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## Developing Musicians Out of Instrumentalists: A Comprehensive Guide to Improve Intonation Skills in Intermediate Band

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RUNNING HEAD: BRIDGING THE INTONATION GAP

DEVELOPING MUSICIANS OUT OF INSTRUMENTALISTS: A COMPREHENSIVE  
GUIDE TO IMPROVE INTONATION SKILLS IN INTERMEDIATE BAND

by

Andrew Smith

Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Music Education  
at  
Lindenwood University

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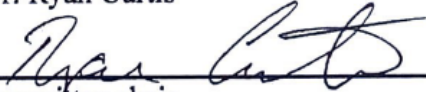
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Andrew Smith



Author

Dr. Ryan Curtis



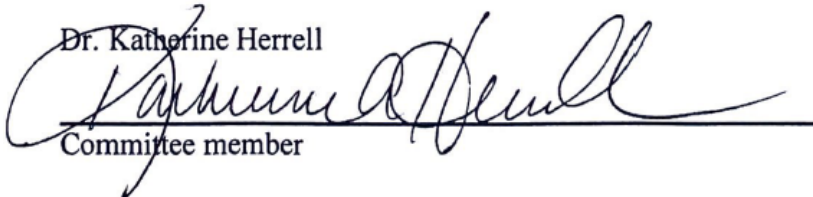
Committee chair

Professor Pam Grooms



Committee member

Dr. Katherine Herrell



Committee member

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GUIDE TO IMPROVE INTONATION SKILLS IN INTERMEDIATE BAND

A Thesis Submitted to the Faculty of the Music Department  
in Partial Fulfillment of the Requirements for the  
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at  
Lindenwood University

By

Andrew Bryant Smith

Saint Charles, Missouri

December 2019

**Abstract**

This project will focus on the fundamental skills taught in an intermediate band program and assess skills needed to enhance their musicianship. One of the primary musical components studied is the development of individual and group intonation by utilizing a more concrete focus on the development of fundamental skills associated. The final deliverable focused on the fundamental skills needed to improve intonation. The guide will also include a compilation of instrument-specific strategies and tendencies having to do with the development of the skills outlined.

### **Acknowledgements**

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## Introduction

In my experience as a middle school band director, there are certain areas of musicianship that my students struggle with year after year. Most band method books I have come across teach the basics of playing an instrument. The books teach note reading, fingerings or slide positions, rhythm, style, and a few other fundamental skills, but that is the basis of a method book. In my experiences as an educator, there has not been a book that teaches all of the fundamental skills required to become a musician. The method books are teaching students how to be instrumentalists rather than teaching our instrumentalists to be musicians. Knowing how to play an instrument in an ensemble or sing in a choir, is only part of the equation. In my experiences, one skill that separates a musician apart from an instrumentalist is their ability to listen and make changes to enhance the sound of themselves or others.

Developing a musical ear is a skill that, when well developed, can enhance the quality of any music program. By developing the ear, musicians will be able to use their ears to fix common problems regarding intonation with themselves and others as well as develop skills that can be applied to almost any aspect of playing a musical instrument.

The purpose of the research is to identify common issues regarding intonation, how to fix those problem areas, and develop exercises for improving intonation in an intermediate band setting. According to Merriam-Webster, intonation is “the ability to play or sing notes in tune.” Intonation is one of the areas musicians struggle to get right. Colson (2012) stated “Intonation will be an ongoing concern for most bands” (p. 446). According to Geringer et. Al. (1999), “Learning to play in tune is of paramount importance in instrumental music education” (p. 135). By developing a comprehensive approach to teaching tuning and intonation, students will understand what it means to be in tune not just as an individual, but also as a whole. It is a goal



of music educators to teach all the skills necessary for their students to be able to play in tune. Many experts in the field of music education believe that the development of fundamental skills and the training of our ears are vital components that lead to better intonation (Jagow, 2012; Pearson and Nowlin, 2011).

This project will use guides, exercises, and warmups geared towards improving intonation in novice instrumentalists. Directors can improve the intonation of their ensembles using a variety of methods. These methods include, but are not limited to, individual and group tuning exercises using unison pitches, as well as common intervals, singing and aural training, development of fundamental skills, and knowledge of instrument tendencies (Ward and Hancock, 2016; Juchniewicz et al., 2014; Singletary, 2018). Based on the research conducted, focusing on some basic fundamentals daily can help improve tuning and intonation of individuals and the ensemble.

### **Literature Review**

The question many band directors ask is, “how can I get my band to play in tune?” Both Fraser Linklater (1995) and Ronald Kearns (2011) believe, in order to have good musicianship and band performances, intonation is one of the most important skills to learn. It starts with a basic the ability to listen. Students need to know what they are listening for and how to adjust (Jagow, 2012; Rush et al., 2014). One of the biggest factors that affects intonation in younger ensembles is the ability to control their individual tone on their instrument (Rush et al., 2014, Colson, 2012, Jagow, 2012, and Garofalo, 1996).

### **Fundamental Skills**

It goes without saying that fundamental skills are necessary in order to produce a musical sound whether instrumentally or vocally. Teaching and focusing on these fundamental skills sets

the foundation for formulating a great blended sound when done properly. According to Singletary's (2018) research, the top three fundamental skills taught in middle school band are posture/instrument carriage, tone quality, and air/breathing. While the pool for the research was from thirty middle schools, it reflects the core skills needed in order to produce a fundamental sound on an instrument (Jagow 2012, 2007; Garfalo 1996; Singletary 2018; Rush, Scott, Wilkinson 2014).

### **Breathing and air support.**

Breathing is an essential part of playing and singing, as it is in everyday life. Breathing and posture work hand-in-hand when playing or singing. Correct posture leads to more controlled breathing, which in turn leads to better tone and intonation (Millican, 2013; Shoebridge, 2017). As cited in Sehmman's study (2000, pg. 137), Dennis Wick, a professional trombonist, stated "the respiration process is mentioned as the most important physical aspect of playing an instrument." "Breathing directly affects intonation, articulation and diction, vibrato, dynamic level and intensity of the tone as a well as phrasing, accents, and other aspects of musical expression" (Kohut, 1985, pg. 163).

In 2000, a conducted a study on the effects of breath management on the performance of elementary brass players aimed at collecting data based on their lung capacity and breathing technique. Sehmman chose to test 61 students, grouped by instrument class, and assigned them to control and experimental (breath management instruction) groups. Each group received a thirty-minute lesson once a week for sixteen weeks. The first week for each group consisted of preliminary testing. The experimental group received a total of ten weeks of breath management instruction which was grouped in 5-week increments, with a 4-week period of solo and ensemble preparation in between, and ending with post testing.

During the first phase of breathing instruction, the instructors taught techniques related to posture. The following lesson included the teaching of the diaphragmatic/abdominal breathing. The second phase included lessons to help improve the exhale portion of the breathing process. Only 5-7 minutes of breathing instruction was used in a 30-minute lesson per week for the control group. The results of this study showed “breath management instruction was effective in improving both breathing and performance aspects of brass playing” (Sehmann, 2000, pg. 144).

As Shelley Jagow expressed (2012), one of the many causes for poor intonation is a lack of breath support. In order for any given pitch to be sounded, a proper breath must be taken. A proper breath, as explained by Arnold Jacobs (teacher, musician), is produced by inhaling with the shape of an “Oh” or “Ah”, which will help induce a relaxed breath while avoiding a gasping sound (Reynolds, 2013). One of Jacobs’ teaching principles was, “One must take a sufficient quantity of air into the lungs and make efficient use of it when blowing” (Irvine, 2009, pg. 87).

### **Posture.**

According to Mark Laycock (2012), “Correct posture and position are essential if students are to play in tune” (p. 29). Posture goes way beyond just playing in tune though. There is a reason it was the number one fundamental skill in Singletary’s research. According to Ann Shoebridge, “Posture influences music technique, and poor posture is associated with performance-related problems in musicians” (p. 811). Sitting with proper posture allows musicians the ability to play with an open and relaxed airway. Proper posture helps establish a foundation for skills such as clear tone, phrasing, intonation, and focus. Chad Criswell (2008) believes proper posture and breathing should be the core fundamental in any intonation program. Criswell also stated, “Without good breath support, posture, and embouchure control, dealing with the nuances of intonation is not possible” (p. 65).

In Scott Rush's book, his take on basic set-up for good posture when seated is as follows:

- Students should have their feet flat on the floor approximately shoulder width apart.
- Students should be seated on the front part of the chair.
- Students should have their backs straight, with shoulders down and relaxed.
- Students should feel a bit lifted as if someone had a string on top of their head and was gently pulling it up and slightly forward; this allows for relaxed breathing and reinforces the notion of getting the ribs off of the lungs.
- Students should bring the instrument to their embouchure from this posture and should not manipulate their body to fit the instrument; this means that the instrument may need to be adjusted.
- Students should be looking at the center of the music stand; if a lead pipe is involved, it should point directly to the center of the music stand.
- Students should adjust the music stand so they can see the conductor over the top of the stand without doing any other manipulation; this usually means raising the stand (Rush, Scot, Wilkinson, 2014, p. 84).

According to Jagow (2007), poor posture is a culprit of musical skills such as tone quality, pitch accuracy, and intonation. Poor posture leads to poor tone, which in turn leads to poor pitch, and intonation (Jagow, 2012).

### **Embouchure.**

In *The Musical Instrument Desk Reference* "embouchure refers to the position of the lips and facial muscles when playing a wind instrument" (Pagilaro, 2012, pg. 28). Each instrument requires a certain shape and position of lip and facial muscles in order to produce a good quality sound or tone quality. The embouchure can directly affect intonation and pitch accuracy of a

note (Colson, 2012). Without a solid embouchure, good intonation and tone can-not be achieved. “On any wind instrument, an embouchure too tight will cause the pitch to play sharp, and an embouchure too loose will cause the pitch to play flat” (Jagow, 2012, pg. 99).

**Woodwind instruments.** Sound on a woodwind instrument is produced one of two ways. On flute, air is blown across the head joint and is then amplified as it enters the tone hole. On instruments such as the clarinet and saxophone, a reed is fixed onto the mouthpiece and the player produces sound by blowing air through the mouthpiece which allows the reed to resonate (Pagliaro, 2012). “A correctly developed embouchure is imperative for the progress of quality tone and centered pitch” (Jagow, 2012, pg. 72). On woodwind instruments specifically, the development of the embouchure can be checked by monitoring what pitch is sounded on their mouthpiece or head joint (see Table 1). Jagow recommended that woodwind instrumentalists should check the pitch of their mouthpiece frequently.

Recommended Pitch Production	
Instrument	Concert pitch on mouthpiece/reed alone
Flute	A on stopped or open head joint
Clarinet	C on mouthpiece
Bass Clarinet	F# on mouthpiece
Alto Saxophone	A on mouthpiece
Tenor Saxophone	G on mouthpiece
Bari Saxophone	D or D# on mouthpiece

*Table 1. Recommended pitch production on mouthpiece/reed Alone. From Developing the Complete Band Program, by Shelley Jagow, 2007.*

**Brass instruments.** Forming an embouchure on brass instruments is different than that of a woodwind instrumentalist. “To produce a tone on a brass instrument, buzz moistened lips into a cup-shaped mouthpiece with the upper lip producing the primary buzz” (Pagliaro, 2012, pg.

88). While there are many opinions on the placement of the lips on the mouthpiece, it is an agreement among experts that placement is unique to each embouchure and is determined by player (Pagliaro, 2012).

### **Tone quality.**

Beth Bronk (2010), stated, “the fastest way to make an ensemble sound better is to teach each student to perform with good characteristic tone quality” (p. 15). Tone is essentially the quality of sound that is produced by an instrument. When tone development is paired with singing and ear training, pitch and other musical concepts fall into place (Linklater, 1995).

When it comes to tone quality, each student and ensemble is different. Students must first create their own individual idea of tone according to Arnold Jacobs (Irvine, 2009). Jacobs also believed that a musician's tone is only as beautiful as the sound they create in their head. Listening to and modeling their sound after the greats on their particular instrument is a good way to develop your ideal tone (Irving, 2009). “Taking the time to define a band's tone improves the chances of satisfaction with the product” (Fonder, 1998, pg. 24). By defining a band's tone, the director then has the chance to challenge the ensemble, and set goals for the students and the ensemble. According to J. Si Millican's research (2014), the top two causes of sound or tone quality problems, as identified by participants, were the result of a weak embouchure, or lack of air support.

### **Singing and Ear Training.**

One method of teaching intonation is by developing their pitch recognition using singing and ear training exercises (Colson, 2012). Shelley Jagow (2007) believes establishing a routine with singing in rehearsal is an effective method to not only improve tone and intonation, but also pitch recognition when the same passage is played after it is sung. In Jagow's findings,

instrumental groups who make singing a part of their routine have a more mature tone quality and enhanced intonation recognition than those who do not sing as part of a routine. Robert Garofalo (1996) recommends singing with your ensemble as a warm-up for three to five minutes daily. According to Garofalo, “Singing is without question the single most powerful way to develop good intonation and musical expression” (p. 75).

In relation to singing in rehearsals, Colleen Conway (2003) and Warren Haston (2016) believe students should learn the auditory skills aligned with playing an instrument before students make their first sound. Haston aligns singing his students’ first sound with a moveable *do* in relation to the pitch a particular instrument starts. He then has them sing and finger along the exercise, as if the sound were coming out of their instruments. “The goal (of singing in rehearsal) is to connect ears and fingers and eyes” (Haston, 2006, p.27).

According to a study conducted by Laura Singletary (2018), band directors interviewed ranked singing and aural training in the bottom third of skills deemed as “fundamental” (p. 60). One struggle instrumental music teachers may have when developing a singing and aural routine is a fear of teaching it (Dalby, 1999). Dalby (1999) believes, “The goal is to play the instrument as an extension of the mind’s inner audiation instrument” (p. 22). Audiation is a term coined by Edwin E. Gordon, and is the process of hearing a sound or a series of sounds in your mind, before it is played or sung. It is simply translating sound into music mentally. He suggests instrumental music teachers approach audiation one step at a time and gradually add elements to your routine. Exercises for such a routine might include singing a line out of their method book on a moveable *do*, or teaching a familiar song by ear (Wolbers, 2002; Dalby, 1999). Interval training is another way to develop good intonation (Garofalo, 1996). Garofalo believed, “teaching students to play, sing, hear, write, and visually recognize all 12 intervals within a

scale” can help develop better intonation habits in musicians (pg. 70). An exercise he believes is one of the best ways to teach students to hear the 12 intervals is by singing and playing the major scale exercise in Figure 1. While this figure is based on C major, he suggests bands start in the key of Bb major or work their way through the scales they know. His reasoning for using this exercise is that it creates four major and three perfect intervals when played ascending and when descending, it produces four minor intervals along with the three perfect intervals.

The figure consists of two musical staves. The top staff is labeled "Ascending" and shows a C major scale with intervals labeled: M 2nd, M 3rd, P 4th, P 5th, M 6th, M 7th, and P 8th. The bottom staff is labeled "Descending" and shows the same scale descending with intervals labeled: m 2nd, m 3rd, P 4th, P 5th, m. 6th, m. 7th, and P 8th.

Figure 1. Interval exercise for ear training ascending and descending. From *Improving Intonation in Band and Orchestra Performance*, by R. Garofalo, 1996.

