Student Resource Guide

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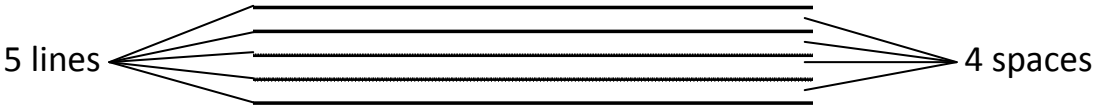
Staff

In music, the **staff** is the set of 5 lines and 4 spaces where notes and rests are placed. It looks like the following:

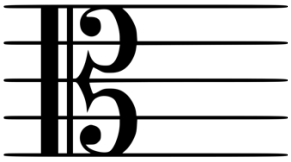


Clefs

A **clef** is a symbol that is placed on the staff and it tells us what notes are on our lines and spaces. There are three clefs that we will deal with in orchestra: the **Treble Clef**, **Alto Clef**, and the **Bass Clef**.

The **Treble Clef** is also known as the **G-Clef** because the bottom circles the "G line" on the staff. The violins will play this clef.

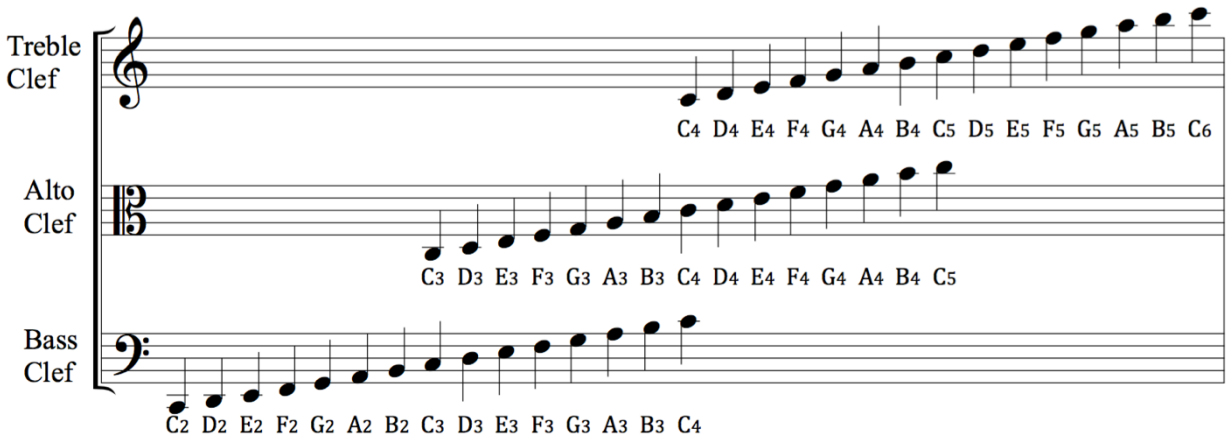
The **Alto Clef** is also known as the **C-Clef** because it points to where the "C" is on the staff. The violas play this clef.



The **Bass Clef** is known as the **F-Clef** because the dots begin on and surround the "F" on the staff. The cellos and bass play this clef.

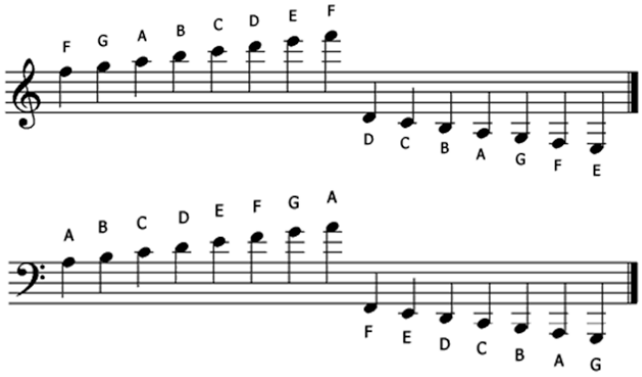
Note Placement on the Staff

There are 7 letter names used in music. (A, B, C, D, E, F, and G). Then going higher on the staff, we go forward in the alphabetical. When going lower on the staff, we go backwards in the alphabet. When going higher and we reach G, we start over with A and continue. When going lower and we reach A, we start back with G and continue on.



