6
- Songs will use all of the notes in a specified scale (A to A)
- Scale degree names are the same except for the seventh degree (subtonic)

### **Harmonic and Melodic Minor**

- Basic form of minor scale (natural)
- The difference between Harmonic, Melodic, and Natural happens with scale degrees 6 and 7
- Natural minor scale has a whole step between scale degrees 7 and 8
- Harmonic minor raises the subtonic a half step to be more like a leading tone
- The Melodic Minor Scale eliminates the awkward augmented second that occurs in the harmonic scale (raises scale degrees 6 and 7 by a half-step)
  - Descending melodic minor scale is the same as the natural minor scale (scale degrees are restored to normal)

### **Building Minor Scales**

- A minor scale has only white keys
- Add accidentals to notes in order to maintain a minor scale pattern

### **Minor Key Signatures**

- Order of sharps: F C G D A E B
- Order of flats: B E A D G C F

### **Relative Keys**

- Two keys with same key signature and pitch are relative keys
- A minor and C major use the same notes making them relative
- Relative Keys:

Minor	Major
A	C
E	G
B	D

F#	A
C#	E
G#	B
A-flat	C-flat
D#	F#
E-flat	G-flat
A#	C#
B-flat	D-flat
F	A-flat
C	E-flat
G	B-flat
D	F

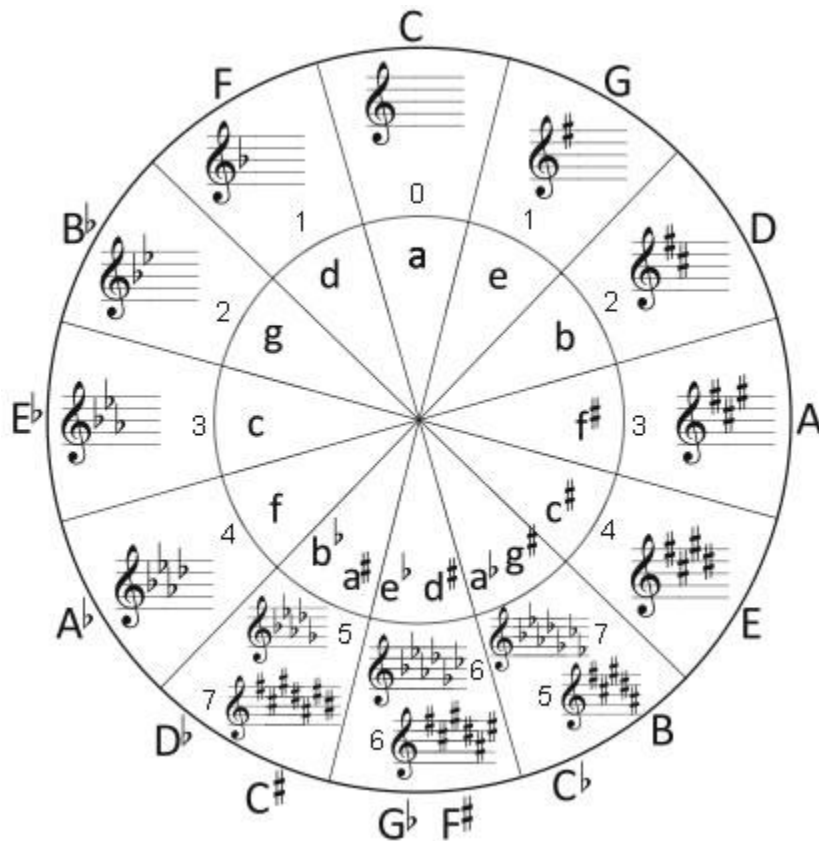
- Each relative major scale starts on the mediant (scale degree 3) of its relative minor
- Relative minor keys start on the submediant (scale degree 6) of their relative major
- Building Keys:
  - Using a given major scale, find its relative minor by looking at degree 6
  - Given: D major, Relative: B minor
  - Start on B and build using notes in D major up from B
- Building Without Given
  - Asked to build D minor scale
  - Move up a minor third to find relative major (D to F)
  - D minor uses same signature as F major (1 flat = B-flat)
  - Build the scale from D using the B-flat

