Embouchure Technique
Awareness of the Variables... by Andrew McAfee
www.hornlessons.org

The Five Must Have Techniques
Make sure:
1) the mouthpiece is placed below the bottom lip line.
2) there is 2/3rd upper and 1/3 lower lip in the mouthpiece.
3) the chin is flexed.
4) the angle of the mouthpiece is down.
5) the tongue is down.

Quick 1-2-3 embouchure set up:
1) firm bottom lip and chin (EE-UU),
2) place mouthpiece just below pink lip line,
3) press MP on lips at ratio of 2/3 upper 1/3 lower.

Areas of Exploration

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<td>b) 2/3 upper 1/3 lower ratio</td>
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1) Buzzing Lips (Horsey Buzz basics)
A simplified version for kids to buzz is: press the lips together and blow. For the best tone, hold to the sides as much as you can so the center is open and relaxed. Buzz low to high, starting with

a) holding the corners
b) flex the chin muscle (the pouting muscle downward so the bottom lip is pulled down and forward.

c) squeeze and firm the bottom lip muscles rather than pinch the center.

“There is visual evidence of large muscles pulling the chin downward: one in the center pulling vertically downward to the tip of the chin...emphasize the downward pull which causes that characteristic “U” shaped indentation to appear on the chin.” -Phil Farkas

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Keep the center open and flex the chin muscles into a "U" shape. To go higher, squeeze the side muscles of the bottom lip toward the center and allow it to come under the top lip.

Don't do it like this next picture (Crunch Chin). This has the bottom lip rolled up and inward and the chin muscle crunched upward. This creates a pinched sound and pulls you up and out of the groove. There is no "U" shaped muscle group from the corners to the chin. It closes the center airflow and you lose control of the bottom lip.

Don't do this.

"The chin muscles are drawn downward." -James Froseth and Douglas Hill

Do this:
This shows the "U" shaped chin flexed and inner bottom lip exposed.

"Your chin should never be soft..." -Wendell Rider

2) Mouthpiece Buzzing

Place the mouthpiece directly in the center of the lips under the nose. This ensures you benefit from the balanced zipper-like sealing action from the corners to the center. Remember, keep center open while the corners are closed and clamped together.

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2a) Flex the bottom lip like you're whistling and place the bottom of the MP on or slightly below the pink lip line. Blow into MP. Let the top lip relax in the center so it can buzz freely. The bottom lip is kept firm and squeezed from the sides toward the center.

“Remember to keep your corners and lower lip firm, and at the same time maintain a relaxed and focused aperture.” -Randy C. Gardner.

2b) Press 2/3 upper and 1/3 lower lip pursed forward deep into the mouthpiece. It is better to cram too much lip inside the rim than not enough. Never stretch the lips.

Upper lip = darker sound, lower lip = harder brighter sound. Buzzing the top lip is the goal as it has a warmer sound.

Pressing the mouthpiece into the bottom lip helps stop the bottom lip from buzzing and connect the bottom lip to the jaw.

“The mouthpiece is positioned to the center of the mouth with ⅔ upper lip and ⅓ lower lip within the rim of the mouthpiece.” -James Froseth and Douglas Hill

“The proportions were much the same as they are for modern horn players: two-thirds upper lip and one-third lower lip.” -Phil Farkas

2c) Angle the mouthpiece slightly downward. You’ll get a nasal sound if pressing into the top lip too much.

In the upper range, allow the bottom lip to come under the upper lip.

“...the top lip remains free to vibrate.”
–Randy Gardner

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3) On the Horn

The 1st job of the lips is to relax down on the groove, not pinch to adjust the pitch.

What are the best notes/fingerings to use when tuning?
The 2nd, 4th and 8th harmonics are best. Here is the F Horn harmonic series up to the 8th harmonic.