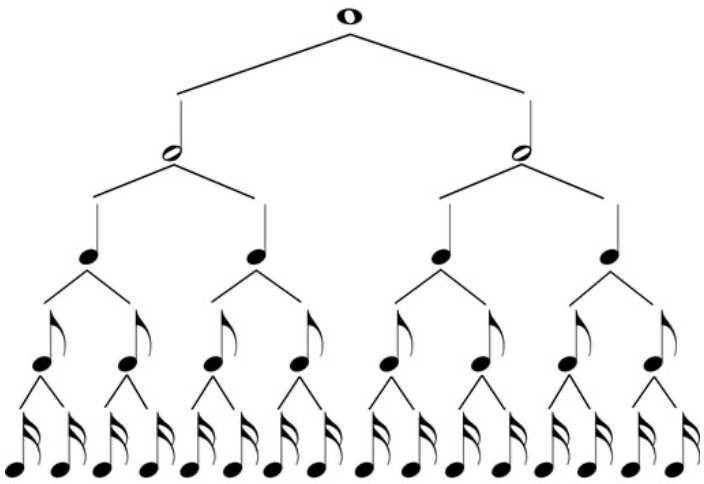
Ledger Lines

Ledger lines are additional lines asses above and below the staff to extend the staff. Our note names continue to go alphabetical up and down with the ledger lines. Below are examples of reading notes on ledger lines. Keep in mind, ledger lines are named the same way as the lines and spaces of the staff.



Note Relationships

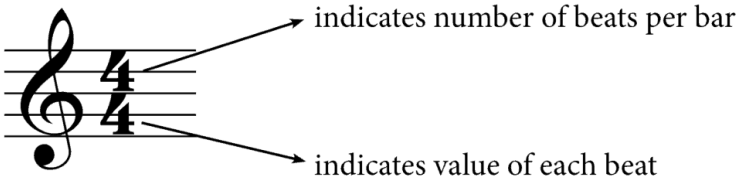
The following chart shows the breakdown of note values.
Example: two half notes equal one whole note.



Same as with notes, we also have **rests** which are units of musical time what are silent.

Time Signatures

A time signature tells us two things:

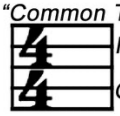


2 on bottom =	4 on bottom =	8 on bottom =
= 2	= 4	= 8
= 1	= 2	= 4
= ½	= 1	= 2
= ¼	= ½	= 1
= 1/8	= ¼	= ½

With a 4 on the bottom:

Other time signatures:

"Common Time"



Four beats per measure

Quarter note gets the beat

"Cut Time"

Two beats per measure

Half note gets the beat

"Waltz Time"

Three beats per measure

Quarter note gets the beat

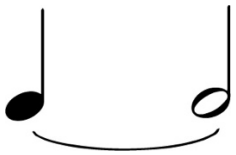
"6/8 Time"

Six beats per measure

Eighth note gets the beat

Ties

A **tie** is a curved line that attaches 2 or more notes of the **SAME** pitch. Ties add note values together and are to be played as one unbroken note. Multiple examples of counting tied notes are given below (each example is treated as being in a time signature with a 4 on the bottom):



The quarter note receives 1 beat and the half note receives two beats.
1 beat for the quarter note + 2 beats for the half note = 3 beats for the tied notes.

The quarter note receives 1 beat and the eighth note receives one half of a beat.
1 beat for the quarter note + 1/2 of a beat for the eighth note = 1 1/2 beats for the tied notes.

Slurs

A slur is a curved line that attaches 2 or more notes of DIFFERENT pitches. The first note under a slur marking is played and the other slur notes are played with the same bowing.

Dotted Notes

A dot added after a note changes the note's value. A dot always ADDSS HALF OF WHAT IS BEFORE IT. Multiple examples are given below (each example is treated as being in a time signature with a 4 on the bottom.

The half note receives 2 beats.
The dot ADDS half of 2 to the note. Half of 2 = 1
2 beats for the half note + 1 beat of the dot = 3 beats for the dotted half note.

The quarter note receives 1 beat.
The dot ADDS half of 1 to the note. Half of 1 = ½
1 beats for the half note + ½ beat of the dot = 1 ½ beats for the dotted half note.

The eighth note receives ½ beats.
The dot ADDS half of ½ to the note. Half of ½ = ¼
½ beats for the half note + ¼ beat of the dot = ¾ beats for the dotted half note.