### **Balance and blend.**

Music educators often ask their students to use their ears in rehearsal, but what exactly are the students listening for? First, educators need to differentiate between balance and blend. When training the ear in an ensemble, students must listen from the bottom of the band up (Jagow, 2007). The concept of listening down (to the bottom part of the pyramid), as Jagow explains is a process that works in large and small group settings. This process is shown in Figure 2, is a concept developed by Francis McBeth (Garofalo, 1996). This figure shows that, at any given dynamic level, the higher pitched instruments (top of the pyramid) should be softer, and balance to the lower pitched instruments (bottom of the pyramid). According to Jagow (2012), this helps the musicians hear the bottom note of the chord and tune appropriately. James Kalyn (2014), on



the other hand suggests a different type of balance theory. He suggests using the percentage method of adjusting for the balance of his ensembles. Instead of telling his groups to listen to other sections, he might say something like, “I hear ninety percent saxophones and ten percent clarinets. Can you adjust so we hear thirty percent saxophones, and seventy percent clarinets” (p. 36)? According to Scott Rush et al. (2014), balance is an incredibly important concept to instill into middle school musicians.

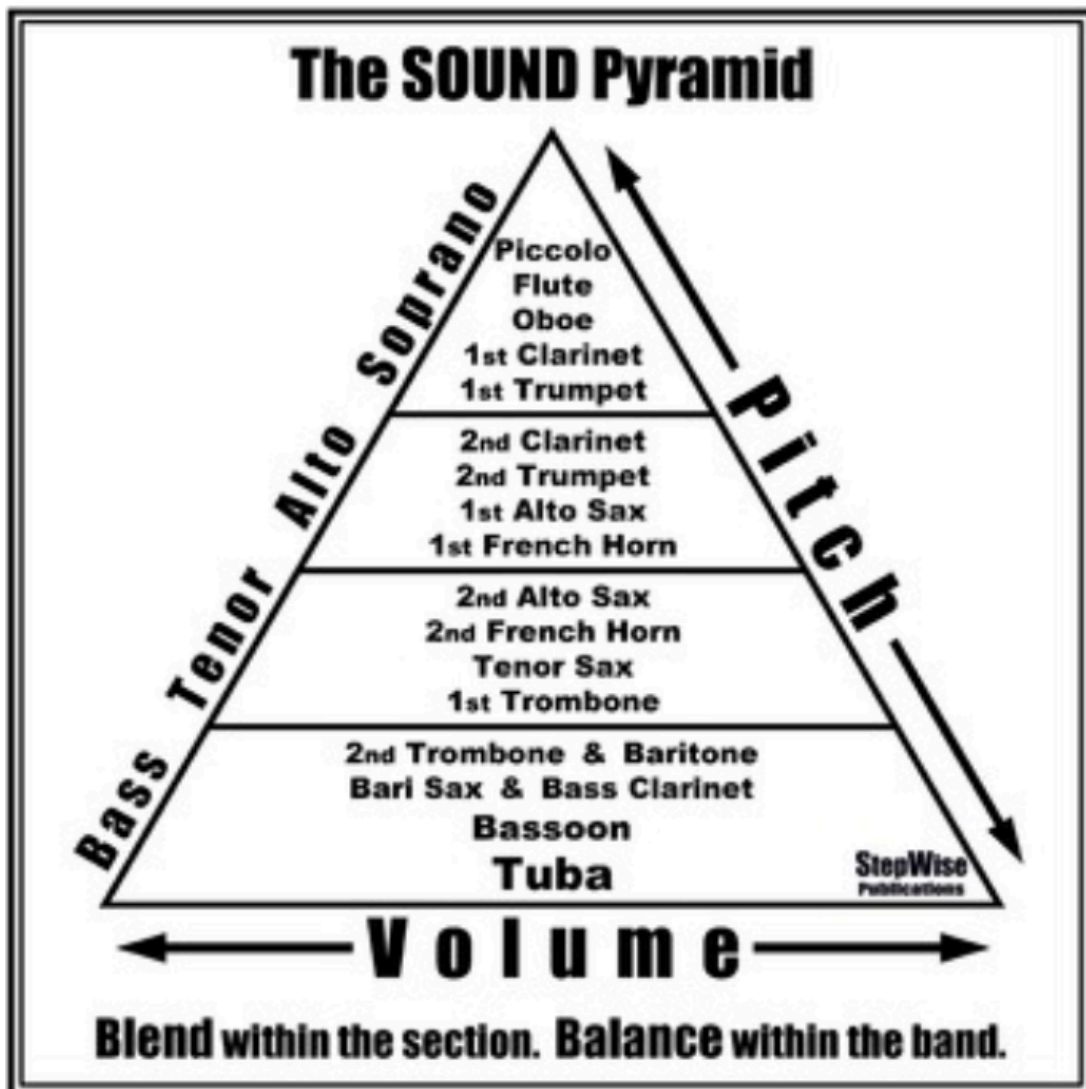


Figure 2. Balancing the band using Macbeth's Sound Pyramid, Retrieved from *Improving Intonation in Band and Orchestra Performance*, by R. Garofalo, 1996.

## Methodology

A good percentage of the research conducted was from articles written in scholarly journals. Some researchers conducted experiments to test their theories with a test group and a control group of musicians. One such researcher, Christian Bernhard III (2006), focused on the impact tonal training had on the ear and intonation of beginning and advanced instrumentalists, just to find there was no impact, while other supporters of tonal training, such as Aaron Wilson (2018), are firm believers of aural skills in rehearsal.

### Breathing Exercises

The *Breathing Gym* (2001) has become a popular resource of many band directors across the country (Alsop, 2013). There are three different types of exercises included in this method: (1) stretches; (2) flow studies; (3) and strength and flexibility. According to the authors of *The Breathing Gym*, Sam Pilafian and Patrick Sheridan, playing any type of wind instrument or singing uses more lung capacity than we normally use every day (2001). The exercises used in this method can be used individually, with or without instruments as a warm-up routine, as a focus on different aspects of fundamentals of playing or singing, and also, as focus exercises.

Beginning with the basics, performers must use the correct technique when breathing. When you breathe in, as Pilafian and Sheridan describe, “it should look like you are saying the word “woh” (2001). During the flow studies, students should breath in as much air as they can in the given amount of counts. They should think of filling up their gas tank to go as far as they can. On the exhale, students should empty their lungs in the given amount of counts. The flow study exercises are used to build correct technique and endurance. The strength and flexibility

exercises can be used to teach better technique and build stronger endurance. Breathing exercises will then be incorporated into the other exercises in this guide.

Figure 3 shows an example breathing exercise from the project. At a slow tempo (quarter note=60), progress through each exercise in the level, making sure proper breathing technique is being utilized. Learning to properly take a musical breath is one of the first steps in developing better tone and intonation (Jagow, 2012).

## Daily Breathing Routine, Level 1

The following exercises were developed by the great tubists Sam Pilafian and Patrick Sheridan, and are among those featured in their book/DVD set *The Breathing Gym*. The goal here is primarily to “stretch” the breathing apparatus in order to prepare it for the day’s playing. Therefore, some of the exercises require “overtraining” that is not exactly analogous to normal breathing.

1.
  - 4 counts in—4 counts out (2 times)
  - 3 counts in—4 counts out (2 times)
  - 2 counts in—4 counts out (2 times)
  - 1 count in—4 counts out (repeat as many times as possible)
2.
  - 4 counts in—4 counts out (2 times)
  - 4 counts in—3 counts out (2 times)
  - 4 counts in—2 counts out (2 times)
  - 4 counts in—1 count out (repeat as many times as possible)
3.
  - 4 counts in—4 counts out (2 times)
  - 3 counts in—3 counts out (2 times)
  - 2 counts in—2 counts out (2 times)
  - 1 count in—1 count out (repeat as many times as possible)

*Figure 3. Daily Breathing Routine. Adapted from Ole Miss Low Brass Studio, Dr. M. Everett, Retrieved from <https://olemiss.edu/lowbrass/studio/routines/breathing/breathinglevel1.pdf>*

### Singing and Ear Training Exercises

Singing and ear training helps improve ensemble intonation (Jagow, 2007, Garofalo, 1996, Colson, 2012). Incorporating singing and ear training exercises into any warm-up routine should be a standard practice in instrumental music. The singing and ear training exercises in

this guide are used with a moveable *do* and can be sung in any key. They can be intertwined to fit whatever skill needed at any given time.

Appendix A shows one of the singing and ear training exercises developed for this project. This exercise can be used as a vocal warm-up singing with solfege; an ear training exercise where the piano plays the tonic (bottom pitch), and the musicians either sing or play the given interval; or as an instrumental exercise using intervals. Using solfege paired with a piano at first, students should work through each exercise as a group starting with the simplest of intervals (*do-re; do-me; do-fa; do-sol*). The director should emphasize proper breathing technique as well as proper vocalizing of the syllables.

The next exercise requires the use of a “drone” pitch. The director should play the root of which ever key and students must sing different intervals only being given the root note. As students progress through that exercise, they start breaking apart from unison parts and start incorporating harmony with the use of the drone. Many experts in music education believe if a musician can hear and sing a pitch, the chance of them playing in tune is more likely than one who does not hear or sing the pitches.

### **Tone Development Exercises**

In order to achieve consistent results when developing intonation within the ensemble, individual instrumentalists must obtain a consistent and clear tone throughout the range of his or her instrument. To develop individual tone, the exercises included in this guide are both unison and customized to the particular instrument.

The first lesson on tone development is incorporating correct posture, breathing, embouchure, and air support to sustain long tones on the instrument. When playing long tones, the musician’s air stream must be constant and the pitch should not waver in and out of tune. It

is recommended to use a tuner or a drone when performing long tones on the instrument. Long tones do not just consist of sustaining a note for a long period of time. It is the pinnacle of all fundamental skills applied to one long note. Focus should be on five main parts: the breath; articulation (how a note is attacked); sustaining the air; tone; and release.

One of the exercises used in this guide is the Remington Flow Study, developed by Emory Remington. This exercise uses long tones descending in half steps and return to the starting pitch each series. The Remington exercise can be done starting on any note and can be either played or sung. The overall benefit of playing long tones is to develop the inner ear with different intervals as well as build endurance and stamina while playing an instrument (Colson, 2012; Linklater 1995; Ward, 2016; Wilson, 2018). Appendix B is an example of a Remington Flow Study that could be performed as an ensemble or individually.

Lip slurs and range extension exercises are two other methods included in this guide. While each exercise does not have to be applied to each lesson; combining a few exercises from each will help build better tone.

### **Individual Tuning Exercises**

In order to improve intonation within the ensemble, individual instruments must be in tune. After a proper warm-up routine, instruments must be individually tuned to the desired frequency (A=440 is the preferred frequency). Another important concept instrumentalists must grasp is that no instrument is created equal, and will have different tuning tendencies throughout the range of the instrument. Using a digital tuner or app is a good reference point for individual tuning of an instrument. Included in the guide for each instrument is a tuning tendency chart which should be completed to gain useful knowledge of the individual instrument (Appendix C). Instruments are made to be adjusted and, likewise, no instrumentalist will play the same as

another. It is important to know the tendencies of each note of the instrument so you can adjust accordingly (Appendix D).

### **Ensemble Tuning Exercises**

The main focus of tuning in this project will be based on of equal temperament. Equal temperament is a tuning system in which the frequency between adjacent notes is the same. Jagow (2012) explains equal tempered tuning as, “a system that evenly divides the 12 half step intervals in an octave. The system provides a basis for comprehending the measurement of a cent, which is equal to  $1/100^{\text{th}}$  of an equal-tempered semitone (pg. 7). It is important, when tuning notes and chords in an ensemble, to work slowly and methodically. Tuning is a process that continues throughout the rehearsal (Jagow, 2007). Some chord studies focus on unison first, while others start with open 5ths. Jagow explained that the band directors should tune the simplest and purest intervals first (roots and octaves; Perfect 5ths and 4ths), then move on to tune more complex intervals (Major and minor 3rds, Major and minor 7ths). The exercises chosen for this guide reflect multiple approaches to tuning including unison notes, open 5ths, and major and minor chords in the keys of Bb, Eb, F, C, and Ab and ending with ensemble chorales in each key. The reason for choosing these five keys was based on middle school band curriculum in the author’s school district.

The exercises presented in this project reflect the research provided in the literature review. By implementing all of these exercises into a weekly routine, younger students should have the skills needed to improve individual and group intonation. Each exercise is not meant to be used daily and should be used in conjunction with other exercises in the book.

### **Implementation**

Start slowly and work to incorporate as many of these skills weekly as possible to establish good routine and technique. A sample lesson might look like this:

**Sample 1-** Breathing exercise, Remington Exercise in Bb (sing and play), Drone Concert Bb (Bb scale in whole notes), Tune

**Sample 2-** Breathing exercise, Ear training (Drone Root and sing M 3<sup>rd</sup>), Long tones, Lip slurs and range extension, chord tuning (Major triad; start with bottom voices and work up)

**Sample 3-** Breathing exercise, Long tones (sing/play every other note), Tune using a drone (unison/octaves, M 3<sup>rd</sup>, M 5<sup>th</sup>, Major triad)

### **Conclusion**

When developing the exercises for this project, the researcher compared and contrasted several exercises from various programs and method books, then compiled and re-created exercises to fit the overall goal of this project. This guide's main focus was to make instrumentalists better musicians by developing skills at an early level and applying them to daily instruction or practice. This method is designed to be used year-round, and can be modified as the director sees fit. The keys represented in this project (Bb, Eb, Ab, F, C) are the major keys in which students learn throughout their beginning and intermediate stages of instrumental music in the author's school district.

Appendix A

**A** Ascending Intervals



Do Re Do Do Mi Do Do Fa Do Do So Do Do La Do Do Ti Do Do Do Do

This musical exercise is written on a single treble clef staff. It consists of seven measures, each containing a pair of notes. The first note of each pair is a quarter note, and the second is a half note. The notes ascend stepwise from Do to Ti, with the final measure containing two Do notes. The lyrics 'Do Re Do', 'Do Mi Do', 'Do Fa Do', 'Do So Do', 'Do La Do', 'Do Ti Do', and 'Do Do Do' are written below the notes.

**B** Descending Intervals



Do Ti Do Do La Do Do So Do Do Fa Do Do Mi Do Do Re Do Do Do Do

This musical exercise is written on a single treble clef staff. It consists of seven measures, each containing a pair of notes. The first note of each pair is a quarter note, and the second is a half note. The notes descend stepwise from Ti to Do, with the final measure containing two Do notes. The lyrics 'Do Ti Do', 'Do La Do', 'Do So Do', 'Do Fa Do', 'Do Mi Do', 'Do Re Do', and 'Do Do Do' are written below the notes.

**C** More Ascending Intervals



Do Re Do Do Mi Do Do Fa Do Do So Do La Do Ti Do Do Do

This musical exercise is written on a single treble clef staff. It consists of 17 measures, each containing a single note. The notes ascend stepwise from Do to Ti, with the final measure containing two Do notes. The lyrics 'Do', 'Re', 'Do', 'Do', 'Mi', 'Do', 'Do', 'Fa', 'Do', 'Do', 'So', 'Do', 'La', 'Do', 'Ti', 'Do', 'Do', and 'Do' are written below the notes.



Appendix B

Remington Exercise #3

The musical score for Remington Exercise #3 consists of ten staves. The first five staves are in treble clef, and the last five are in bass clef. The music is written in a key signature of one flat (B-flat) and a 2/4 time signature. The notation includes quarter notes, eighth notes, and rests, with some notes beamed together. The exercise is structured into ten measures, with a double bar line at the end of the second system.