Use this chart below for figuring how to tune an F concert chord (a C chord in horn talk) and to figure out what fingerings to use. The middle C (played with no valves) is the 4th harmonic and should be the same intonation as harmonic 1, 2, and 8. Notice the 5th harmonic (when played 0) will naturally sound 14 cents flat (100 cents is the distance between ½ steps in a scale).

Harmonics

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<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+2</td>
<td>0</td>
<td>-14</td>
<td>+2</td>
<td>-31</td>
<td>0</td>
<td>+4</td>
<td>-14</td>
<td>-12</td>
<td>+2</td>
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The naturally occurring pitch as it differs from how a piano is tuned.
3a) Connection to the Groove/Note/Horn

Seven Confirmations to find/feel the bottom groove of a note:

<table>
<thead>
<tr>
<th>At the beginning of one note:</th>
<th>In the middle of one note:</th>
<th>From note to another note:</th>
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<tbody>
<tr>
<td>1) Staccato articulation</td>
<td>3) Forte/Piano breath</td>
<td>5) Overtone series</td>
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<tr>
<td>2) Breath starts</td>
<td>accents/swells</td>
<td>arpeggio</td>
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<td></td>
<td>4) Jaw vibrato</td>
<td>6) Trills</td>
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<td></td>
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<td>7) ½ step slurs</td>
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“...let the pitch fall by opening the embouchure very slightly. The tone color will show clearly when and where the pitch center is reached...”-Michael Hoeltzel

Hoeltzel confirms this relationship of the jaw/chin relationship in his vibrato technique by

“...letting the chin swing lightly so that it will affect the embouchure...”-Michael Hoeltzel

When tuning a Geyer type horn, start with the Bb side of the horn and tune the Fs with T-0 (Thumb valve and open). Then T-2, T-1, skip T-12, play T-23 for the 3rd slide, then lift the thumb key and play the F horn 0, 2, 1, 23 for the 3rd slide.

In orchestra, when tuning to a concert A, use T-2 instead for a better overtone.

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3b) From Groove to Groove

There are two basic actions to move to another note.

1) **Horizontal Action:** Seal Sides to Center (zip-lock action)

2) **Vertical Action:** Jaw/Chin/Bottom Lip connection finding the bottom of every groove (the bottom of note cushion feels like 2 opposing magnets).

> “Moving the jaw down as you go lower is OK.” - Wendell Rider

Here is where it becomes critically important that the chin muscle is firm and pulled down. This allows the jaw to pull the bottom lip into place at the bottom of every note. You will have one jaw position for every note on the horn. Don’t go from the center of the note to the bottom of the note but from groove to groove.

> “The lower jaw should drop noticeably as the hornist descends into the lower register.”

- Dr. Patrick Miles

Use this Trill exercise to master the action of the jaw in connection with the chin muscle and bottom lip. Also blow fp air on every beat to feel the bottom of the note, to open up the embouchure (thick air) and connect to the horn.

You can start on the upper note (A) with the chin hard and drop the jaw to pop down to the next groove (G). The jaw is the only part that moves. This ensures that the tone stays open and both grooves pop out cleanly.

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This next sliding/slurring exercise is for feeling the relationship between the notes/grooves. They should sound/feel evenly spaced and float in tune without a bump or pop from groove to groove.

INSIDE THE MOUTH, keep the tongue relaxed and down! Lay it flat on the lower teeth. The tip can touch the bottom lip. Keep the back of the tongue down. Imagine there's an egg in your mouth and shape your tongue to accommodate its shape. Keep it low in the mouth. Don’t let it come up for slurs or in the high range. That will just block your air and create a bright, nasal sound in the tone. Notes are changed with the firmness of the lip (side to center squeezing) and the jaw moving up and down.

The slide position is related embouchure technique/efficiency AND to room/horn temperature!