Double Dotted Notes

What happens if we have a note followed by 2 dots? The first dot ADDS half of the note value and the second dot ADDS half of the value of the first dot. An example is given below:

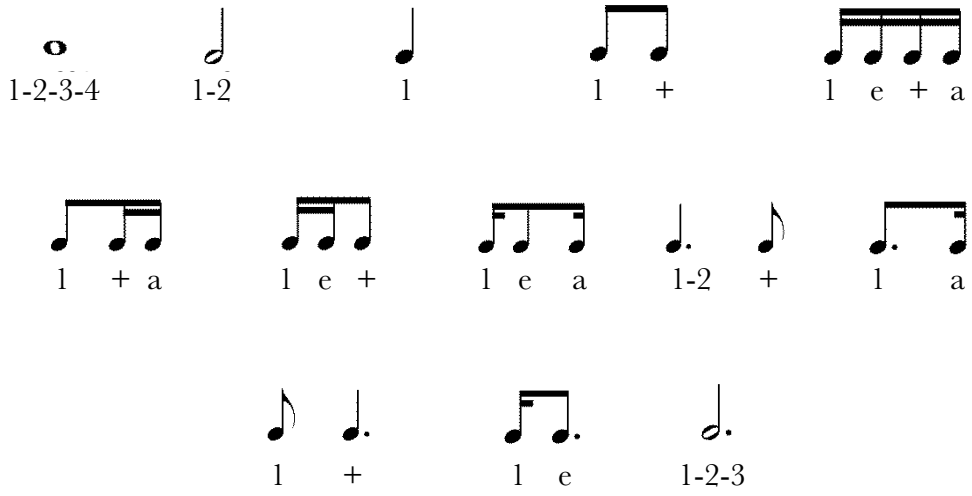
The half not receives 2 beats
The first dot ADDS half of 2 to the note. Half of 2 =1
The second dot ADDS half of the first dot. Half of 1 = ½

2 beats for the half note = 1 beat for the first dot = ½ a beat for the second dot = 3 ½ beats for the double dotted half note.

Counting Rhythms

The following gives examples of how to count common rhythm patterns in time signatures with a 4 on the bottom.

Time Signatures with a 4 on the bottom:

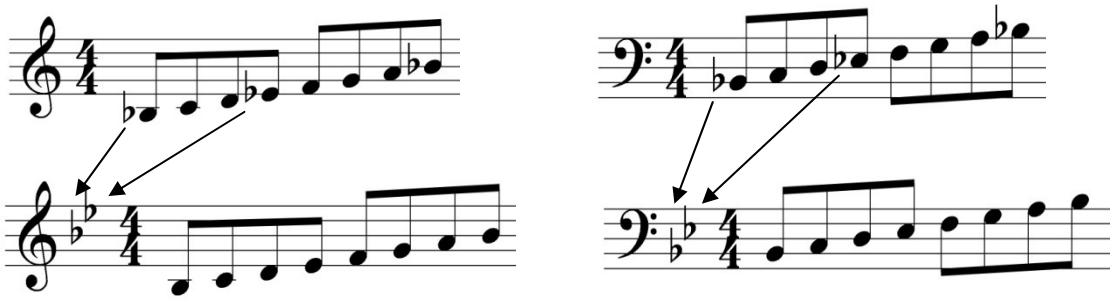


Key Signatures

A **key signature** is a set of sharps or flats at the beginning of a piece of music that tells us to play certain notes as sharp or flat all the way through the piece. The key signature is derived from the sharps or flats present in the major scale. *Key signatures will **never** contain bother sharps and flats at the same time!*

The first set of examples below show the Bb Major scale written without a key signature. There are two notes in the scale that are flat: Bb, Eb.

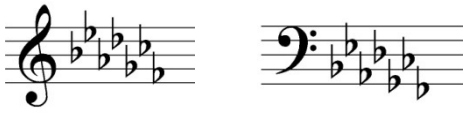
The second set of examples show the scale written using a key signature. The flat notes in the scale have now been moved over to the key signature.



In the above examples, the same notes are played flat each time.

Key signatures are read from left to right. The sharps and flats are always put in the same order.

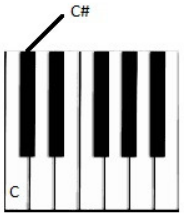
The Order of Flats is: B E A D G C F



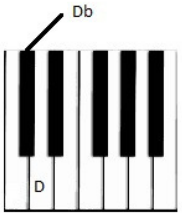
The Order of Sharps is: F C G D A E B

Enharmonics

When we give a sharp (#) value to a note, we go higher on the keyboard. (Example – C to C#)



When we give a flat (b) value to a note, we go lower on the keyboard. (Example – D to Db)



Notice that both C# and Db are on the same key on the keyboard.
These notes are called enharmonic.