Appendix C

Pitch Tendency Chart

Name \_\_\_\_\_ Instrument \_\_\_\_\_

Begin the process by making sure that you are in tune with the tuner. Then select a note in the middle register of the instrument, and proceed by alternating down a half step, up a half step, down a whole step, etc. Have a partner write in your tendencies. The instrument name indicates the lowest written pitch to be checked.

DATE		FLUTE		HORN		CLARINET		BASSOON		TRUMPET		SAXOPHONE		OBOE		TROMBONE / EUPHONIUM		TUBA					
	B	C	C <sup>♯</sup> D <sup>♭</sup>	D	D <sup>♯</sup> E <sup>♭</sup>	E	F	F <sup>♯</sup> G <sup>♭</sup>	G	G <sup>♯</sup> A <sup>♭</sup>	A	A <sup>♯</sup> B <sup>♭</sup>	B	C	C <sup>♯</sup> D <sup>♭</sup>	D	D <sup>♯</sup> E <sup>♭</sup>	E	F	F <sup>♯</sup> G <sup>♭</sup>	G	G <sup>♯</sup> A <sup>♭</sup>	

A	A <sup>♯</sup> B <sup>♭</sup>	B	C	C <sup>♯</sup> D <sup>♭</sup>	D	D <sup>♯</sup> E <sup>♭</sup>	E	F	F <sup>♯</sup> G <sup>♭</sup>	G	G <sup>♯</sup> A <sup>♭</sup>	A	A <sup>♯</sup> B <sup>♭</sup>	B	C	C <sup>♯</sup> D <sup>♭</sup>	D	D <sup>♯</sup> E <sup>♭</sup>	E	F	F <sup>♯</sup> G <sup>♭</sup>	G	

Very sharp	++
Sharp	+
In tune	•
Flat	—
Very flat	— —

List the logical bad notes. Provide a solution for fixing them. Include alternate fingering.					

## Appendix D

### Fingering and Intonation Charts

### Flute Key Chart

**LEFT Hand**

- Thumb: B<sup>b</sup>, B
- 1st finger
- 2nd finger
- 3rd finger
- 4th finger (pinkie): G<sup>#</sup>

**RIGHT Hand**

- 1st finger: A<sup>#</sup> Shake/B Lever
- 2nd finger: D Trill
- 3rd finger: D<sup>#</sup> Trill
- 4th finger (pinkie): E<sup>b</sup>, C<sup>#</sup>, C, B, Gizmo Key

- S** (yellow triangle up): indicates notes that are often *Sharp* in pitch.
- F** (black triangle down): indicates notes that are often *Flat* in pitch.
- VS** (yellow triangle up): indicates notes that are *VERY SHARP* in pitch.
- VF** (black triangle down): indicates notes that are *VERY FLAT* in pitch.
- Stable Tuning Note** (green box): indicates notes most stable for tuning in band.
- Green circle**: indicates suggested fingerings to *add*.
- Red circle**: indicates suggested fingerings to *subtract*.

**F = Flat    S = Sharp**

**NOTE:** Fingering chart does NOT include all alternate and trill fingerings. The chart attempts to identify the best fingering choices for use in lyrical & technical passages and only when alternate fingerings must be used to correct resonance and/or pitch.

**CAUTION**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to *voice / place / lip* every note in tune. Use alternate fingerings only when necessary!

**Stable Tuning Notes with Band:** Concert B<sup>b</sup>, F, A

**Best Tuning Notes for Flute Alone:** A, D

\*First check that cork of headjoint is in aligned distance to the center of the embouchure tone hole. Then tune the headjoint draw-length by playing these two octave Ds (fingering D creates a closed tube to which the flute has been acoustically designed.)

Tune instrument with headjoint by pulling out if sharp or pushing in if flat. Headjoint cork should be 17 -17.3 mm from center of embouchure hole. Use notch in cleaning rod to check distance. Headjoint should not be pulled out any further than 1/4" (A442 pitched flutes can be pulled out as far as 5/8")

Typically flat in low register, therefore humor pitch up by directing air-stream up and/or rolling out slightly.

**First Octave**

- B: VF
- C: VF
- C<sup>#</sup> D<sup>b</sup>: VF
- D: F
- D<sup>#</sup> E<sup>b</sup>: F
- E: F
- F: F

\* flute with low B key

The original purchaser of this book has permission to reproduce this Fingering Chart in unlimited quantities for educational use in one school only. Any other use is strictly prohibited. Copyright ©2012 by MEREDITH MUSIC PUBLICATIONS. International Copyright Secured. All Rights Reserved.

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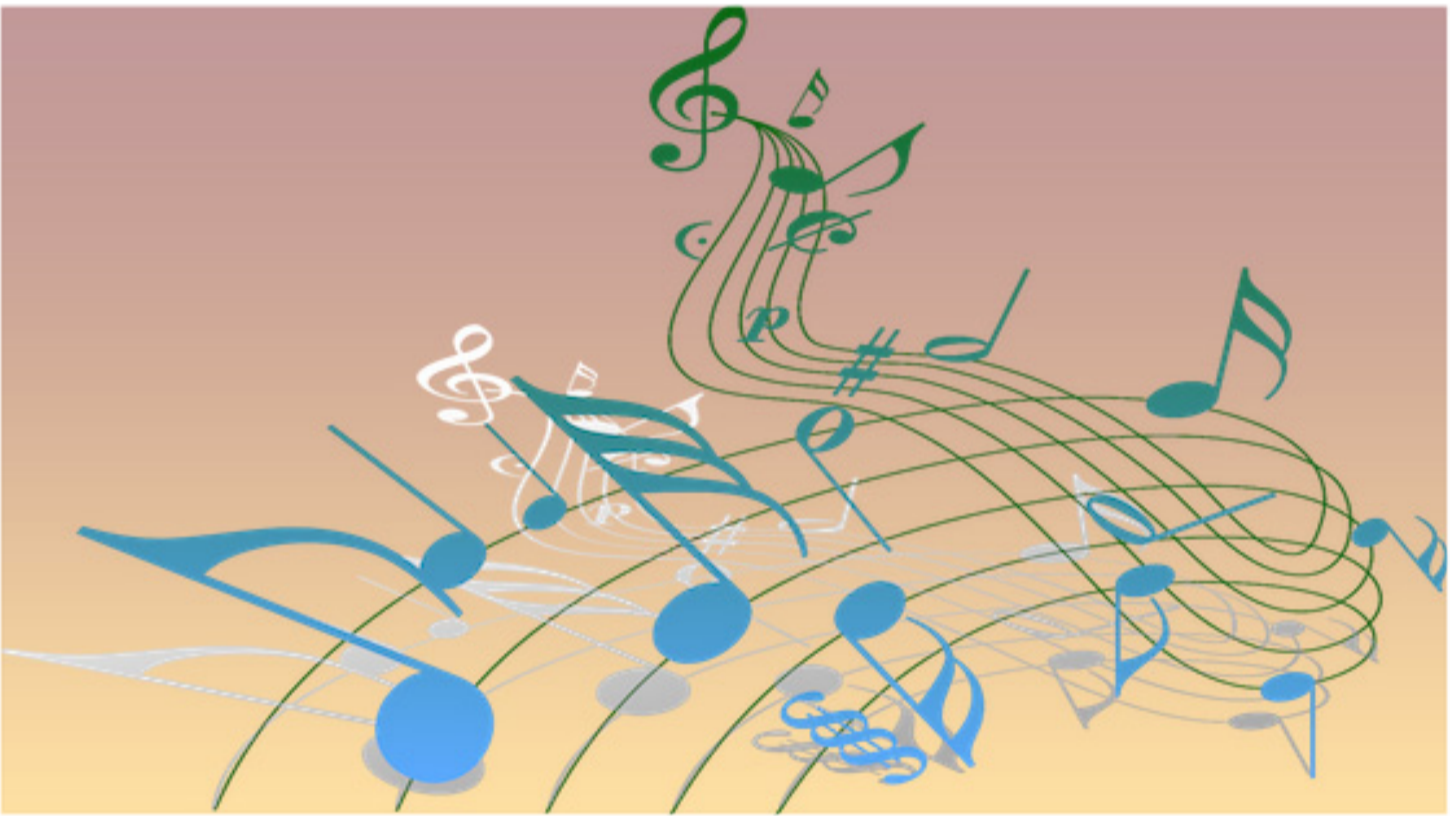
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# Intonation Exercises



**CONDUCTOR  
SCORE**



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## Tips for Using this Book

In order to achieve better intonation on an instrument, the musician must practice fundamentals daily. The fundamentals outlined below are instrumental in achieving the highest quality of musicianship.

### I. TONE

#### A. Embouchure

##### 1. Flutes

- a) Tight corners
- b) Flat chin
- c) Loose lips
- d) Small aperture

##### 2. Single reeds

- a) Tight corners
- b) Flat chin
- c) Lips tight against teeth
- d) Lower lip slightly over lower teeth
- e) Upper teeth on the mouthpiece

##### 3. Brass

- a) Tight corners
- b) Flat chin
- c) Lips relaxed enough to vibrate

#### B. Breath Support

##### 1. Posture

- a) Sit as if standing from the waist up
- b) Sit on the edge of the chair
- c) Both feet on the floor
  - (1) Trumpets in a concert band should be held with their bells in the stand.
  - (2) Trombones should always be held with their bells above the stand.
  - (3) Flutes should be held parallel to the floor.
  - (4) Clarinets should be held at a 45 degree angle.

##### 2. Abdominal Breathing

- a) Tighten abdominal wall pushing out and down
- b) Produce fast-moving, compressed air

##### 3. Well maintained quality instrument

##### a) Brass

- (1) All slides and valves working properly
- (2) Proper lubricants, i.e., valve oil, slide cream, slide grease, etc.
- (3) At least one lukewarm bath per quarter

##### b) Woodwinds

- (1) Four good reeds. (Oboes and bassoons at least two)
- (2) Proper cleaning equipment, i.e., swab, soft cloth, etc.
- (3) All pads and springs working properly

##### c) Percussion

- (1) At least one pair of drum sticks permanently marked with your name
- (2) A practice pad or drum to practice on at home.

### II. INTONATION

#### A. Three steps to good intonation

1. Hold a steady pitch
2. Recognize the Beats
3. Eliminate the Beats

#### B. Slogan: "Sound Like One"

#### C. Key: "Listen, Listen, Listen"

### III. TECHNIQUE

#### A. Precision: "Attack, Sustain, Release"

#### B. Articulation

1. Tonguing and Slurring
2. Staccato, Legato, Marcato

#### C. Correct Notes

1. Chromatic Scale
2. Major and Minor Scales

## IV. BALANCE

### A. General Balance (refer to Francis MacBeth's Sound Pyramid below)

1. In a well-balanced band the low instruments should be played the strongest; the middle instruments should be second strongest; and the high instruments should be the softest.
2. In a well-balanced clarinet or trumpet section the third part should be played the strongest; the second part the second strongest; and the first part should be played the softest.
3. Members of a good-sounding section listen carefully to each and match tone quality, pitch, and dynamics.

### B. Tuning and Balancing Chords

1. To balance a **Triad**, play the 1st note (tonic or root) the strongest; the 3rd the second strongest, and the 5th the softest.
2. To balance a **7th chord**, play the 1st note (tonic or root) the strongest; the 3rd the second strongest, and the 5th the third strongest, and the 7th the softest.



## Breathing Exercises

Use these exercises paired with *The Breathing Gym DVD* (if available)

Pick one Daily Breathing Routine Level to use as a warm-up daily

### Daily Breathing Routine, Level 1

The following exercises were developed by the great tubists Sam Pilafian and Patrick Sheridan, and are among those featured in their book/DVD set *The Breathing Gym*. The goal here is primarily to “stretch” the breathing apparatus in order to prepare it for the day’s playing. Therefore, some of the exercises require “overtraining” that is not exactly analogous to normal breathing.

1.  
4 counts in—4 counts out (2 times)  
3 counts in—4 counts out (2 times)  
2 counts in—4 counts out (2 times)  
1 count in—4 counts out (repeat as many times as possible)
2.  
4 counts in—4 counts out (2 times)  
4 counts in—3 counts out (2 times)  
4 counts in—2 counts out (2 times)  
4 counts in—1 count out (repeat as many times as possible)
3.  
4 counts in—4 counts out (2 times)  
3 counts in—3 counts out (2 times)  
2 counts in—2 counts out (2 times)  
1 count in—1 count out (repeat as many times as possible)

### Daily Breathing Routine, Level 2

The following exercises were developed by the great tubists Sam Pilafian and Patrick Sheridan, and are among those featured in their book/DVD set *The Breathing Gym*. The goal here is primarily to “stretch” the breathing apparatus in order to prepare it for the day’s playing. Therefore, some of the exercises require “overtraining” that is not exactly analogous to normal breathing.

1.  
4 counts in—4 counts out (2 times)  
3 counts in—4 counts out (2 times)  
2 counts in—4 counts out (2 times)  
1 count in—4 counts out (repeat as many times as possible)
2.  
4 counts in—4 counts out (2 times)  
4 counts in—3 counts out (2 times)  
4 counts in—2 counts out (2 times)  
4 counts in—1 count out (repeat as many times as possible)
3.  
4 counts in—4 counts out (2 times)  
3 counts in—3 counts out (2 times)  
2 counts in—2 counts out (2 times)  
1 count in—1 count out (repeat as many times as possible)
4.  
Inhale for four counts, blow (push!) everything out in 1 count, and then push out 2 extra breaths.

# Singing and Ear Training Exercises

*Sing or play using any key signature*

*Can be used as both a singing, playing, or ear training*

*To use as an ear training tool, use a drone to play the root*

## A Ascending Intervals

Do Re Do Do Mi Do Do Fa Do Do So Do Do La Do Do Ti Do Do Do Do

## B Descending Intervals

Do Ti Do Do La Do Do So Do Do Fa Do Do Mi Do Do Re Do Do Do Do

## C More Ascending Intervals

Do Re Do Do Mi Do Do Fa Do Do So Do La Do Ti Do Do Do

## D Scale

Do Re Mi Fa So La Ti Do Ti La So Fa Mi Re Do

## E Scale in a Round

Do Re Mi Fa So La Ti Do Ti La So Fa Mi Re Do

1 2 3

# Remington Interval Exercises

## Remington Exercise #1

Musical score for Remington Exercise #1, featuring 12 instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Horn in F, Trumpet in Bb, Low Brass, Trombone, Euphonium, and Tuba. The score is in 4/4 time and consists of 14 measures of music.



## Remington Exercise #2

Musical score for Remington Exercise #2, featuring 12 instruments: Flute, Clarinet, Bass Clarinet, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Horn, Trumpet, Low Brass, Trombone, Euphonium, and Tuba. The score is in 4/4 time and consists of 14 measures of music.

Remington Exercise #3

The image displays a musical score for "Remington Exercise #3" for a 12-piece band. The score is organized into 12 measures across 12 staves. The instruments are listed on the left side of the page: Flute (Fl.), Clarinet (Cl.), Bass Clarinet (B. Cl.), Alto Saxophone (Alto Sax.), Tenor Saxophone (Ten. Sax.), Baritone Saxophone (Bari. Sax.), Horn (Hn.), Trumpet (Tpt.), Low Brass, Trombone (Tbn.), Euphonium (Euph.), and Tuba (Tba.). The notation includes various note values, rests, and accidentals (sharps and flats) across the measures. The key signature appears to be one flat (B-flat major or D minor), and the time signature is not explicitly shown but is implied to be common time (C) based on the note values. The score concludes with a double bar line at the end of the 12th measure.

