

JMU SCHOOL OF MUSIC
FLUTE INTONATION

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Intonation is a vital element of tone production, not merely an independent technical aspect of flute playing. A weak, unfocused sound generally will be out of tune, while a focused, full tone will usually be more in tune. The most important element in developing a good sense of pitch is to develop good listening skills.

For many notes, correct fingerings alone almost never produce completely “in tune” notes. Proper intonation on the flute is dependent upon making small adjustments depending on the pitch tendencies of the flute, as well as the function of each note within its harmonic and melodic context. Other factors also contribute to difficulties in intonation, including weather, make and model of the instrument, inherent pitch of the instrument, pitch standards of various ensembles, and the differences between equal temperament and just temperament. *Equal temperament* is an octave divided into equal twelfths, so that each half step is the same size (such as on a piano). *Just temperament* is playing in tune with the natural overtone series. Each half step is unequal (most non-fixed pitch instruments, such as wind instruments, play in just temperament).

Intonation on the flute is determined by:

- 1.) The speed of the air stream (slower air=flatter pitch; faster=sharper)
- 2.) The angle of the air stream (lower angle=flatter; higher=sharper)
- 3.) Left hand pressure (more pressure=lower; less=sharper)

Do not move your head or roll the flute excessively (preferably not at all). Both of these techniques can be used in very “extreme” circumstances (if nothing else works well enough), but most pitch adjustment should be made with the embouchure, jaw, flute placement, and air column.

Some things to consider when making overall pitch adjustments on the flute:

- 1.) Headjoint cork—use your cleaning rod to check the headjoint cork. The line on the rod should be centered in the middle of the embouchure hole.
- 2.) Headjoint placement in body of flute—all flutes are designed for the headjoint to be pulled out 1/16th to 1/4th of an inch.
- 3.) Embouchure—a “smiling” embouchure will generally cause the player to be sharp.
- 4.) Breath pressure—too little air will cause the pitch to be flat, too fast air will cause the pitch to be sharp.

Tuning

Make sure your instrument is warm. The best way to warm up the flute is to cover the embouchure hole with your mouth, close all keys, and blow *gently* through the instrument until it feels warm to the touch. Blowing hard, fast air through the instrument does not warm it up more quickly and only produces more condensation!

When tuning to (an)other instrument(s) (piano, chamber ensemble, band, orchestra, etc.), let the instrument that sets the pitch standard play first. Listen carefully, then play a relatively short tuning note. Stop to hear the difference. Have the other instrument play again, then test your note again. You may also check a brief arpeggio or interval. Do not play an entire scale or lots of extraneous notes. Remember, you are making a first impression with your tuning note, so keep it simple. If you are not sure

how to adjust, guess! Make an adjustment and repeat the tuning note. If it is worse, go the other way. If it is better, but not exactly correct, make another adjustment in the same direction. **Be sure to play with the same quality of tone and breath support with which you will be performing.**

While you are performing, if you feel that you are not completely in tune, do not hesitate to attempt to make an adjustment during several measures rest, or between movements. It is much better to make an effort to adjust than to play an entire performance out of tune!

A Few Pitch Tendencies on the Flute (vary greatly depending on make of flute, etc.)

b ¹	flat	c# ²	very sharp	c# ³	very sharp	
c ¹	flat			d ³	flat	
c# ¹	flat	f ²	flat	eb ³	sharp	b-flat ⁴ (flat)
f ¹	flat			e ³	sharp	b ⁴ sharp
				f ³	(flat)	c ⁴ sharp
				f# ³	sharp	
				g ³	sharp	
				g# ³	sharp	

A Few Special Fingerings

c ²	add 5 & 6
c# ²	add (3), 5 & 6
e ³	no Eb key
f ³	add 6
f# ³	substitute 5 for 6
g# ³	add 5 & 6
a ³	add 5 ring only
b ⁴	finger g ² & add both trill keys & Db
c ⁴	add thumb or half hole 5

Tuning Intervals Beyond Equal Temperament

M2	wider than equal temperament (3.9 cents sharp)
m2	narrower than equal temperament
m3	wide (15.6 cents sharp)
M3	narrow (13.7 cents flat)
P4	narrow (2 cents flat)
P5	wide (2 cents sharp)
m6	wide
M6	narrow (15.6 cents flat)
m7	narrow (17.6 cents flat)
M7	wide (11.6 cents sharp)
Octave	same or narrow

Some suggested resources for intonation study:

Wye, Trevor, *Practice Book for the Flute, Vol. 4: Intonation and Vibrato*, Novello.
Practice Book for the Flute, Vol. 6: Advanced Practice, Novello.

TuneUp CD-Based Intonation Training System

Any slow tone study or scale exercise, with a tuner!