Enharmonic notes sound the same and are fingered the same but are written different.

There are several enharmonic notes that we see on a regular basis.

You need to be familiar with the enharmonic notes to be a proficient musician.

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

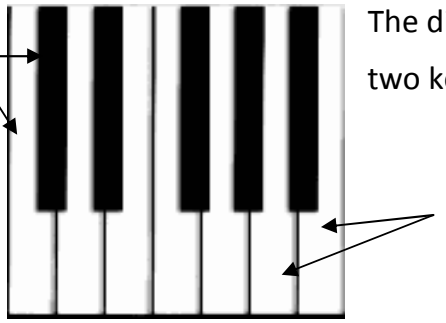
Major and Chromatic Scales

There are many types of scales. The Major Scale and the Chromatic Scales are explained below.

A major scale is based on a specific series of whole steps (W) and half steps (h). A chromatic scale is made up entirely of half steps.
A whole step consists of two half steps. A half step is the distance between two adjacent keys on a keyboard.

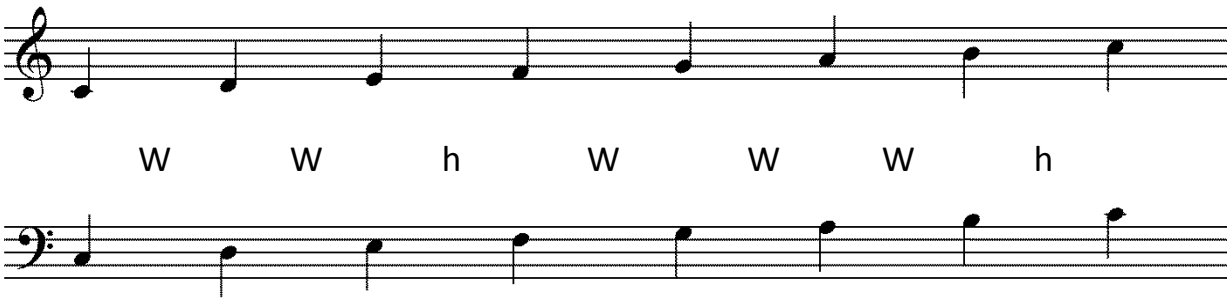
Example:

The distance between these two keys is a half step.

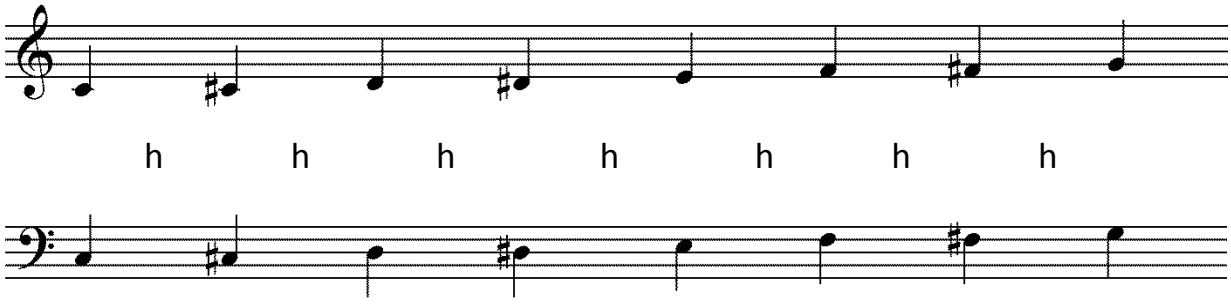


The distance between these two keys is a whole step.