# Tone and Interval Studies

## Concert Bb

Breathe and Sustain  
(Play, Buzz, Sing, etc)

Flute  
Clarinet in Bb  
Bass Clarinet in Bb  
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in Bb  
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Clarinet in Bb: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Bass Clarinet in Bb: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Alto Saxophone: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Tenor Saxophone: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Baritone Saxophone: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Trumpet in Bb: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Horn in F: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Trombone: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Euphonium: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Tuba: *take in air* (measures 1-4), *take in air* (measures 5-8), *Play* (measures 9-10), *Sing* (measures 11-12)

Flute  
Clarinet in Bb  
Bass Clarinet in Bb  
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in Bb  
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Clarinet in Bb: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Bass Clarinet in Bb: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Alto Saxophone: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Tenor Saxophone: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Baritone Saxophone: *Play* (measures 1-4), *Sing* (measures 5-8), *Play* (measures 9-12)

Trumpet in Bb: *Sing* (measures 1-4), *Play* (measures 5-8), *Sing* (measures 9-12)

Horn in F: *Sing* (measures 1-4), *Play* (measures 5-8), *Sing* (measures 9-12)

Trombone: *Sing* (measures 1-4), *Play* (measures 5-8), *Sing* (measures 9-12)

Euphonium: *Sing* (measures 1-4), *Play* (measures 5-8), *Sing* (measures 9-12)

Tuba: *Sing* (measures 1-4), *Play* (measures 5-8), *Sing* (measures 9-12)



Long Tone #1

Long Tone #2

Musical score for Long Tone #1 and Long Tone #2. The score is for a full band, including Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music is in 4/4 time and features a key signature of one flat (Bb). The score is divided into two sections: Long Tone #1 and Long Tone #2. Long Tone #1 consists of 12 measures, with the first 6 measures in 4/4 time and the last 6 measures in 3/4 time. Long Tone #2 consists of 6 measures in 4/4 time. The Flute part includes the instruction "Breathe in" at the beginning of each section. The saxophones and brass instruments play sustained notes with various articulations and dynamics.



Flexibility

Musical score for Flexibility. The score is for a full band, including Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music is in 4/4 time and features a key signature of one flat (Bb). The score is divided into two sections: the first 8 measures and the last 8 measures. The Flute part includes the instruction "Breathe in" at the beginning of each section. The saxophones and brass instruments play sustained notes with various articulations and dynamics, including slurs and accents.

Interval Study on a Scale

Musical score for 'Interval Study on a Scale' in 4/4 time, featuring ten instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The score consists of ten measures of music, with each instrument playing a half-note interval that ascends stepwise from the first measure to the tenth. The key signature is Bb major (two flats).

Interval Study in 5ths

Musical score for 'Interval Study in 5ths' in 4/4 time, featuring ten instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The score consists of ten measures of music, with each instrument playing a half-note interval that ascends by a fifth from the first measure to the tenth. The key signature is Bb major (two flats).

Interval Study in 3rds

Musical score for Interval Study in 3rds, featuring 12 instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The score is in 4/4 time and Bb major. Each instrument part consists of a sequence of notes forming a third interval, starting from a common pitch and moving up or down by a third. The Flute part starts on G4 and moves up by a third. The Clarinet in Bb, Bass Clarinet in Bb, and Trombone parts start on G3 and move up by a third. The Alto Saxophone, Tenor Saxophone, and Baritone Saxophone parts start on G4 and move down by a third. The Trumpet in Bb, Horn in F, Euphonium, and Tuba parts start on G3 and move down by a third. The score is divided into six measures, with the final measure containing a double bar line.

Tuning Unison Notes

Musical score for Tuning Unison Notes, featuring the same 12 instruments as the first score. The score is in 4/4 time and Bb major. Each instrument part consists of a sequence of notes forming a unison interval, starting from a common pitch and moving up or down by a unison. The Flute part starts on G4 and moves up by a unison. The Clarinet in Bb, Bass Clarinet in Bb, and Trombone parts start on G3 and move up by a unison. The Alto Saxophone, Tenor Saxophone, and Baritone Saxophone parts start on G4 and move down by a unison. The Trumpet in Bb, Horn in F, Euphonium, and Tuba parts start on G3 and move down by a unison. The score is divided into six measures, with the final measure containing a double bar line. A large double bar line is present on the left side of the page, between the two scores.

Intervals on a Scale

Musical score for 'Intervals on a Scale'. The score is written for a large ensemble of instruments. The instruments listed on the left are: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music is in a key signature of one flat (Bb) and a common time signature. The score consists of ten measures. Each measure contains a series of notes, often beamed together, representing intervals on a scale. The notes are distributed across the staves of the instruments, with some instruments playing multiple notes in a single measure. The notation includes stems, beams, and note heads, with some notes having accidentals.

Tuning the 5th

*breath in*

Musical score for 'Tuning the 5th'. The score is written for the same ensemble of instruments as the first section. The music is in a key signature of one flat (Bb) and a common time signature. The score consists of ten measures. The first four measures show the instruments playing a series of notes, often beamed together, representing the tuning of the fifth. The notes are distributed across the staves of the instruments. The notation includes stems, beams, and note heads, with some notes having accidentals. The fifth measure is marked with 'x' symbols, indicating a breath in. The sixth measure is marked with a 'breath in' instruction. The seventh and eighth measures show the instruments playing a series of notes, often beamed together, representing the tuning of the fifth. The notation includes stems, beams, and note heads, with some notes having accidentals. The ninth and tenth measures show the instruments playing a series of notes, often beamed together, representing the tuning of the fifth. The notation includes stems, beams, and note heads, with some notes having accidentals.

Tuning the 3rd

*breath in*

This system of musical notation includes staves for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The woodwind parts (Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone) feature melodic lines with slurs and ties. The brass parts (Trumpet in Bb, Horn in F, Trombone, Euphonium, Tuba) play sustained notes with slurs. The woodwinds have 'x' marks above their staves in the second and third measures, indicating breath marks. The key signature has one flat (Bb) and the time signature is common time (C).

Bb Major Chord

This system of musical notation includes staves for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. All instruments play sustained notes, primarily in the Bb Major chord. The woodwinds (Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone) and brass (Trumpet in Bb, Horn in F, Trombone, Euphonium, Tuba) parts are shown with slurs and ties. The key signature has one flat (Bb) and the time signature is common time (C).

Tuning Progression in Bb

The musical score is arranged in ten staves, each representing a different instrument. The instruments are: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The score is titled "Tuning Progression in Bb" and consists of ten measures. The notes in each measure correspond to the following chords: Bb, Eb, Bb, F, Bb, Bb, Eb, Cm7, F7, and Bb. The Flute part is in the treble clef with a key signature of one flat. The other instruments are in their respective clefs (treble or bass) with their own key signatures. The notes are mostly whole notes, with some half notes in the later measures.

# Chorales in Concert Bb

## Chorale #1

I - IV - V - I  
(1 - 4 - 5 - 1)  
A simple chord  
progression

2 3 4 5

## Chorale #2

Canon in D  
by  
Johann Pachelbel  
(ca. 1680)

1 2 3

## Chorale #3

Circle of Fifths  
Chorale  
A common  
sequence

1 2 3 4

Chorale #4

Old Hundredth  
by  
Loys Bourgeois  
  
(1551)

Musical score for Soprano (S), Alto (A), Tenor (T), and Bass (B) voices, measures 1-5. The score is in 4/4 time and B-flat major. The Soprano part starts with a half note G4, followed by quarter notes A4, B4, and C5. The Alto part starts with a quarter note G4, followed by quarter notes A4, B4, and C5. The Tenor part starts with a half note G3, followed by quarter notes A3, B3, and C4. The Bass part starts with a half note G2, followed by quarter notes A2, B2, and C3. Measures 1 and 2 are marked with '1' and '2' above the Soprano staff. Measures 3, 4, and 5 are marked with '3', '4', and '5' above the Soprano staff. The Soprano part has a fermata over the final note in measure 3. The Alto part has a fermata over the final note in measure 3. The Tenor part has a fermata over the final note in measure 3. The Bass part has a fermata over the final note in measure 3.

Musical score for Soprano (S), Alto (A), Tenor (T), and Bass (B) voices, measures 6-12. The score is in 4/4 time and B-flat major. The Soprano part starts with a half note G4, followed by quarter notes A4, B4, and C5. The Alto part starts with a quarter note G4, followed by quarter notes A4, B4, and C5. The Tenor part starts with a half note G3, followed by quarter notes A3, B3, and C4. The Bass part starts with a half note G2, followed by quarter notes A2, B2, and C3. Measures 6 and 7 are marked with '6' and '7' above the Soprano staff. Measures 8, 9, 10, 11, and 12 are marked with '8', '9', '10', '11', and '12' above the Soprano staff. The Soprano part has a fermata over the final note in measure 6. The Alto part has a fermata over the final note in measure 9. The Tenor part has a fermata over the final note in measure 9. The Bass part has a fermata over the final note in measure 9.



# Concert Eb

Breathe and Sustain  
(Play, Buzz, Sing, etc)

Flute  
Clarinet in B $\flat$   
Bass Clarinet in B $\flat$   
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in B $\flat$   
Horn in F  
Trombone  
Euphonium  
Tuba



Flute  
Clarinet in B $\flat$   
Bass Clarinet in B $\flat$   
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in B $\flat$   
Horn in F  
Trombone  
Euphonium  
Tuba

Long Tone #1

Long Tone #2

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba



Flexibility

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

Interval Study on a Scale

Musical score for 'Interval Study on a Scale' in 4/4 time, key of B-flat major. The score is for a full band and includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody is a simple scale starting on G4 and ascending to G5. The woodwinds and brass play a rhythmic accompaniment of quarter notes. The flute part has a dynamic marking of *p* (piano).

Interval Study in 5ths

Musical score for 'Interval Study in 5ths' in 4/4 time, key of B-flat major. The score is for a full band and includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody consists of a series of fifth intervals starting on G4 and ascending to G5. The woodwinds and brass play a rhythmic accompaniment of quarter notes. The flute part has a dynamic marking of *p* (piano).

Interval Study in 3rds

Musical score for Interval Study in 3rds. The score is in 4/4 time and B-flat major. It features six systems of staves for various instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. Each instrument part consists of a sequence of notes forming a series of thirds, starting from a central pitch and moving up and down in steps. The notes are: C4, D4, E4, F4, G4, A4, Bb4, C5, D5, E5, F5, G5, A5, Bb5, C6. The score concludes with a double bar line and repeat dots.

Tuning Unison Notes

Musical score for Tuning Unison Notes. The score is in 4/4 time and B-flat major. It features six systems of staves for various instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. Each instrument part consists of a sequence of notes forming a series of thirds, starting from a central pitch and moving up and down in steps. The notes are: C4, D4, E4, F4, G4, A4, Bb4, C5, D5, E5, F5, G5, A5, Bb5, C6. The score concludes with a double bar line and repeat dots.

Intervals with a Drone

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

Tuning the 5th

*breath in*

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

Tuning the 3rd *breath in*

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

E $\flat$  Major Chord

Flute

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

Tuning Chorale in Eb

E♭      A♭      E♭      B♭      E♭      E♭      A♭      Fm<sup>7</sup>      B♭<sup>7</sup>      E♭

The image displays a musical score for a tuning chorale in E-flat major. The score is organized into two systems of staves. The first system includes the Flute, Clarinet in B♭, Bass Clarinet in B♭, Alto Saxophone, Tenor Saxophone, and Baritone Saxophone. The second system includes the Trumpet in B♭, Horn in F, Trombone, Euphonium, and Tuba. Above the first staff, the notes E♭, A♭, E♭, B♭, E♭, E♭, A♭, Fm<sup>7</sup>, B♭<sup>7</sup>, and E♭ are indicated. The music is written in 4/4 time with a key signature of two flats (B♭ and E♭). The notation consists of whole notes and half notes across ten measures. The Flute part starts with a whole note E♭, followed by a whole note A♭, and then a series of half notes: E♭, B♭, E♭, E♭, A♭, Fm<sup>7</sup>, B♭<sup>7</sup>, and E♭. The other instruments follow similar patterns, often with octave markings (double lines) to indicate register changes.

# Chorales in Concert Eb

## Chorale #1

1 2 3

S

A

T

B

Suspensions  
(Preparation  
Suspension  
Resolution)

## Chorale #2

1 2 3 4

S

A

T

B

Music for  
Queen Mary  
by  
Henry Purcell  
(1694)

5 6 7 8 9 10

S

A

T

B



Chorale #3

Chorale from Jupiter  
by  
Gustav Holst  
(1916)

Musical score for Soprano (S), Alto (A), Tenor (T), and Bass (B) parts, measures 1-6. The score is in 3/4 time with a key signature of two flats (B-flat and E-flat). The Soprano part features a melodic line with eighth and quarter notes. The Alto part consists of quarter notes with rests. The Tenor and Bass parts provide harmonic support with quarter notes and rests.

Musical score for Soprano (S), Alto (A), Tenor (T), and Bass (B) parts, measures 7-15. The Soprano part continues its melodic line. The Alto part has a more active role with eighth notes. The Tenor and Bass parts continue their harmonic accompaniment.

Musical score for Soprano (S), Alto (A), Tenor (T), and Bass (B) parts, measures 16-24. The Soprano part concludes with a final melodic phrase. The Alto part has a more active role with eighth notes. The Tenor and Bass parts continue their harmonic accompaniment.

Chorale #4

Chester  
by  
William Billings  
(1778)

1 2 3 4 5

6 7 8 9 10 11

12 13 14 15 16

# Chorale #5

Ave Verum  
Corpus  
by  
W. A. Mozart  
(1791)

1 2 3 4

5 6 7 8 9 10

11 12 13 14 15 16

# Concert F

Long Tone #1

Long Tone #2

Flute  
*Breathe in*

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba



Flexibility

Flute  
*Breathe in*

Clarinet in B $\flat$

Bass Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B $\flat$

Horn in F

Trombone

Euphonium

Tuba

Breathe and Sustain  
(Play, Buzz, Sing, etc)

Flute  
Clarinet in B $\flat$   
Bass Clarinet in B $\flat$   
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in B $\flat$   
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *take in air*, *Play*, *Sing*, *Play*

The first system of the score shows the initial entries for the woodwinds and brass. The Flute part begins with a 'take in air' instruction and a series of 'x' marks. The woodwinds (Clarinet, Bass Clarinet, Alto, Tenor, and Baritone Saxophones) and brass (Trumpet, Horn, Trombone, Euphonium, and Tuba) parts follow with sustained notes and some initial rhythmic patterns. The Flute part has specific performance instructions: 'take in air' at the beginning, and 'Play', 'Sing', and 'Play' at the end of the system.

Flute  
Clarinet in B $\flat$   
Bass Clarinet in B $\flat$   
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in B $\flat$   
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*

The second system continues the musical piece. The Flute part alternates between 'Sing' and 'Play' instructions. The woodwinds and brass parts continue with their respective parts, also alternating between 'Sing' and 'Play' instructions. The Flute part has specific performance instructions: 'Sing', 'Play', 'Sing', 'Play', 'Sing', 'Play', 'Sing', 'Play', and 'Sing'.