### Parallel Keys

- Two keys that share the same tonic are called parallel keys
- Scale degrees that differ: 3, 6, 7
  - Major: forms major intervals above the tonic
  - Minor: forms minor intervals above the tonic
- Solfege: mi, la ,ti = me, le, te
- Switching them from major to minor parallels is a mode change
- Lower the scale degrees (3, 6, 7) by a half-step
- Parallel Key Signatures

- Minor scales have three more flats or three fewer sharps than the parallel major scale
- Take major scales amount of sharps, subtract three flats worth, and then add flats that are left over
- G major = 1#, G minor = 2 flats, 3 flats - 1 sharp = 2 flats

### The Circle of Fifths and Minor Scales



- 
- Order of sharps: F C G D A E B
- Order of flats: B E A D G C F

## Chapter 9: Triads

- Two simultaneous pitches create a harmonic interval
- More than two pitches create a chord
- Triads are three-pitch chords
- Most compressed form is when the three notes are stacked, creating thirds between them
- Most chords are based on triads with a major or minor third between the intervals
- Components:
  - Root - the lowest pitch in the triad, the chords and the intervals are named after it
  - Middle Note - the third of the root
  - Highest Note - the fifth of the root
  - F-A-C
    - F = root
    - A = third
    - C = fifth
  - When played after on another, they form an arpeggio/broken chord
- Triads are named after their root note
- Triads can be major or minor (G major triad or A minor triad)

### **Triad Qualities**

- Four types: major, minor, diminished, augmented
- Quality is determined on the quality of thirds in the triad
  - Major and minor triads have different quality thirds but perfect fifths
  - Diminished/Augmented triads are based on diminished/augmented fifths

Triad Quality	Major	Minor	Diminished	Augmented
<b>Top Third</b>	m3	M3	m3	M3
<b>Bottom Third</b>	M3	m3	m3	M3

- 
- Major triads = major third on bottom, minor third on top (also their fifth is perfect)
- Minor triads = minor third on bottom, major third on top (perfect fifth)
- Diminished triads = two minor thirds stacked (diminished fifth)
- Augmented triads = two major thirds stacked (augmented fifth)

## White-Key Triads and Transformations

- Three major triads: C, F, and G
  - C E G
  - F A C
  - G B D
- Three minor triads: D, E, and A
  - D F A
  - E G B
  - A C E
- One diminished triad: B
  - B D F
- Transforming:
  - Major and Augmented
    - F major → F augmented: raise the fifth a half step (C to C#)
    - F augmented → F major: lower the fifth a half step (C# to C)
  - Major and Minor
    - F major → F minor: lower the third a half step (A to A-flat)
    - F minor → F major: raise the third a half step (A-flat to A)
  - Minor and Diminished
    - F minor → F diminished: lower the fifth a half step (C to C-flat)
    - F diminished → F minor: raise the fifth a half step (C-flat to C)

## Spelling Triads

- Names are based on the root and the quality: G major or f# minor
  - Uppercase letter for major: G
  - Lowercase for minor: g
  - Lowercase with degree symbol for diminished: g<sup>o</sup>
  - Uppercase with a plus sign for augmented: G<sup>+</sup>
- White-Key Method:
  - Determine quality of white key triad with the same root as the triad you want to spell
  - Add accidentals to get the triad quality you want
- Example: E major
  - E triad = E G B which is E minor
  - Raise the third a semitone to make major from minor: E G# B
- Adding the same accidental to all of the notes of a white key triad doesn't change its quality
- Example: F# minor
  - F A C is the major triad
  - Root note is sharp, apply to all notes F# A# C#

- Transform to minor (lower the third) F# A C#

### **Identifying Triads: White-Key Method**

- Given: D F# A
  - White-key is D F A (minor triad)
  - Raise the third (D F# A = major)
  - D F# A = D major triad
- Given: E G# B#
  - White-key is E G B (minor triad)
  - Third and fifth are raised
  - Raising the third makes it major
  - Raising the fifth makes it augmented
  - E G# B# = E augmented triad
- Given: A# C# E
  - White-key is A C E (minor triad)
  - Accidental root, make it all accidental (A# C# E# = A# minor triad)
  - Fifth has been lowered (minor to diminished)
  - A# C# E = A# diminished triad