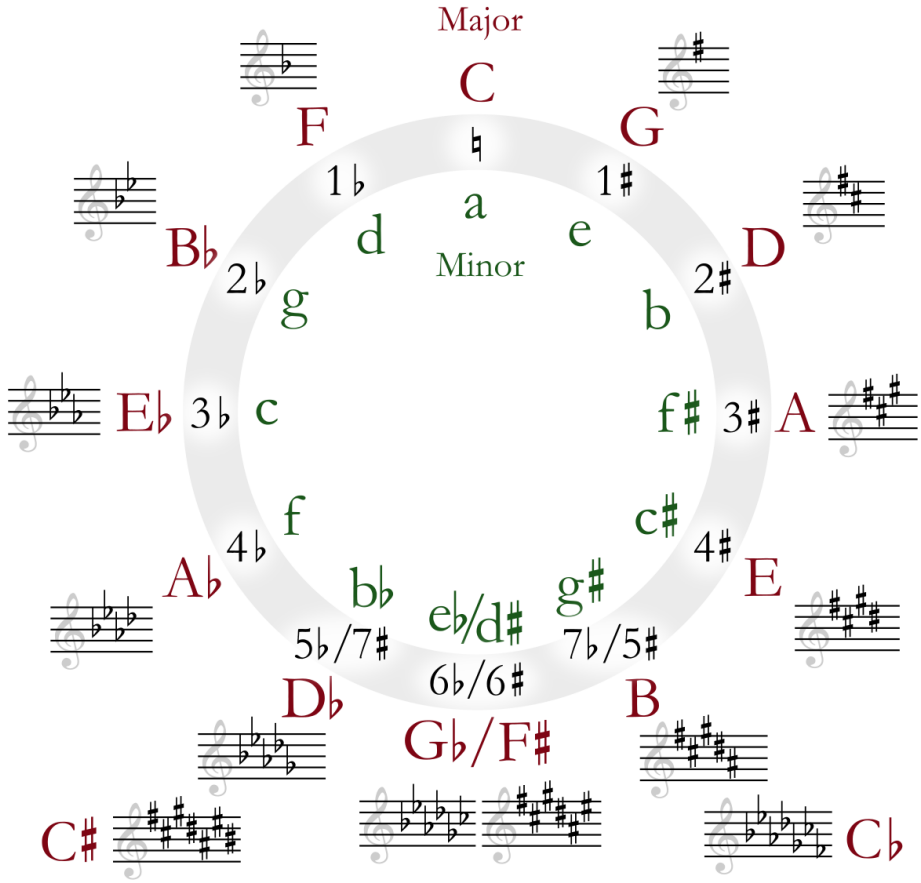
The following is an example of a major scale starting on C. The placement of whole steps (W) and half steps (h) are marked.



The following is an example of a chromatic scale starting on C. The scale contains only half steps.



The Circle of Fifths



ORDER OF FLATS

B E A D G C F

ORDER OF SHARPS

F C G D A E B

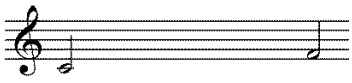
Intervals

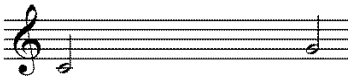
In music, the term **interval** refers to the distance between two notes.
Each interval has a specific name. Those names are shown below and an explanation on how we find the name.
In order to find an interval name, we must count all letter names involved between and including the letter names of the notes shown.

Unison
Involves 1 note name (both pitches are C)

Second (2nd)
Involves 2 note names (2 letter names – C, D)

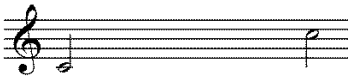
Third (3rd)
Involves 3 note names (3 letter names – C, D, E)

Fourth (4th)
Involves 4 note names  (4 letter names – C, D, E, F)

Fifth (5th)
Involves 5 note names  (5 letter names – C, D, E, F, G)

Sixth (6th)
Involves 6 note names (6 letter names – C, D, E, F, G, A)

Seventh (7th)
Involves 7 note names (7 letter names – C, D, E, F, G, A, B)

Octave (8th)
Involves 8 note names  (8 letter names – C, D, E, F, G, A, B, C)

Articulations

A clear understanding of articulations and how they are played is very important to create a good, uniformed ensemble sound.

The following chart shows articulations types, written representations of the note, interpreted values of the note, visual representations of the note length, and a description of how each should be played.

Name	Written	Interpreted Value	Visual Length of Note	Description
				Slightly Seperated
Staccato				Lightly Seperated (1/2 value of written note)
Accent				Heavy, Detached (3/4 value of written note)
Tenuto				Full length note (Full value of written note)
Marcato				Short, Intense (Accented hard, 1/2 value)

In *the column for visual length of the note, each box is representative of 1 beat and the shaded area is the length the note should be played within that beat.*

Strings Specific Terms

1. **Arco:** Italian for bow. Playing with the bow.
2. **Bow Lift:** The act of moving the bow into a reset to the previous marked bow direction.
3. **Down bow:** With your bow on the string, pull down toward the right, that is a down bow.
4. **Up bow:** The opposite of down bow, pushing the bow upwards.
5. **Pizzicato**: Plucking the string, most commonly with the right hand. Usually the music says "pizz" to indicate pizzicato, then arco when it's time to use the bow again. For left hand pizzicato, done with your violin fingers, a "+" is placed over each note that is to be plucked.