**Temperature and Humidity**

“In dry air the pitch will rise with temperature 3 cents per centigrade, 1.7 cents per deg F. Or, a quarter semitone (25 cents) per 8 degrees centigrade or per 15 deg F. In saturated humid air (100 % RH) the effect is some 13% larger (about 3.4 ct/deg C).” - Johan Liljencrants

STARTING NOTES WITH THE TONGUE

1) Inhale (hold the ribs out so there is no internal pressure).
2) Seal the lips closed with the tongue inserted between them.
3) Pressurize the air against the lips by letting the ribs fall.
4) Pull the tongue back from the lips and let the air release from mouth.

Before you play, HOLD THE AIR WITH THE TONGUE where the top lip and front top teeth meet, NOT WITH THE BACK OF THE TONGUE OR IN THE THROAT. The note starts when the tip of the tongue pulls back from the top teeth and releases air across the lips. SEAL THE LIPS CLOSED WITH THE TONGUE BEFORE YOU EXHALE OR THE THROAT WILL CLOSE TO HOLD BACK THE AIR. If you don’t hold the air at the lips, the throat will automatically close and hold the air. This will cause stuttering and starting problems as well as air backing up into the throat.

Play through your technique. I hope you will find more peace through your awareness and control of these variables and be freer to make music. Feel free to visit www.hornlessons.org for more information and to see my videos on these topics.

Andrew M. McAfee
Principal Horn of the North Carolina Symphony for 15 years, Andrew McAfee has left the busy orchestra schedule in 2007 to focus on a solo performance career, conducting and his teaching position at the University of North Carolina at Chapel Hill (UNC).

Brought up in a musical family, Mr. McAfee became principal horn of the Merced Symphony (CA) at 15 and at 17 made his orchestral solo debut playing Weber’s Concertino in E. Since then, other solo appearances have included the Britten Serenade with the Salisbury (NC) Symphony, the Saint-Saëns Concertpiece with the Enloe Wind Ensemble, the Strauss Concerto No. 1 and the Hubler Concertstück with the North Carolina Symphony, and Schumann’s Concertstück with the Longview Symphony in Texas.

His chamber music career began with a music scholarship to play with the California State University Fresno President’s Wind Quintet and to study with Dr. James H. Winter. The quintet traveled and performed in Europe and Taiwan, and won awards at the Coleman Competition and Carmel Music Festival. During this time, he also studied with David Krehbiel and performed and toured with the San Francisco Symphony Youth Orchestra in Europe.

Mr. McAfee completed his Bachelor of Music in Performance at Northwestern University where he studied horn with Dale Clevenger, Norman Schweikert and other members of the Chicago Symphony Orchestra. He has since performed with the Chicago Symphony, Civic Orchestra of Chicago, Sante Fe Opera, St. Louis Symphony and Chautauqua Symphony Orchestra. He has held full time positions with the Merced Symphony, Fresno Philharmonic, Honolulu Symphony, Columbus Symphony, New Mexico Symphony and the North Carolina Symphony.

Mr. McAfee has also been a guest clinician at the Southeast Horn Workshop, has performed with numerous chamber ensembles including the Degas Quartet, Ciompi Quartet, Malarme Chamber Players, Symphony Winds (performing numerous educational programs), Carolina Wind Quintet (UNC Faculty) and is a chamber music coach at UNC-Chapel Hill and for other NC area ensembles and workshops.

As a conductor, Mr. McAfee is the Music Director/Conductor of the Triangle Youth Ballet in Chapel Hill, North Carolina, where he has conducted performances of Tchaikovsky’s The Nutcracker in December 2008 and 2009 and Sleeping Beauty in May 2008 and March 2009. He was a finalist for the Durham Symphony Music Director position with whom he conducted the 2008 Durham Symphony Pops summer series. He also conducted a benefit concert premiering the Symphony No. 1 by Ari Picker in November 2008. Mr. McAfee has twice been the Interim Music Director/Conductor of the Chapel Hill Philharmonia and was the founding Conductor of the Triangle Youth Orchestra. He received his Master of Music in Orchestral Conducting from the University of North Carolina School of the Arts in May of 2009.
www.hornlessons.org features videos, PDF’s downloads, tuning tracks and helpful information on horn playing technique.