### **Identifying Triads: Key Signature Method**

- Spell D major
  - Root = D
  - Stack the thirds (F and A)
  - Major key signature of root (contains C# and F#)
  - Apply the accidentals (F to F#)
  - Drop any accidentals that don't apply to the notes in the chord (no C so drop C#)
  - D major triad = D F# A
- Spell A-flat minor
  - Root = A-flat
  - Stack the thirds (C and E)
  - Major key signature of root (contains B-flat, E-flat, A-flat, and D-flat)
  - Apply the accidentals (E to E-flat, A is already flat)
  - Drop any accidentals not used (B and D are not so drop B-flat and D-flat)
  - Minor triad contains a minor third, transform major to minor by lowering third a half step (C to C-flat)
  - A-flat minor triad = A-flat C-flat E-flat

### **Triad Inversions**

- If the root is not the lowest note, the triad has been inverted
- When the notes of a triad are stacked in thirds, the root is always the lowest note

- Bass note != root note
- If the lowest sounding pitch is the root, the triad is in root position
- If the lowest sounding pitch is the third, the triad is in the first inversion
- If the lowest sounding pitch is the fifth, the triad is in the second inversion
- Inversion doesn't change the pitch names and doesn't change triads name

### **Triad Spacing and Doubling**

- Closed or open positions
  - Closed = notes are as close as possible
  - Open = notes are NOT as close as possible
- Triad doubling:
  - Double some of the pitches in a triad
  - Makes it sound fuller
- Four voices: Soprano, Alto, Tenor, Bass
  - Acronym: SATB
  - Soprano and Alto are female voices
  - Tenor and Bass are male voices

### **Figured Bass**

- Shorthand system of symbols instead of written out notes
- AKA thorough-bass or basso continuo
  - C triad root position = 5/3 (third [E] and fifth[G] above bass note C)
  - C triad first inversion = 6/3 (third[G] and sixth[C] above bass note E)
  - C triad second inversion = 6/4 (fourth[C] and sixth[E] above bass note G)
  - Bass note != root
- First inversion = 6
- Second inversion = 6/4
- Spelling Inversions
  - Spell chord in root position
  - For first inversion, move root up an octave so third is on the bottom
  - For second inversion, move the fifth down an octave so the fifth is on the bottom

### **Triads, Chords, and Roman Numerals in a Major Key**

- Major triads are called diatonic
- Triads in a major scale are named after their root note and their corresponding scale degree
- Triad qualities have the same pattern for every major scale
  - Degrees 1, 4, 5 are major triads
  - Degrees 2, 3, 6 are minor triads
  - Degree 7 is a diminished triad

- Can use Roman numerals
  - Uppercase for major
  - Lowercase for minor
  - The degree symbol next to lowercase means diminished (vii<sup>o</sup>)
- Major Roman Numerals (I, ii, iii, IV, V, vi, vii<sup>o</sup>)

### **Triads, Chords, and Roman Numerals in a Minor Key**

- Triads for minor keys
  - 1, 4 are minor triads
  - 3, 5, 6 are major triads
  - 2, 7 are diminished triads
- The same concept for Roman numerals
- Minor Roman Numerals (i, ii<sup>o</sup>, III, iv, V, VI, vii<sup>o</sup>)

### **Seventh Chords**

- A triad plus a seventh above the root
- A four note chord
- Seventh chord structure:
  - Root
  - Third
  - Fifth
  - Seventh
- Types of sevenths:
  - Major-major seventh (Dmaj7)
    - Major triad on the bottom
    - Major seventh above the root
  - Major-minor seventh or Dominant Seventh (D7)
    - Major triad on the bottom
    - Minor seventh above the root
  - Minor-minor seventh (Dm7)
    - Minor triad on the bottom
    - Minor seventh above the root
  - Half-diminished seventh (D<sup>o</sup>/7)
    - Diminished triad on the bottom
    - Minor seventh above the root
  - Fully diminished seventh (D<sup>o</sup>7)
    - Diminished triad on the bottom
    - Diminished seventh above the root
- Making Sevenths
  - Start from Dmaj7