Interval Study on a Scale

Musical score for 'Interval Study on a Scale' in 4/4 time. The score is for a full band and includes the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The music consists of a series of eighth notes ascending and then descending across ten measures, with a final measure containing a whole note. The Flute part starts on G4 and ends on G4. The Clarinet in Bb part starts on C4 and ends on C4. The Bass Clarinet in Bb part starts on B3 and ends on B3. The Alto Saxophone part starts on D4 and ends on D4. The Tenor Saxophone part starts on E4 and ends on E4. The Baritone Saxophone part starts on F4 and ends on F4. The Trumpet in Bb part starts on G4 and ends on G4. The Horn in F part starts on A3 and ends on A3. The Trombone part starts on B2 and ends on B2. The Euphonium part starts on C3 and ends on C3. The Tuba part starts on D2 and ends on D2.

Interval Study in 5ths

Musical score for 'Interval Study in 5ths' in 4/4 time. The score is for a full band and includes the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The music consists of a series of whole notes ascending and then descending across ten measures, with a final measure containing a whole note. The Flute part starts on G4 and ends on G4. The Clarinet in Bb part starts on C4 and ends on C4. The Bass Clarinet in Bb part starts on B3 and ends on B3. The Alto Saxophone part starts on D4 and ends on D4. The Tenor Saxophone part starts on E4 and ends on E4. The Baritone Saxophone part starts on F4 and ends on F4. The Trumpet in Bb part starts on G4 and ends on G4. The Horn in F part starts on A3 and ends on A3. The Trombone part starts on B2 and ends on B2. The Euphonium part starts on C3 and ends on C3. The Tuba part starts on D2 and ends on D2.

Interval Study in 3rds

Musical score for Interval Study in 3rds, 4/4 time signature. The score is for a full band including Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The flute part features a melodic line with ascending and descending thirds. The woodwinds and brass parts provide harmonic support with sustained notes.

Tuning Unison Notes

Musical score for Tuning Unison Notes, 4/4 time signature. This section is designed for tuning purposes, featuring unison notes for all instruments. The flute has a whole note, while other instruments have half notes. The notes are: Flute (G4), Clarinet in Bb (F4), Bass Clarinet in Bb (F4), Alto Saxophone (G4), Tenor Saxophone (G4), Baritone Saxophone (G4), Trumpet in Bb (F4), Horn in F (F4), Trombone (F3), Euphonium (F3), and Tuba (F2).

Intervals with a Drone

Flute

Clarinet in Bb

Bass Clarinet in Bb

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in Bb

Horn in F

Trombone

Euphonium

Tuba

Tuning the 5th

*breath in*

Flute

Clarinet in Bb

Bass Clarinet in Bb

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in Bb

Horn in F

Trombone

Euphonium

Tuba



Tuning the 3rd

*breath in*

This system of musical notation includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The woodwind parts (Flute, Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone) play a melodic line of quarter notes. The brass parts (Trumpet in Bb, Horn in F, Trombone, Euphonium, Tuba) play a harmonic line of quarter notes. The Clarinet in Bb and Bass Clarinet in Bb parts include a 'Tuning the 3rd' instruction. The Trumpet in Bb part includes a 'breath in' instruction. The score is written in 4/4 time and features various articulations and dynamics.

F Major Chord

This system of musical notation includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The woodwind parts (Flute, Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone) play a melodic line of quarter notes. The brass parts (Trumpet in Bb, Horn in F, Trombone, Euphonium, Tuba) play a harmonic line of quarter notes. The Clarinet in Bb and Bass Clarinet in Bb parts include an 'F Major Chord' instruction. The score is written in 4/4 time and features various articulations and dynamics.

Tuning Chorale in F

F Bb F C F F Bb Gm7 C7 F

The image shows a musical score for a 'Tuning Chorale in F'. The score is arranged in two systems of staves. The first system includes Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, and Baritone Saxophone. The second system includes Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. Above the first staff, a key signature of one flat (F major) is indicated. Below the first staff, a series of chords are listed: F, Bb, F, C, F, F, Bb, Gm7, C7, F. The music consists of whole notes for each instrument, with some instruments playing octaves. The Flute part is in the treble clef, while the other instruments are in their respective clefs (treble for Clarinet, Alto, Tenor, and Trumpet; bass for Bass Clarinet, Baritone, Trombone, Euphonium, and Tuba).

# Chorales in Concert F

## Chorale #1

Tallis Canon  
by  
Thomas Tallis  
  
(ca. 1560)

The image displays a musical score for the chorale 'Tallis Canon' by Thomas Tallis, approximately 1560. The score is written for four voices: Soprano (S), Alto (A), Tenor (T), and Bass (B). The key signature is one flat (B-flat) and the time signature is 4/4. The score is divided into two systems, each containing four staves. The first system covers measures 1 through 3, and the second system covers measures 4 through 8. Each measure is numbered above the Soprano staff. The music features a simple, rhythmic melody with a steady pulse, characteristic of Tallis's style. The Soprano and Alto parts are in the treble clef, while the Tenor and Bass parts are in the bass clef. The piece concludes with a double bar line at the end of measure 8.

# Chorale #2

God Rest Ye  
Merry Gentlemen  
(Traditional)

(First published  
in 1833)

The musical score is arranged in four systems, each containing four staves for Soprano (S), Alto (A), Tenor (T), and Bass (B). The key signature is one flat (B-flat) and the time signature is 4/4. The score is numbered 1 through 19 across the systems. The first system covers measures 1-4, the second system covers measures 5-11, the third system covers measures 12-19, and the fourth system covers measures 20-26. The Soprano part begins with a treble clef and a B-flat key signature. The Alto part begins with a treble clef and a B-flat key signature. The Tenor and Bass parts begin with a bass clef and a B-flat key signature. The music is a traditional chorale with a simple, homophonic texture.

Chorale #3

In the Bleak  
Midwinter

Gustav Holst's  
setting  
(1906)

1 2 3 4

S

A

T

B

5 6 7 8 9 10

S

A

T

B

11 12 13 14 15 16

S

A

T

B

Chorale #4

Ode to Joy  
by Ludwig  
Van Beethoven  
  
(1824)

1 2 3 4 5

S  
A  
T  
B

6 7 8 9 10 11

S  
A  
T  
B

12 13 14 15 16

S  
A  
T  
B

# Concert C

(Play, Buzz, Sing, etc)

Flute  
Clarinet in Bb  
Bass Clarinet in Bb  
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in Bb  
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *take in air*  
Flute: *Play*, *Sing*, *Play*  
Clarinet in Bb: *Play*, *Sing*, *Play*  
Bass Clarinet in Bb: *Play*, *Sing*, *Play*  
Alto Saxophone: *Play*, *Sing*, *Play*  
Tenor Saxophone: *Play*, *Sing*, *Play*  
Baritone Saxophone: *Play*, *Sing*, *Play*  
Trumpet in Bb: *Play*, *Sing*, *Play*  
Horn in F: *Play*, *Sing*, *Play*  
Trombone: *Play*, *Sing*, *Play*  
Euphonium: *Play*, *Sing*, *Play*  
Tuba: *Play*, *Sing*, *Play*



Flute  
Clarinet in Bb  
Bass Clarinet in Bb  
Alto Saxophone  
Tenor Saxophone  
Baritone Saxophone  
Trumpet in Bb  
Horn in F  
Trombone  
Euphonium  
Tuba

Flute: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Clarinet in Bb: *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Bass Clarinet in Bb: *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Alto Saxophone: *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Tenor Saxophone: *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Baritone Saxophone: *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*  
Trumpet in Bb: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*  
Horn in F: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*  
Trombone: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*  
Euphonium: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*  
Tuba: *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*, *Sing*, *Play*

Long Tone #1

Long Tone #2

Musical score for Long Tone #1 and Long Tone #2. The score is for a full band, including Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The score is divided into two sections: Long Tone #1 and Long Tone #2. The first section consists of 12 measures, and the second section consists of 6 measures. The Flute part includes the instruction "Breathe in" at the beginning of each section. The saxophone and brass parts play sustained notes with various articulations and dynamics.



Flexibility

Musical score for Flexibility. The score is for a full band, including Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The score is divided into two sections: the first section consists of 12 measures, and the second section consists of 12 measures. The Flute part includes the instruction "Breathe in" at the beginning of the first section. The saxophone and brass parts play sustained notes with various articulations and dynamics, including slurs and accents.



Interval Study on a Scale

Musical score for 'Interval Study on a Scale' in 4/4 time, key of D major. The score is arranged for a full band with the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody is a simple scale starting on D4 and moving up stepwise to D5. The woodwinds and brass play the melody in octaves, while the tuba provides a bass line of whole notes.

Interval Study in 5ths

Musical score for 'Interval Study in 5ths' in 4/4 time, key of D major. The score is arranged for a full band with the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody consists of a series of intervals of a fifth, starting on D4 and moving up to D5. The woodwinds and brass play the intervals in octaves, while the tuba provides a bass line of whole notes.

Interval Study in 3rds

Musical score for Interval Study in 3rds, 4/4 time signature. The score is for a woodwind and brass ensemble. The instruments listed are Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music consists of six measures of quarter notes, with the final measure ending with a repeat sign. The notes are: Measure 1: Flute (D4), Clarinet (D4), Bass Clarinet (D4), Alto (D4), Tenor (D4), Baritone (D4), Trumpet (D4), Horn (D4), Trombone (D3), Euphonium (D3), Tuba (D2); Measure 2: Flute (E4), Clarinet (E4), Bass Clarinet (E4), Alto (E4), Tenor (E4), Baritone (E4), Trumpet (E4), Horn (E4), Trombone (E3), Euphonium (E3), Tuba (E2); Measure 3: Flute (F4), Clarinet (F4), Bass Clarinet (F4), Alto (F4), Tenor (F4), Baritone (F4), Trumpet (F4), Horn (F4), Trombone (F3), Euphonium (F3), Tuba (F2); Measure 4: Flute (G4), Clarinet (G4), Bass Clarinet (G4), Alto (G4), Tenor (G4), Baritone (G4), Trumpet (G4), Horn (G4), Trombone (G3), Euphonium (G3), Tuba (G2); Measure 5: Flute (A4), Clarinet (A4), Bass Clarinet (A4), Alto (A4), Tenor (A4), Baritone (A4), Trumpet (A4), Horn (A4), Trombone (A3), Euphonium (A3), Tuba (A2); Measure 6: Flute (B4), Clarinet (B4), Bass Clarinet (B4), Alto (B4), Tenor (B4), Baritone (B4), Trumpet (B4), Horn (B4), Trombone (B3), Euphonium (B3), Tuba (B2).

Tuning Unison Notes

Musical score for Tuning Unison Notes, 4/4 time signature. The score is for a woodwind and brass ensemble. The instruments listed are Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music consists of six measures of unison notes, with the final measure ending with a repeat sign. The notes are: Measure 1: Flute (D4), Clarinet (D4), Bass Clarinet (D4), Alto (D4), Tenor (D4), Baritone (D4), Trumpet (D4), Horn (D4), Trombone (D3), Euphonium (D3), Tuba (D2); Measure 2: Flute (E4), Clarinet (E4), Bass Clarinet (E4), Alto (E4), Tenor (E4), Baritone (E4), Trumpet (E4), Horn (E4), Trombone (E3), Euphonium (E3), Tuba (E2); Measure 3: Flute (F4), Clarinet (F4), Bass Clarinet (F4), Alto (F4), Tenor (F4), Baritone (F4), Trumpet (F4), Horn (F4), Trombone (F3), Euphonium (F3), Tuba (F2); Measure 4: Flute (G4), Clarinet (G4), Bass Clarinet (G4), Alto (G4), Tenor (G4), Baritone (G4), Trumpet (G4), Horn (G4), Trombone (G3), Euphonium (G3), Tuba (G2); Measure 5: Flute (A4), Clarinet (A4), Bass Clarinet (A4), Alto (A4), Tenor (A4), Baritone (A4), Trumpet (A4), Horn (A4), Trombone (A3), Euphonium (A3), Tuba (A2); Measure 6: Flute (B4), Clarinet (B4), Bass Clarinet (B4), Alto (B4), Tenor (B4), Baritone (B4), Trumpet (B4), Horn (B4), Trombone (B3), Euphonium (B3), Tuba (B2).

Intervals on a Scale

Musical score for the section "Intervals on a Scale". The score is arranged in two systems. The first system includes Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, and Baritone Saxophone. The second system includes Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. All instruments play a sequence of intervals on a scale, with notes beamed together and slurred across measures.

Tuning the 5th

*breath in*

Musical score for the section "Tuning the 5th". The score is arranged in two systems. The first system includes Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, and Baritone Saxophone. The second system includes Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The woodwind instruments play a sequence of notes, while the brass instruments play a sequence of notes, with some measures containing rests or specific performance instructions like "breath in".

Tuning the 3rd

*breath in*

This system of musical notation includes staves for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The woodwind and saxophone parts feature melodic lines with slurs and ties. The brass parts consist of sustained notes with ties. Vertical 'x' marks are placed above the woodwind and saxophone staves in the second and third measures, indicating breath marks. The key signature has three sharps (F#, C#, G#).

Bb Major Chord

This system of musical notation includes staves for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. All instruments are playing sustained notes, primarily half notes, with ties across measures. The key signature has three sharps (F#, C#, G#).

Tuning Progression in C

The musical score is arranged in two systems. The first system contains six staves: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, and Baritone Saxophone. The second system contains five staves: Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The Flute part is mostly silent, with only a few notes in the final measure. The other instruments play sustained notes corresponding to the chord changes. The progression is as follows:

Measure	Chord
1	C
2	E <sub>b</sub>
3	C
4	G
5	C
6	C
7	F
8	Dm <sup>7</sup>
9	G <sup>7</sup>
10	C

# Chorale in Concert C

Score

## Chorale on a Scale (C)

M. Max McKee

The musical score is for a 4/4 chorale in C major. It features four instrumental staves and four vocal staves. The instrumental parts are: Flute, Oboe, Clarinet 1, and Trumpet 1 with Melodion Percussion 1; Clarinet 2 & 3, Alto Saxophone, Trumpet 2 & 3, Horn, and Melodion Percussion 2; Alto Clarinet, Bassoon 1, Tenor Saxophone, Baritone, and Trombone 1 & 2; and Bass Clarinet, Bassoon 2, Bass Saxophone, Bass Trombone, and Tuba. The vocal parts are Soprano, Alto, Tenor, and Bass. The score is divided into three systems. The first system covers measures 1-5, the second system covers measures 6-10, and the third system covers measures 11-15. The music consists of a series of chords and melodic lines that follow a scale-like pattern.

The music on these pages are excerpts from the new American Band College/Bandworld Magazine band book:

### *Warm-ups That Work*

Including dozens of technical exercises, scales, intonation trainers, and chorales by famous composers.

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# Concert Ab

Breathe and Sustain  
(Play, Buzz, Sing, etc)

The first system of the musical score includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The Flute part begins with a 'take in air' instruction. The score is divided into measures with various musical notations including rests, notes, and dynamic markings like 'Play' and 'Sing'.



The second system of the musical score continues the parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. This system features a rhythmic pattern of notes and rests, with alternating 'Play' and 'Sing' instructions for various instruments.

Long Tone #1

Long Tone #2

Musical score for Long Tone #1 and Long Tone #2. The score is for a full band and includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The score is divided into two sections: Long Tone #1 and Long Tone #2. The first section consists of 12 measures, and the second section consists of 6 measures. The Flute part includes the instruction "Breathe in" at the beginning of each section. The saxophone and brass parts play sustained notes with various articulations and dynamics.