Bowing Types

6. **Legato**: Smooth, connected bow strokes. Legato notes are often slurred; that is, a group of notes is played together in one down-bow or up-bow. In the music, a slur looks like a curved line over the notes that are all in one bow.

7. **Détaché**: Broad but separate bow strokes. In music, the notes simply are not slurred.

8. **Martelé**: Detached, strongly accented notes. Often you'll use large and very rapid bow strokes for martelé. These are sometimes marked in music with a line or an accent over the note, but they not always. You choose this stroke from the context of the music.

9. **Staccato**: Detached, shorter notes with accents. Staccato is indicated in the music with dots over the notes. "Flying staccato," also known as "up-bow staccato," is when short notes are played all in the same bow stroke, stopping the bow for each note (the bow stays on the string). This is indicated in the music with dots over the notes as well as a slur over the group of notes that will be in one bow.

10. **Spiccato**: Detached notes played with a bouncing bow (the bow comes off the string). Generally, spiccato is used in faster passages than staccato—but not always. To execute this stroke you need to have a relaxed shoulder, flexible wrist, bow at the bounce point, and contact point near the middle of the bow. "Flying spiccato" is when a number of short notes are played all in one bow, and the bow bounces for each note. This is indicated in the music in the same way as flying staccato (dots over the notes as well as a slur over the group of notes), but you can tell them from staccato notes by context.

11. **Sautillé**: Detached, very rapid bounced strokes played in the middle of the bow. This is marked in the same manner as spiccato and chosen in the context of the music.

12. **Ricochet**: Bouncing several notes in a row with one bow stroke. Most often you let the bow drop, and then keep bouncing, moving it in a down-bow or up-bow direction. You can learn to control the speed at which the bow bounces and number of times it bounces by gauging the height from which you drop it and controlling when you stop the bounce.

13. **Tremolo**: Usually played at the tip of the bow, this is an effect produced by moving the bow very quickly in small strokes from the wrist. It's so fast that the notes aren't measured, and it's shown in the music as a note that has three slashes through its stem (or over the note if it's a whole note). Keep the tremolo going for the length of a note's value: A whole note would get four beats of tremolo.

Advanced Technique

1. **Double Stops**: Since the violin has four strings, you can play on two strings at once by putting the bow on both strings while using the appropriate fingering. This is shown in sheet music as two notes stacked on top of each other.

2. **Triple Stops**: You usually have to roll the bow to get three notes to play at a time, but it is possible. This would be reflected in the music as a stack of three notes.

3. **Quadruple Stops**: You guessed it: Four notes at a time. Roll the bow over all four strings, usually from the bottom to the top, to make it happen. In music, it looks like four notes stacked on top of each other; you'll see it most frequently as a "chord" at the end of the piece.

4. **Natural Harmonics**: This is a matter of physics. If you mathematically divide a string in half and place your finger, light as a feather, at that exact middle point while bowing on that string, you will produce a ghostly overtone that is an octave higher than the given string. Divide both halves of that string in half again, and at both of those points (which we can call quarter points), you get another harmonic, an octave higher than the first harmonic. At other intervals along the string (dividing it in thirds, for example) are other harmonics that create other notes.

Practicing Bowing Techniques

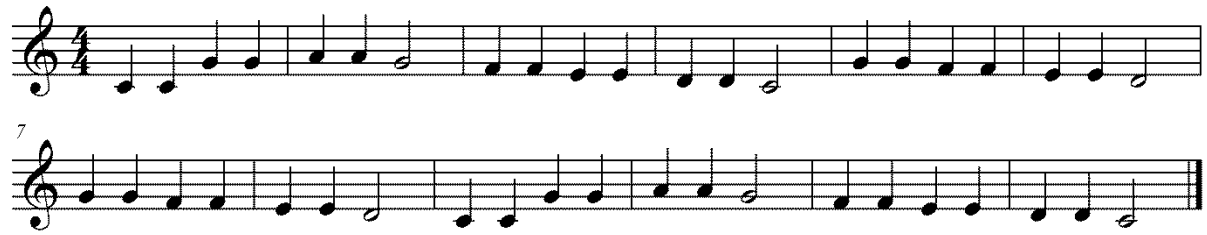
1. Scales are a great way to polish and perfect various bowing techniques. Using whatever scale is appropriate for your level (one-octave, two-octave, or three-octave), play your scale using one of the bowing techniques described above, for example: martelé or legato.