- Lower the seventh to get D7
- Lower the third to get Dm7
- Lower the fifth to get D<sup>o</sup>/7
- Lower the seventh again to get D<sup>o</sup>7
- Sevenths in Major
  - I - major seventh
  - ii - minor seventh
  - iii - minor seventh
  - IV - major seventh
  - V - dominant seventh
  - vi - minor seventh
  - vii<sup>o</sup>/ - half-diminished seventh
- Sevenths in Minor
  - i - minor seventh
  - ii<sup>o</sup>/ - half-diminished seventh
  - III - major seventh
  - iv - minor seventh
  - v - minor seventh
  - VI - dominant seventh
  - VII - major seventh

### **Seventh Chord Inversions**

- Root position (root on bottom)
- First inversion (third on bottom)
- Second inversion (fifth on bottom)
- Third inversion (seventh on bottom)
- Symbols (in order)
  - 7
  - 6/5
  - 4/3
  - 4/2 or 2

### **The Dominant Seventh Chord**

- Most common seventh chord in music
- AKA major-minor seventh (major triad, minor seventh)
  - Major triad and a minor third stacked on top
- In minor keys, the leading tone must be raised to create a dominant seventh
- All dominant sevenths are major-minor chords
- Dominant seventh is above the dominant of a key
  - Dominant seventh for C major key is G7

- Dominant seventh needs a resolution
  - Seventh of a dominant seventh resolves down a step
  - The leading tone in a dominant seventh resolves up a step

## Chapter 10: Cadences

### **Perfect, Imperfect, and Half Cadences**

- Harmonic function refers to three categories of chords: tonic, predominant, and dominant
  - Tonic is stable while predominant and dominant seek resolution
- Musical phrases are determined by the typical flow of chords and their harmonic functions
  - A phrase needs at least a tonic and a dominant
- Cadence: short harmonic progression that occurs at the end of a musical phrase
  - Authentic (Perfect PAC and Half HC)
    - Dominant to tonic (V - I in major or V - i in minor)
    - Not all V-I chord progressions are authentic cadences
    - Perfect (PAC): The top voice must end on the tonic and the bass must progress from V to I in the root position
    - Imperfect (IAC): Any authentic cadence that doesn't meet the perfect criteria
    - Half Cadence (HC): Any phrase that ends on the dominant (V) since it doesn't resolve to the tonic and is preceded by i, ii, or IV in major keys and i or iv in minor keys
  - Plagal
  - Deceptive
- Phrases with a half cadence are often paired with a perfect cadence to finish the piece
  - Antecedent and Consequent
- Hearing Cadences
  - Listen and mark potential points of rest, goal, or closure
  - Check the harmonies involved in potential cadence points
    - x-V = potential HC (x is one of the predominant chords in major or minor)
    - V-I = potential AC
      - If I is in the top voice (soprano) over I, it's a potential PAC
      - If something else is in the soprano over I, it's a potential IAC
      - If V, I, or both harmonies are inverted, it's a potential IAC
    - If it's none of these, it's not a potential cadence
  - Listen for what happens after each potential cadence point
    - True cadence points have a sense of beginning
    - If it is repetition in the middle of the previous phrase, it may be a cadence that has been subverted

### **Plagal and Deceptive Cadences**

- Plagal: IV-I (iv-i in minor)
  - Conclusive but not as strong as the authentic cadence
- Deceptive: V-vi (v-VI in minor)

- Deceives by making it sound like it will lead to the tonic but going somewhere else

### **Harmonic Analysis**

- Step 1: Determine the key
  - Look at the key signature (doesn't tell everything though, could be major or minor key)
  - Music often begins and nearly always ends on the tonic so looking at the bass line can help
  - Listen to the music (try to tell if it's major or minor sounding)
- Step 2: Reduce the chords to simple triads
  - Simplify the triads by reducing inversions or moving them to proper root positions
- Step 3: Analyze the simplified chords with Roman numerals
  - Knowing the key, finding the root notes of triads can be easy, then you can number what chords are like I or V
- Analyzing inverted chords
  - Determine the key
  - Determine the chord progression
  - Take out the non-chord tones (passing tones)
  - Add inversion symbols when done
    - If the original bass line contains a fifth chord, then the chord is in second inversion
    - If it is a third chord, then the chord is in first inversion

### **Harmonic Progressions**

- The tonic is the center of gravity and ultimate resting point in harmonic progressions
- Most basic chord progression is just two chords (I-V-I: joint of stability)
- The dominant provides tension which the tonic resolves