Flexibility

Musical score for Flexibility. The score is for a full band and includes parts for Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The key signature is one sharp (F#) and the time signature is 4/4. The score is divided into two sections: the first section consists of 12 measures, and the second section consists of 12 measures. The Flute part includes the instruction "Breathe in" at the beginning of the first section. The saxophone and brass parts play sustained notes with various articulations and dynamics, including slurs and accents.



Interval Study on a Scale

Musical score for 'Interval Study on a Scale' in 4/4 time, key of B-flat major. The score is arranged for a full band with the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody is a simple scale starting on G4 and moving up stepwise to G5. The bass line consists of a steady eighth-note accompaniment. The score concludes with a double bar line.

Interval Study in 5ths

Musical score for 'Interval Study in 5ths' in 4/4 time, key of B-flat major. The score is arranged for a full band with the following parts: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The melody consists of a series of fifth intervals starting on G4 and moving up stepwise to G5. The bass line is a steady eighth-note accompaniment. The score concludes with a double bar line.

Interval Study in 3rds

Musical score for 'Interval Study in 3rds' in 4/4 time, featuring a woodwind section (Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone) and a brass section (Trumpet in Bb, Horn in F, Trombone, Euphonium, Tuba). The score consists of six measures. The woodwinds play a melodic line of eighth notes, while the brass section provides a harmonic accompaniment of quarter notes. The key signature has three flats (Bb, Eb, Fb).

Tuning Unison Notes

Musical score for 'Tuning Unison Notes' in 4/4 time, featuring the same woodwind and brass sections as the first score. The score consists of six measures. The woodwinds play a melodic line of eighth notes, while the brass section provides a harmonic accompaniment of quarter notes. The key signature has three flats (Bb, Eb, Fb).

Intervals with a Drone

Musical score for the section "Intervals with a Drone". The score is written for a large ensemble of instruments: Flute, Clarinet in Bb, Bass Clarinet in Bb, Alto Saxophone, Tenor Saxophone, Baritone Saxophone, Trumpet in Bb, Horn in F, Trombone, Euphonium, and Tuba. The music is in a key signature of three flats (Bb, Eb, Ab) and a 4/4 time signature. The piece consists of 12 measures. The flute and saxophones play a melodic line with a drone accompaniment. The brass instruments play a rhythmic pattern of eighth notes, with the tuba playing a lower octave version of the same pattern. The score is divided into two systems of six staves each.

Tuning the 5th

*breath in*

Musical score for the section "Tuning the 5th". The score is written for the same ensemble of instruments as the previous section. The music is in a key signature of three flats and a 4/4 time signature. The piece consists of 12 measures. The flute and saxophones play a melodic line with a drone accompaniment. The brass instruments play a rhythmic pattern of eighth notes, with the tuba playing a lower octave version of the same pattern. The score is divided into two systems of six staves each. The first system includes a "breath in" instruction for the brass instruments.

Tuning the 3rd

breath in

Flute

Clarinet in B♭

Bass Clarinet in B♭

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B♭

Horn in F

Trombone

Euphonium

Tuba

Ab Major Chord

Flute

Clarinet in B♭

Bass Clarinet in B♭

Alto Saxophone

Tenor Saxophone

Baritone Saxophone

Trumpet in B♭

Horn in F

Trombone

Euphonium

Tuba

Tuning Chorale in Ab

The musical score is for a piece titled "Tuning Chorale in Ab". It is written for a large ensemble of instruments. The key signature is three flats (B-flat, E-flat, A-flat). The score consists of ten measures. Above the first measure, the chord  $A\flat$  is indicated. Above the second measure, the chord  $D\flat$  is indicated. Above the third measure, the chord  $A\flat$  is indicated. Above the fourth measure, the chord  $E\flat$  is indicated. Above the fifth measure, the chord  $A\flat$  is indicated. Above the sixth measure, the chord  $A\flat$  is indicated. Above the seventh measure, the chord  $D\flat$  is indicated. Above the eighth measure, the chord  $B\flat m^7$  is indicated. Above the ninth measure, the chord  $E\flat^7$  is indicated. Above the tenth measure, the chord  $A\flat$  is indicated. The instruments and their parts are as follows:

- Flute:** Treble clef, playing whole notes corresponding to the chords above.
- Clarinet in B $\flat$ :** Treble clef, playing whole notes.
- Bass Clarinet in B $\flat$ :** Treble clef, playing whole notes.
- Alto Saxophone:** Treble clef, playing whole notes.
- Tenor Saxophone:** Treble clef, playing whole notes.
- Baritone Saxophone:** Treble clef, playing whole notes.
- Trumpet in B $\flat$ :** Treble clef, playing whole notes.
- Horn in F:** Treble clef, playing whole notes.
- Trombone:** Bass clef, playing whole notes.
- Euphonium:** Bass clef, playing whole notes.
- Tuba:** Bass clef, playing whole notes.

# Chorale in Concert Ab

## Chorale #1

Finlandia  
by  
Jean Sibelius  
  
(1900)

The musical score is presented in four systems, each containing four staves for Soprano (S), Alto (A), Tenor (T), and Bass (B). The key signature is three flats (Ab major) and the time signature is 4/4. Measure numbers 1 through 23 are indicated above the staves. The Alto staff includes the instruction "Divisi" at measure 2. The score concludes with a double bar line at measure 23.

## Best Tuning Notes for Instruments

Woodwinds		
Instrument	On Mouthpiece	On Instrument
Flute	A on stopped or open head joint	Bb, F, A
Clarinet	C on mouthpiece	G, C
Bass Clarinet	F# on mouthpiece	G, C
Alto Saxophone	A on mouthpiece	F#, G
Tenor Saxophone	G on mouthpiece	F#, G
Bari Saxophone	D or D# on mouthpiece	F#, G

Brass	
Instrument	On Instrument
Trumpet	C, G, B
French Horn	C, F
Trombone	Bb, F
Euphonium	Bb, F
Tuba	Bb, F

# Pitch Tendency Chart

Name \_\_\_\_\_ Instrument \_\_\_\_\_

Begin the process by making sure that you are in tune with the tuner. Then select a note in the middle register of the instrument, and proceed by alternating down a half step, up a half step, down a whole step, etc. Have a partner write in your tendencies. The instrument name indicates the lowest written pitch to be checked.

DATE	FLUTE	HORN	CLARINET					BASSOON			TRUMPET			SAXOPHONE			OBOE			TROMBONE / EUPHONIUM			TUBA		
	B	C	C $\sharp$ D $\flat$	D	D $\sharp$ E $\flat$	E	F	F $\sharp$ G $\flat$	G	G $\sharp$ A $\flat$	A	A $\sharp$ B $\flat$	B	C	C $\sharp$ D $\flat$	D	D $\sharp$ E $\flat$	E	F	F $\sharp$ G $\flat$	G	G $\sharp$ A $\flat$			

A	A $\sharp$ B $\flat$	B	C	C $\sharp$ D $\flat$	D	D $\sharp$ E $\flat$	E	F	F $\sharp$ G $\flat$	G	G $\sharp$ A $\flat$	A	A $\sharp$ B $\flat$	B	C	C $\sharp$ D $\flat$	D	D $\sharp$ E $\flat$	E	F	F $\sharp$ G $\flat$	G		

Very sharp	++
Sharp	+
In tune	•
Flat	—
Very flat	— —

List the logical bad notes. Provide a solution for fixing them. Include alternate fingering.

--	--	--	--	--	--



# Fingering and Intonation Charts

## Flute Key Chart

**S** indicates notes that are often **Sharp** in pitch.

**F** indicates notes that are often **Flat** in pitch.

**vS** indicates notes that are **VERY SHARP** in pitch.

**vF** indicates notes that are **VERY FLAT** in pitch.

**F = Flat    S = Sharp**

**Stable Tuning Note** indicates notes most stable for tuning in band.

● indicates suggested fingerings to **add**.

● indicates suggested fingerings to **subtract**.

**NOTE:** Fingering chart does NOT include all alternate and trill fingerings. The chart attempts to identify the best fingering choices for use in lyrical & technical passages and only when alternate fingerings must be used to correct resonance and/or pitch.

! CAUTION !

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to **voice / place / lip** every note in tune. Use alternate fingerings only when necessary!

**Stable Tuning Notes with Band:**  
Concert B $\flat$ , F, A

\*First check that cork of headjoint is in aligned distance to the center of the embouchure tone hole. Then tune the headjoint draw-length by playing these two octave Ds (fingering D creates a closed tube to which the flute has been acoustically designed.)

Tune instrument with headjoint by pulling out if sharp or pushing in if flat. Headjoint cork should be 17 -17.3 mm from center of embouchure hole. Use notch in cleaning rod to check distance. Headjoint should not be pulled out any further than 1/4" (A442 pitched flutes can be pulled out as far as 5/8")

Typically flat in low register, therefore humor pitch up by directing air-stream up and/or rolling out slightly.

First Octave	B	C	C# D $\flat$	D	D# E $\flat$	E	F
vF	vF	vF	vF	F	F	F	F
B	C	C# D $\flat$	D	D# E $\flat$	E	F	F
* flute with low B key							

Tune at *mf* (not any softer or louder) and maintain steady air support.


Second Octave

If S	If S		If F	If F		

					If S	If S

**Third Octave**

D D# E<sup>b</sup> E F F# G<sup>b</sup> G

If F for soft notes only (prevents flatness) If S for soft notes only (prevents flatness) If S for soft notes only (prevents flatness) If S for soft notes only (prevents flatness)

The flute is an *open tube*.  
 The first octave is produced by the fundamental (first partial) vibration of the pipe; vibrates in *one part*.  
 The second octave is produced by the second partial; vibrates in *two parts*, and  
 the third octave is produced by the third and fourth partials; vibrates in *four parts*.

**Fourth Octave (Altissimo)**

G# A<sup>b</sup> A A# B<sup>b</sup> B C C# D

If S for soft notes only (prevents flatness) If F \* Use Gizmo key vs. B-key if available. If F \* or \*

**General Note:**  
 The more fingers *down* on a regular fingering, the *flatter* the pitch.  
 The more fingers *up* on a regular fingering, the *sharper* the pitch.  
 To **F** pitch, one can **add** any finger, after the first open hole, in first two octaves.  
 To **S** pitch, one can **come off** to just the ring of the key (on an open-hole flute).

**Gizmo Key**  
 A small raised lever mounted on the low B key arm to facilitate the individual closing of the low B key. Also known as "high C facilitator"; this lever helps in producing clearer 4th octave C.

**Harmonic Fingerings**  
 If harmonic fingerings are used to play notes in the higher register the pitch will be flat. It is suggested to only use harmonic fingerings when conventional fingerings are impractical.

## Clarinet Key Chart

**RIGHT Hand**

- 1st finger: (iv) B tr, (iii) B<sup>b</sup> tr, (ii) F<sup>#</sup>, (i) E<sup>b</sup>
- 2nd finger: B/F<sup>#</sup>
- 3rd finger: F<sup>#</sup>/C<sup>#</sup>, G<sup>#</sup>/D<sup>#</sup>
- 4th pinky finger: E/B, F/C

**LEFT Hand**

- Thumb: Register Key
- 1st finger: A, G<sup>#</sup>
- 2nd finger: E<sup>b</sup>/B<sup>b</sup>
- 3rd finger: C<sup>#</sup>/G<sup>#</sup>
- 4th pinky finger: F/C, E/B, F<sup>#</sup>/C<sup>#</sup>

**NOTE:** Fingering chart does NOT include all alternate and trill fingerings. The chart attempts to identify the best fingering choices for use in lyrical & technical passages and only when alternate fingerings must be used to correct resonance and/or pitch.

**General Note:** The clarinet will play *sharper* in pitch as one plays *softer*.  
 The clarinet will play *flatter* in pitch as one plays *louder*.  
 To **F** pitch, one can **close** selected tone holes and keys to a regular fingering.  
 To **S** pitch, one can **open** selected tone holes and keys to a regular fingering.

! CAUTION !

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to *voice / lip / place* every note in tune. Use alternate fingerings only when necessary!

- If consistently sharp in pitch:**
1. Is embouchure too tight?
  2. Is reed strength too hard?
  3. Is barrel length too short?
- If consistently flat in pitch:**
1. Is embouchure too loose?
  2. Is reed strength too soft?
  3. Is barrel length too long?

- To correct sharpness in pitch:**
1. Relax embouchure; pull chin muscles downwards, and bring corners of mouth in toward mouthpiece.
  2. Open up the inside of mouth; [Analogies: a) drop floor of mouth, b) stretch nostrils downward as if trying to push upper lip into top of mouthpiece.]
- To correct flatness in pitch:**
1. Firmer embouchure; more lower lip compression by bringing lower jaw forward.
  2. Focus air with energy; increase air support and aim air forward and higher in mouth.

if *F*, maintain firm embouchure and do not overblow

* optional				* optional				if <i>S</i>	

if <i>S</i>			if <i>S</i>		if <i>S</i>		if <i>S</i>		if <i>S</i>	

**Note:** Select *facility* fingerings for fast passages for ease of technique.  
 Select *tone & pitch* fingerings for slower passages for section/ensemble blend.

if <i>S</i>		if <i>F</i>		if <i>F</i>		if <i>F</i>		if <i>S</i>	

[shade with ring key(s)  
not fully depressed]

(less flat) (sharp; good for 3rd of minor chord)

**Tuning Note** Tune G first by adjusting at the barrel.

G		G#		Ab		A	
<i>(adding alternate F improves resonance)</i>				<i>(any comb.)</i>			

Tune C by adjusting middle joint

**Stable Tuning Note**

A# Bb			B		C		C# Db		D
			<i>* optional</i>		<i>or</i>				

*If tuning to Concert F, tune octave below with barrel FIRST, and then tune this G with middle joint.*

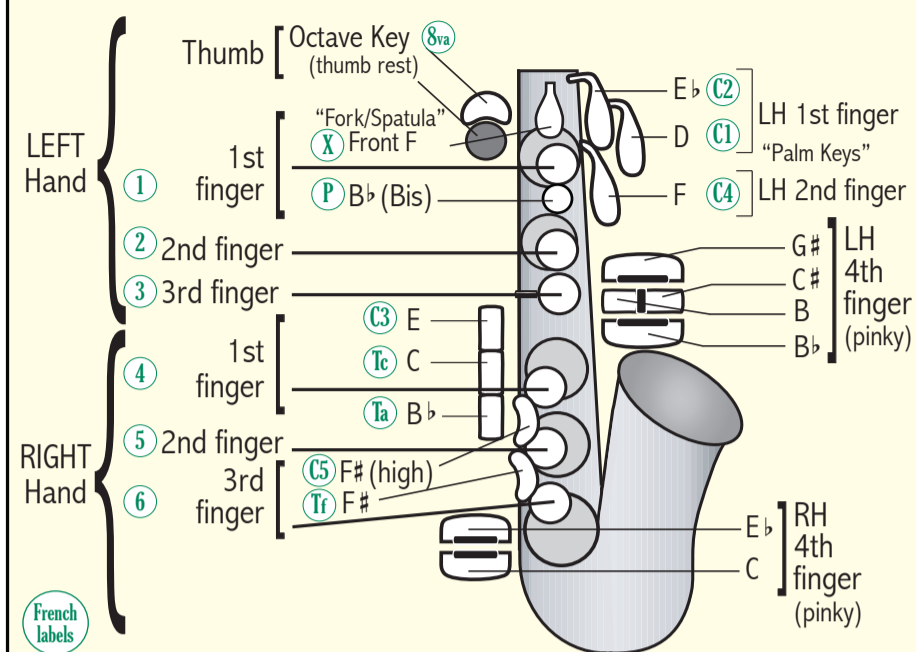
D# Eb		E	F		F# Gb		G	G# Ab		A
						<i>or</i>		<i>if S, relax embouchure</i>		<i>if S, relax embouchure</i>








A# Bb	B	C	C# Db	D	
if S	if S	if S	if S	trill fingering	if S; if still S

D# Eb	E	F	F# Gb	
	if S	if F (Long F is sharp, and may need to be voiced down.)	if F (Long F# is sharp, and may need to be voiced down.)	