2. Here is a fun trick to try with your violin to practice natural harmonics. Play a nice smooth, open G string. Now, continuing to bow very smoothly and slowly, run your finger up the G string, but barely touch the string. The result should be a series of harmonics that sound a little like arpeggios, but not quite. Stravinsky used this effect in the violins at the beginning of his 1910 ballet The Firebird. When natural harmonics appear in music, they look like a diamond-headed note placed right on the note where you're supposed to lift your finger so it's not pressing the fingerboard (rather, it's barely touching the string).

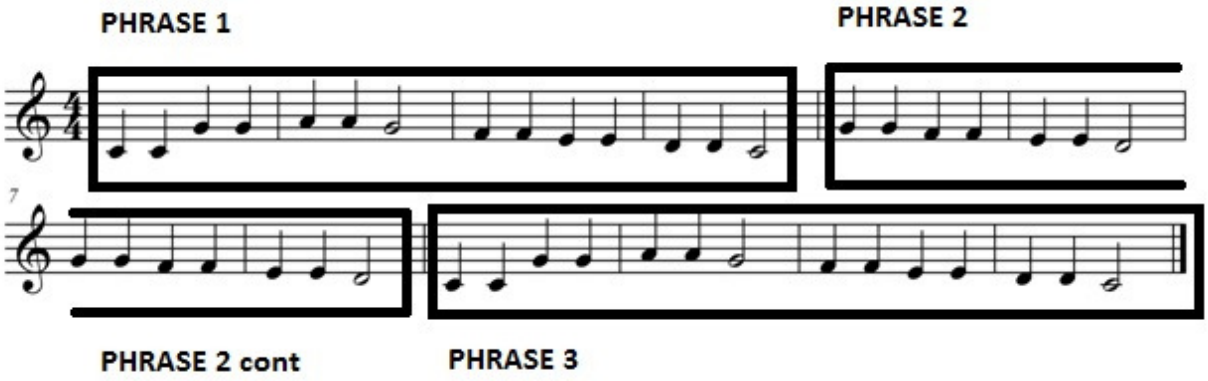
Phrasing

A phrase, in music, is a complete musical thought. Phrases are typically 4 or 8 measures long (but may be more or less depending on the music).

Look at the following musical selection (Twinkle, Twinkle Little Star):



The selection can be broken into 3 phrases, each 4 measures long.



For our phrasing to be correct and to produce a complete musical thought, we must only break ONLY at the end of the phrase or at the breath marks provided by the composer.

If we break in inappropriate places, our performance becomes segmented and choppy and does not make sense to the audience. To understand this concept, try singing Twinkle, Twinkle, and taking breaths at random spots in the song. Then, sing the song again, breathing the end of each phrase only.

Braking at appropriate places is only one part of musical phrasing. We must also play through the phrase musically by emphasizing the high points, playing dynamics, articulations, etc. This concept will be covered in more detail as we perform our musical selections.

Sound Waves and Tuning

Every pitch that we play produces a sound wave.

Each high and low point on the wave is a single vibration. The number of vibrations per second depends on the pitch that we play and in what octave we play that pitch in.

If we play the following:

The pitch creates 440 vibrations per second.

As the pitch gets higher, the vibrations increase. So, the same pitch one octave higher vibrates twice as fast (880 vibrations per second).

As the pitch gets lower, the vibrations decrease. So, the same pitch one octave lower than the original example vibrates at half the speed (220 vibrations per second.)

It is possible to play every pitch with the number of vibrations faster or slower than the desired outcome. If instruments in the group are played pitches with different numbers of vibrations per second then the sound waves do not line up.

When the sound waves do not line up properly, we are playing "out of tune".

When we are playing "out of tune," you hear beats (pulsing) in the sound between the instruments. We must make adjustments to our strings to lengthen or shorten it so that the vibrations will begin to line up and we can play "in tune."

Playing "out of tune" is displeasing to the ear and should be fixed immediately to allow for a top-notch performance. An audience does not want to listen to an "out of tune" orchestra. It is like listening to someone scrape their fingernails down a chalkboard.

Practice Techniques for Technical Patterns

Proper practice techniques are EXTREMELY important to properly and quickly learn music.