G	G# Ab
(standard fingering, but brighter & sharper)	
if S	if S
	if F
	if S


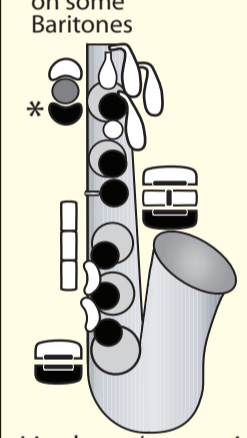
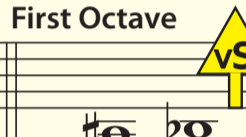
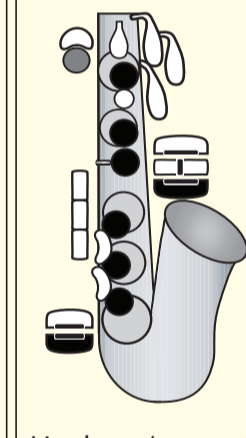

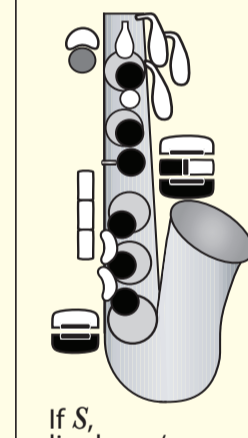

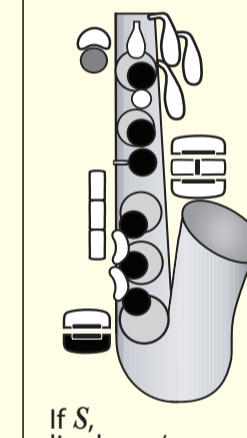

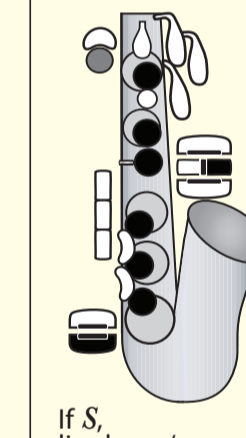

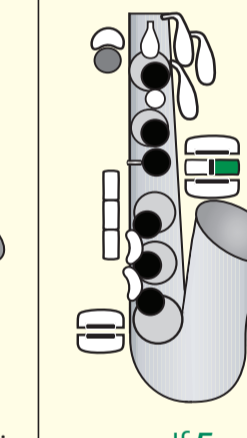
# Saxophone Key Chart




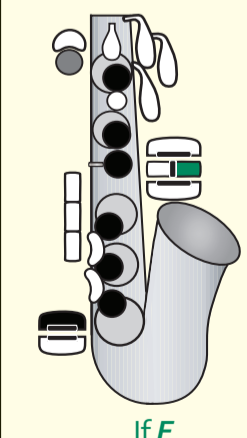

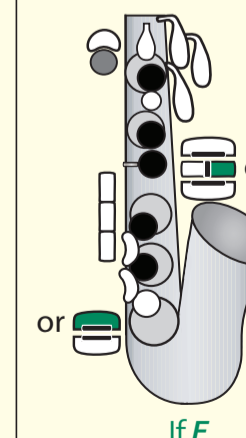

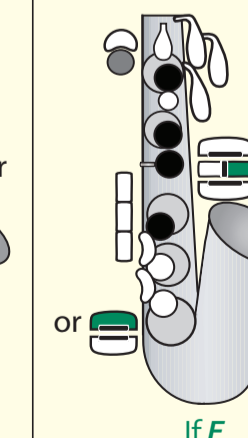
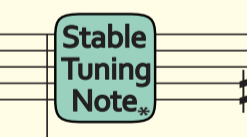
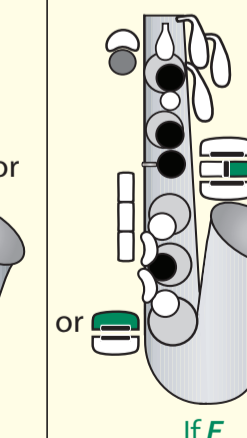

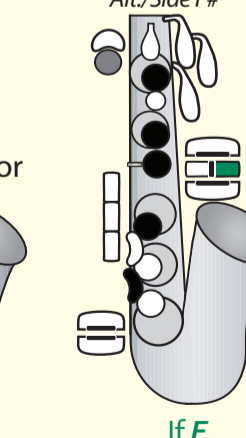
 indicates notes that are often **Sharp** in pitch.  
 indicates notes that are often **Flat** in pitch.  
 indicates notes that are **VERY SHARP** in pitch.  
 indicates notes that are **VERY FLAT** in pitch.  
**F = Flat    S = Sharp**  
 indicates notes most stable for tuning in band.  
 indicates suggested fingerings to **add**.  
 indicates suggested fingerings to **subtract**.

**NOTE:** Fingering chart does NOT include all alternate and trill fingerings. The chart attempts to identify the best fingering choices for use in lyrical & technical passages and only when alternate fingerings must be used to correct resonance and/or pitch.

**First Octave**

 * A-key available on some Baritones A  Lip down/warm air.	 A# Bb  Lip down/warm air.	 B  If S, lip down/warm air.	 C  If S, lip down/warm air.	 C# Db  If S, lip down/warm air.	 D  If F
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\* Note: The airstream can be "warmed" by voicing the syllable "haw"; maintain air speed.

 D# Eb  If F	 E  If F	 F  If F	 F# Gb Alt./Side F#  If F	 G  If F
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\* Adjustments are provided for stable notes in order to provide options when just tuning.



<i>G# Ab</i>	<i>A</i>	<i>A# Bb</i>	<i>B</i>	<i>C</i>
<i>If F</i>	<i>If F</i>	<i>If F</i>	<i>If F</i>	<i>If F</i>

Second Octave Baritones are often sharp in the entire upper register.

<i>C# Db</i>	<i>D</i>	<i>D# Eb</i>	<i>E</i>	<i>F</i>
<i>If F</i>	<i>If F</i>	<i>If S</i>	<i>If S</i>	<i>If S</i>

\* Note: Also tune to lower octave on these pitches whenever possible.

<i>F# Gb</i>	<i>G</i>	<i>G# Ab</i>	<i>A</i>	<i>A# Bb</i>
<i>Stable Tuning Note</i>	<i>Stable Tuning Note</i>	<i>If S</i>	<i>If S</i>	<i>If S, lip down</i>
<i>Alt./Side F#</i>		<i>If S</i>		<i>If S</i>

**Third Octave**

<p style="text-align: center;"><b>B</b></p>	<p style="text-align: center;"><b>C</b></p>	<p style="text-align: center;"><b>C# D<sup>b</sup></b></p>	<p style="text-align: center;"><b>D</b></p>	<p style="text-align: center;"><b>D# E<sup>b</sup></b></p>
<p>If <b>S</b>, lip down, or half-close F-key</p>	<p>If <b>S</b></p>	<p>If <b>S</b></p>	<p>If <b>S</b></p>	<p>If <b>S</b> or If <b>S</b></p>

**Lower Altissimo**

<p style="text-align: center;"><b>E</b></p>	<p style="text-align: center;"><b>F</b></p>	<p style="text-align: center;"><b>F# G<sup>b</sup></b></p>
<p>If <b>S</b></p>	<p>If <b>S</b></p>	<p>If <b>S</b> (If <b>F</b>, lip up) If <b>S</b></p>

**General Note:** The saxophone will play *sharper* in pitch as one plays *softer*.  
 The saxophone will play *flatter* in pitch as one plays *louder*.  
 To pitch, one can **close** selected tone holes and keys to a regular fingering.  
 To pitch, one can **open** selected tone holes and keys to a regular fingering.

**! CAUTION !**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to *voice / place / lip* every note in tune. Alternate fingerings are simply one option.

- If consistently sharp in pitch:**
1. Is embouchure too tight?
  2. Is reed strength too hard; biting?
  3. Is mouthpiece pushed in too far?
- If consistently flat in pitch:**
1. Is embouchure too loose?
  2. Is reed strength too soft?
  3. Is mouthpiece pulled out too far?

<p style="text-align: center;">Concert B<sup>b</sup>    Concert A</p>	<p style="text-align: center;">Concert B<sup>b</sup>, F, A</p>	<p style="text-align: center;">Best Tuning Notes for Saxophone Alone</p>
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# Trumpet Key Chart

RIGHT  
Hand

1st finger  
2nd finger  
3rd finger

1 2 3

Thumb  
1st-valve slide trigger

4th finger (pinky)  
3rd-valve slide trigger

**S** ↑ indicates notes that are often **Sharp** in pitch.

**F** ↓ indicates notes that are often **Flat** in pitch.

**vS** ↑ indicates notes that are **VERY SHARP** in pitch.

**vF** ↓ indicates notes that are **VERY FLAT** in pitch.

**F = Flat    S = Sharp**

**Stable Tuning Note** indicates notes most stable for tuning in band.

● indicates suggested **alternate** fingerings.

**CAUTION**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to *voice / place / lip* every note in tune. Use alternate fingerings only when necessary!

Concert B $\flat$     Concert F    Concert A

Stable Tuning Notes with Band:  
Concert B $\flat$ , F, A

**Tuning the Slides:**  
Only adjust the length of the main tuning slide when tuning; it should be pulled at least a 1/2 inch. Valve slides should remain pushed all the way in.

<p style="text-align: center;">F#    G<math>\flat</math></p>	<p style="text-align: center;">G</p>	<p style="text-align: center;">G#    A<math>\flat</math>    If F, Lip up</p>	<p style="text-align: center;">A</p>
<p style="text-align: center;">If S</p>	<p style="text-align: center;">If S</p>		

*Note: Younger students may play these low notes flat as they are overcompensating to get down to these notes.*

<p style="text-align: center;">A#    B<math>\flat</math></p>	<p style="text-align: center;">B</p>	<p style="text-align: center;">C</p>	<p style="text-align: center;">C#    D<math>\flat</math></p>
			<p style="text-align: center;">If S</p> <p style="text-align: center;">Use: i) both valves approx. 1/2" each or, ii) one of the valves approx. 1"</p>

<p>D</p> <p>Use: i) both valves approx. 1/4" each or, ii) one of the valves approx. 1/2"</p>	<p>D# Eb</p>	<p>E</p> <p>Use: approx. 1/8"</p>	<p>F</p>
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<p>F# Gb</p>	<p>Stable Tuning Note</p> <p>G</p>	<p>G# Ab</p>	<p>A</p> <p>Use: approx. 1/8"</p>
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<p>A# Bb</p>	<p>Stable Tuning Note</p> <p>B</p>	<p>* Not a stable tuning pitch as this note is often sharp, especially with younger players.</p> <p>C</p>	<p>C# Db</p> <p>* The 1+2 combination is usually sharp, but works well here for a flat 5th partial.</p>
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Trigger length is shortened the higher in range a note is performed.

<p>D</p> <p>Fingering below will change timbre, and is awkward for facility usage, but can be useful for sustained or soft passage if 1 is still too flat.</p>	<p>D# Eb</p> <p>Fingering below may work better for a C trumpet where pitch tendency is more pronounced in upper register.</p>	<p>E</p> <p>Fingering below may work better for a C trumpet where pitch tendency is more pronounced in upper register.</p>	<p>F</p>
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High B and above can be sharp or flat.  
Pitch greatly depends on mouthpiece, proper equipment, and maturity of player.

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If Bb and above are consistently sharp, the mouthpiece may be too long.

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\* Method books may indicate this fingering as primary, but it is recommended to teach it as a secondary fingering. Use this fingering for certain technical passages such as C-D-E 0-1-0

Note: 0, 2, and 23 are decent valve combinations for pitch 1 is often sharp

Note: Harmonic series indicates the range (high C#-F) as having a tendency to be flat, BUT this range is often sharp due to players tensing the breath/embouchure to get the notes to sound.

# Horn Key Chart

LEFT  
Hand

1st finger  
2nd finger  
3rd finger

Thumb  
(Trigger)

- indicates notes that are often **Sharp** in pitch.
- indicates notes that are often **Flat** in pitch.
- indicates notes that are VERY **SHARP** in pitch.
- indicates notes that are VERY **FLAT** in pitch.

**F** = Flat    **S** = Sharp

**Stable Tuning Note** indicates notes most stable for tuning in band.

indicates suggested **alternate** fingerings.

If you have an **F/Bb double horn**, you should read the fingerings in the top column (F-side; no trigger) until 2nd-space G# where you will read fingerings in the bottom column (Bb-side; with trigger).  
 If you have an **F single horn**, you must read the fingerings in the top column only.  
 If you have a **Bb single horn**, you must read the fingerings in the bottom column only.

Pitch may be adjusted with the hand and/or embouchure/lips.

	C	C#    D <sup>b</sup>	D	D#    E <sup>b</sup>
F side (no trigger)		 (vS, use Bb side)	 (vS, use Bb side)	
Bb side (with trigger)			 (if S, use 3rd valve fingering)	

	E	F	F#    G <sup>b</sup>	G	G#    A <sup>b</sup>
F side (no trigger)	 (if S, use 3rd valve fingering or Bb side)	 (if S, use Bb side)			
Bb side (with trigger)			 (if S, use 3rd valve fingering)	 (if S, use 3rd valve fingering)	

In general, most stopped passages should be played on F horn because stopped F horn results in a 1/2 step higher; while stopped Bb horn results in a 3/4 step higher. BUT, you may find that Bb stopped horn in the upper half of the treble staff can be played up a 1/2 step, and above the treble staff can be played up a whole-step. (Also depends on size of your hand.) Because completely closing the bell with the right hand raises the pitch, it is good to experiment to find the most efficient hand position that will accomplish the most secure pitch placement.

	A		A# Bb	B	C
F side (no trigger)	 (if S, use 3rd valve fingering)				 Stable Tuning Note
Bb side (with trigger)	 (if S, use 3rd valve fingering)				

	C# Db	D	D# Eb	E
F side (no trigger)	 (sharp finger comb. + flat 5th partial = decent pitch)	 (if F, move hand out, or voice up)	 (if F, move hand out, or voice up)	 (if F, move hand out, or use Bb-side)
Bb side (with trigger)	 (use for a flatter fingering)	 (good fingering for fast octave jumps)		

*5th Partial notes are slightly flat.*

	F	F# Gb	G	G# Ab
F side (no trigger)				
Bb side (with trigger)	 Stable Tuning Note	 flat 5th partial but 12 combo raises to pitch		

*6th Partial notes are slightly sharp.*

	A	A# Bb	B	C
F side (no trigger)	 (if S, use 3rd valve fingering)			 Stable Tuning Note
Bb side (with trigger)	 (if S, use 3rd valve fingering or use F-Side)			

*\*Note: 3rd in common key of Concert Bb major, thus pitch problem compounds to lower additional 14 cents.*

*Suggest switching from F to Bb horn in this range (G# - C).*

	C# D $\flat$		D	D# E $\flat$	E
F side (no trigger)					
Bb side (with trigger)					
			<p>Note: 3rd in common key of Concert Eb major, thus pitch problem is compounded to lower additional 14 cents.</p>		
	(if S, use F side)		(if S, use 3rd valve fingering or F side)		(if F, use Bb side)

Notes F and above may be flat or sharp depending on horn and embouchure

	F	F# G $\flat$	G	G# A $\flat$
F side (no trigger)				
Bb side (with trigger)				
	(if F, try 1st & 3rd valve fingering)		10th Partial notes are slightly flat	
			(13th partial)	

# These fingerings may have a richer sound, but it is more difficult to center/hit the note.  
 % These fingerings are easier to center/hit the note, but may have a more shallow sound.

	A	A# B $\flat$	B	C
F side (no trigger)				
Bb side (with trigger)				
	(13th partial)			

**CAUTION**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to *voice / place / lip* every note in tune. Use alternate fingerings only when necessary!

**Stable Tuning Notes with Band:**  
 Concert B $\flat$ , F, A

F (B $\flat$  side)    C (Both sides)

Hand position, size of hand, and size and shape of bell is a key factor in intonation. Carefully monitor these issues until you find the "sweet spot" where minimal hand movement has the most effect on pitch.



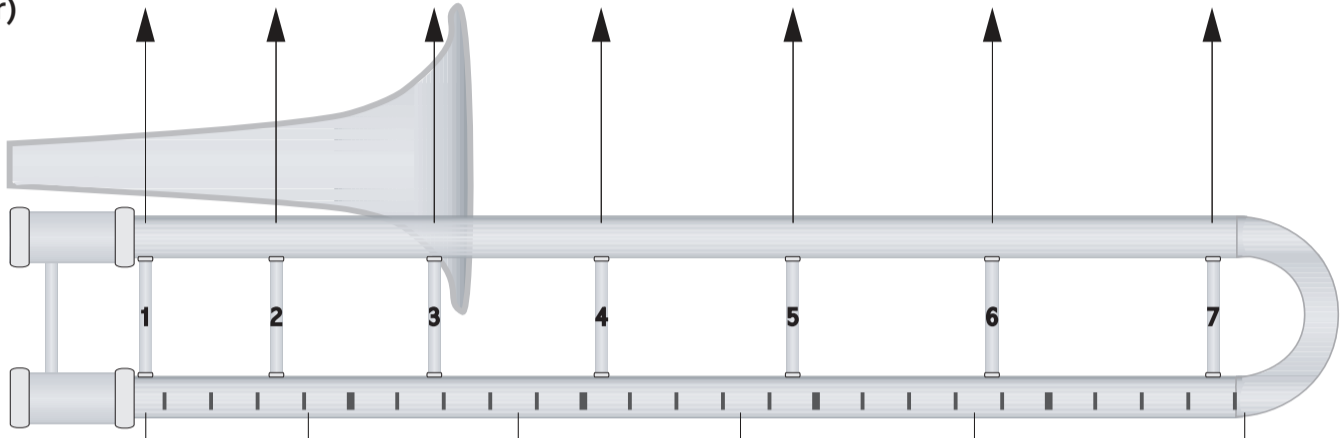
**Bb Harmonic Series: (to 8th partial)**

B $\flat$  A A $\flat$  G G $\flat$  F E

**Bb positions:**  
(regular)

1 2 3 4 5 6 7

**KEY:**  
 Fundamental (Pedal Tones)  
 Primary Positions  
 Alternate Positions



**F positions:**  
(with F-valve)

V1 V $\flat$ 2 V $\flat\flat$ 3 V $\sharp$ 5 V $\sharp$ 6 V $\flat\flat$ 7

**F Harmonic Series: (to 3rd partial)**

F E E $\flat$  D D $\flat$  C

## Trombone Key Chart

1 slide all the way in

2 slide brace near half-way between 1st and bell

3 slide brace almost even with bell

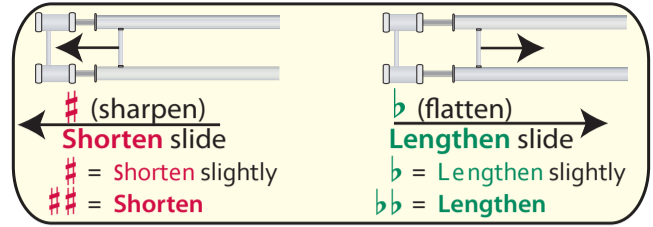
4 slide brace extended past the bell

5 slide brace approx. halfway between 4th & 6th

6 slide brace on top of inner slide "stocking"

7 slide brace extended past top of inner slide "stocking"

**NOTE:** Resources and teachers vary in how they notate slide placement in relationship to the position.  
For clarity, this chart uses # = Shorten and b = Lengthen.



Traditional fingering chart ascending chromatically.

B * also extend F-attachment tuning slide V <sup>b</sup> b7*	C V <sup>b</sup> b7	C# Db V#6	D V##5	D# Eb V <sup>b</sup> b3	E V <sup>b</sup> 2	F V1	F# Gb 5

			<b>Stable Tuning Note</b>				
G 4 V <sup>b</sup> b7	G# Ab 3 V#6	A 2 V##5		A# Bb 1 V <sup>b</sup> b3	B 7 V <sup>b</sup> 2	C 6 V <sup>b</sup> 1	C# Db 5

			<b>*Fairly Stable Tuning Note</b>				
D 4	D# Eb 3	E 2 7		F 1 6	F# Gb 5	G 4	G# Ab 3 #7

A 2 #6	A# Bb 1 #5	B #4 b7	C #3 b6	C# Db #2 b5	D 1 b4	D# Eb b3 ##6	E b2 ##5

F b1 ##4	F# Gb ##3 5	G ##2 4	G# Ab 3 b5	A 2 b4	A# Bb 1 b3	B b2 #4	C b1 #3

Trombone F-Attachment Tuning			
• The main tuning slide should be pulled out slightly (1/2"-1") before you start to tune.		• Depress the F-attachment trigger when moving the F-Main Slide.	
<b>STEP 1</b>	Play Concert Bb (or Concert F for younger players) 	Tune with main tuning slide: If flat, push in. If sharp, pull out.	...then match your tuned F to the F an octave lower with F-trigger depressed. <i>Tip:</i> Younger players should tune only to high F until embouchure is more developed. 
<b>STEP 2</b>	Play Concert F with the F-attachment 		<i>Tip:</i> It is easier to hear the pitch approached from below. This also assists players to hear various positions in tune. 

B $\flat$ - Euphonium (3- and 4- valve)

### Key Chart

**RIGHT Hand**

1st finger, 2nd finger, 3rd finger, 4th finger

1 2 3 4

**S** indicates notes that are often **Sharp** in pitch.

**F** indicates notes that are often **Flat** in pitch.

**vS** indicates notes that are **VERY SHARP** in pitch.

**vF** indicates notes that are **VERY FLAT** in pitch.

**Stable Tuning Note** indicates notes most stable for tuning in band.

**F = Flat S = Sharp**

**●** indicates suggested **alternate** fingerings.

**CAUTION**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to **voice / place / lip** every note in tune. Use alternate fingerings only when necessary!

**Stable Tuning Notes with Band:**  
Concert B $\flat$ , F, A

Concert B $\flat$  Best, Concert F Slightly Sharp

 A# B $\flat$ 1 2 3 4	 B 1 2 3 4 <i>compensating</i> if S, lip down/drop jaw	 C# D $\flat$ 1 2 3 4 <i>compensating</i>	 C 1 2 3 4 <i>compensating</i>	 C# D $\flat$ 1 2 3 4 <i>compensating</i>	 D 1 2 3 4 <i>compensating</i>
Using the above <i>compensating</i> fingerings on a <i>non-compensating</i> horn will be very sharp.					
		 C 1 2 3 4 <i>non-compensating</i>	 C# D $\flat$ 1 2 3 4 <i>non-compensating</i>	 D 1 2 3 4 <i>non-compensating</i>	

 D# E $\flat$ 1 2 3 4 <i>compensating</i>	 E 1 2 3 4 <i>compensating</i>	 F 1 2 3 4 <i>may be slightly sharp</i>	 F# G $\flat$ 1 2 3 <i>may be slightly sharp</i>	 G 1 2 3 <i>if S, try fingering below</i>
 E 1 2 3 4 <i>non-compensating</i> F lip down/drop jaw	 F 1 2 3 <i>lip down/drop jaw</i>	 G 1 2 3 <i>if S, lip down/drop jaw</i>		
 F 1 2 3 4 <i>non-compensating</i> vS S, pull 4th valve slide	 G 1 2 3 4 <i>non-compensating</i> vS S, pull 4th valve slide			

 G# A $\flat$ 1 2 3	 A 1 2 3 <i>if F, try fingering below</i>	<p><b>Stable Tuning Note*</b></p> A# B $\flat$ 1 2 3	 B 1 2 3 4 <i>compensating</i>	 C 1 2 3 4
		<p>* May play sharp with younger players due to lack of lower range development.</p>	 B 1 2 3 <i>lip down/drop jaw</i>	 C 1 2 3 <i>lip down/drop jaw</i>
			 C 1 2 3 4 <i>non-compensating</i> vS S, pull 4th valve slide	

B - Euphonium (3- and 4- valve)

C# D $\flat$ if S, lip down/drop jaw	D if S, try fingering below 	D# E $\flat$ if S, lip down/drop jaw	E if S, lip down/drop jaw	F if S, lip down/drop jaw

F# G $\flat$ if S, lip down/drop jaw	G if S, try fingering below 	G# A $\flat$ if S, lip down/drop jaw	A if F, try fingerings below 	A# B $\flat$ if S, lip down/drop jaw

B if F, try fingering below 	C if F, try fingerings below 	C# D $\flat$ if F, try fingering below	D if F, try fingering below

The above 5th partial fingerings are usually flat, therefore use alternate fingerings below and/or play with a firm embouchure.

D# E $\flat$ if S, lip down/drop jaw	E if S, lip down/drop jaw	F if S, lip down/drop jaw	F# G $\flat$ if S, lip down/drop jaw or pull 3rd-valve slide	G if S, use fingering below 

G# A $\flat$ if F, try fingering below 	A if F, try fingering below 	A# B $\flat$ if S, use fingering below 

**To correct sharpness in pitch:**

1. Relax embouchure; pull jaw/lower teeth down & back.
2. Open up the inside of mouth; drop floor of mouth.

**To correct flatness in pitch:**

1. Focus air with more energy; increase air support and aim air forward and higher in mouth.
2. Firmer embouchure; more lip and air compression.

**If consistently sharp in pitch:**

1. Is embouchure too tight/tense?
2. Are all slides pushed all the way in?
3. Best mouthpiece for instrument/student?

**If consistently flat in pitch:**

1. Is embouchure too loose?
2. Are all slides pulled too far out?
3. Best mouthpiece for instrument/student?

BB $\flat$ -Tuba (3- and 4- valve)

### Key Chart

**RIGHT Hand**

1st finger  
2nd finger  
3rd finger  
4th finger

indicates notes that are often **Sharp** in pitch.  
 indicates notes that are often **Flat** in pitch.  
 indicates notes that are VERY **SHARP** in pitch.  
 indicates notes that are VERY **FLAT** in pitch.  
**F = Flat    S = Sharp**  
 indicates notes most stable for tuning in band.  
 indicates suggested **alternate** fingerings.

**CAUTION**

Every instrument, even identical models, can have varying pitch tendencies. Learn the pitch of your instrument and advance your skills to **voice / place / lip** every note in tune. Use alternate fingerings only when necessary!

**Stable Tuning Notes with Band:**

Concert B $\flat$ , F, A

Best Slightly Fairly  
Sharp Stable

\* If a note has more than one fingering choice, then recommended fingerings are listed first. However, if your horn has a 4th-valve, the 4-valve positions are recommended as 1st choice.

 E $\flat$  1 2 3 4	 E  1 2 3 4 Lip down/drop jaw, or pull 1st slide	 F  1 2 3 4 (if S, pull 4th slide) Lip down/drop jaw	 F $\sharp$ G $\flat$  1 2 3	 G  1 2 3 (if S, Lip down/drop jaw, or use fingering below)
 G $\sharp$ A $\flat$  1 2 3	 A  1 2 3	 A $\sharp$ B $\flat$  1 2 3	 B  1 2 3 4 Lip down/drop jaw, or pull 1st slide	 C  1 2 3 4 (if S, pull 4th slide) Lip down/drop jaw
 C $\sharp$ D $\flat$  1 2 3	 D  1 2 3 (if S, Lip down/drop jaw, or use fingering below)	 D $\sharp$ E $\flat$  1 2 3 Lip down/drop jaw	 E  1 2 3	 F  1 2 3 slightly sharp

BB $\flat$ -Tuba (3- and 4- valve)

 F# G $\flat$  1 2 3	 G (if S, use fingering below)  1 2 3  1 2 3	 G# A $\flat$  1 2 3	 A  1 2 3	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Stable Tuning Note</div> A# B $\flat$  1 2 3
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 B (if F, use fingering below)  1 2 3  1 2 3	 C (if F, use fingering below)  1 2 3  1 2 3  1 2 3 4	 C# D $\flat$ (if F, use fingering below)  1 2 3  1 2 3	 D (if F, use fingering below)  1 2 3  1 2 3	 D# E $\flat$ if S, Lip down/drop jaw, or pull 1st-valve slide  1 2 3
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 E Lip down/drop jaw  1 2 3	 F Lip down/drop jaw  1 2 3  1 2 3	 F# G $\flat$ Lip down/drop jaw or Pull 3rd-valve slide  1 2 3  1 2 3	 G if S, pull 1st-valve slide or use fingering below  1 2 3  1 2 3	 G# A $\flat$ if F, try fingering below  1 2 3  1 2 3
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Small icons are non-traditional fingerings. Although they are flat 7th partial fingerings, some students play these better in tune.

 A if F, try fingering below  1 2 3  1 2 3	 A# B $\flat$ if S, use fingering below  1 2 3  1 2 3	 B  1 2 3  1 2 3 Flatter fingering	 C  1 2 3  1 2 3 Sharper fingering
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- To correct sharpness in pitch:**

  1. Relax embouchure; pull jaw/lower teeth down and back.
  2. Open up the inside of mouth; drop floor of mouth.

**To correct flatness in pitch:**

  1. Focus air with more energy; increase air support and aim air forward and higher in mouth.
  2. Firmer embouchure; more lip and air compression.

Pitched Tubas	
<b>BB<math>\flat</math></b>	Most popular for school wind band use at all playing levels.
<b>CC</b>	Better for advanced playing levels and orchestral performance. Has a brighter/clarity sound than BB $\flat$ .
<b>E<math>\flat</math></b>	More popular for advanced solo, chamber and orchestral performance.
<b>F</b>	More popular for advanced solo, chamber and orchestral performance. Has a smaller bore.

- If consistently sharp in pitch:**

  1. Is embouchure too tight/tense?
  2. Are all slides pushed all the way in?
  3. Best mouthpiece for instrument/student?

**If consistently flat in pitch:**

  1. Is embouchure too loose?
  2. Are all slides pulled too far out?
  3. Best mouthpiece for instrument/student?

## Resources

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