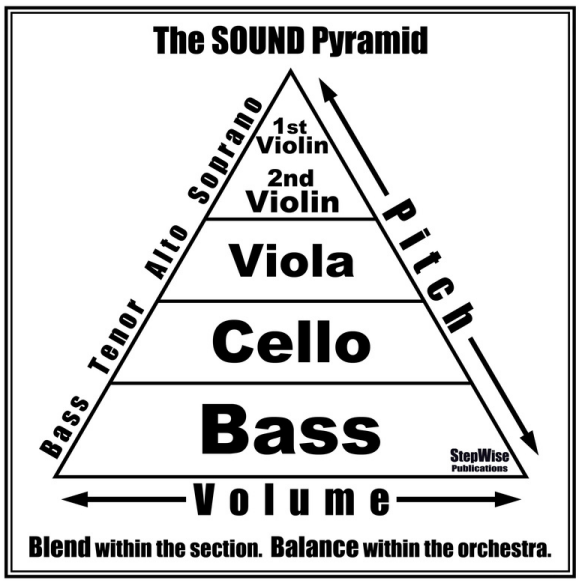
First, we need to define what a good practice session is supposed to encompass:

1. **Warm-up** – Long tones to work on bowing and intonation. (5 minutes)
2. **Scales** – Practice scales daily to improve other aspects of playing. Work on accuracy and speed to improve technical passages. (5 minutes)
3. **Music** – This should first include music that is NOT easy to play. Pull our the sections that need the most work and focus on those items. Then, for fun, play come of the things that you can already play before putting your instrument up. **Spend more time on the hard things though!** (15 minutes)
4. **Sigh-read** – Pick a song out of the book; find other sheet music, etc. and sight-read a piece you have never seen before. This will help your ability to be more accurate the first time you see a new piece.

Ensemble Balance

In order for an orchestra to sound its best, we must play with proper balance. The following diagram shoes us how we should balance the ensemble.

Remember, the instrument or instruments playing the melody are ALWYS the most important and should be the most prominent. After making sure the melody is heard, the ensemble must then be balanced as follows:



Balance, Blend, and Intonation

If you hear yourself over the entire ensemble, then one of more of the following is the problem:

1. **BALANCE:**

   If you hear yourself above all others in your section or ensemble, **YOU ARE PLAYING TOO LOUD.**

   Make an adjustment to volume by playing softer. Lose you **individual identity.**

2. **BLEND:**

   If you still hear yourself and you made the volume adjustment in #1, then **YOU ARE PLAYING WITH POOR TONE QUALITY.**

   Make adjustments to your bowing.

3. **INTONATION:**

   If you still hear yourself and you made the adjustments in #1 and #2, then **YOU ARE PLAYING OUT OF TUNE.**

   If you hear "beats" in the sound, make an adjustment on the fingerboard. Did you beats speed up or slow down?

   If the beats are faster, you moved in the wrong direction. Move the other direction.

   If the beats are slower, you moved in the correct direction. Continue moving until the beats go away.

   If you bow pressure or speed is not correct, you will also be "out-of-tune." Correct this, if your sound worsens, do the opposite.

Common Musical Terms

1. 1st & 2nd Endings – Play through the 1st ending then play the repeated section of music, skipping the 1st ending and playing the 2nd ending.
2. Accent – Articulation that means to emphasize the note and play 3/4 of the written value.
3. Accelerando – gradually faster
4. Accidental – Any sharp, flat or natural sign which appears in the music without being in the key signature.
5. Adagietto – slow, nut not as slow as adagio
6. Adagio – very slow
7. Al fine – to the finish
8. Alla – to the finish
9. Allargando – gradually slower and broader
10. Allegretto – light and moderately quick, but not as fast as allegro
11. Allegro – rapid; lively
12. Andante – moderately slow but moving
13. Andantino – generally a little quicker than andante
14. Articulation – How we tongue or not tongue a note.
15. A poco – a little, gradually
16. A tempo – in time; generally implies a return to the original rate of speed
17. Bar Lines – vertical lines that divide the staff.
18. Beat – the pulse of music.
19. Breath Mark – Lift the bow from the instrument.
20. Brilliante – brilliantly
21. Cantabile – in a singing style
22. Chromatic – by semi-tones
23. Clef – indicates the position of note names on a music staff. (Treble, Bass, etc.)
24. Coda – the final added measures of a musical composition
25. Con – with
26. Con brio – with spirit; brilliantly
27. Con forza – with force
28. Con spirito – with spirit; brilliance
29. Consonance – harmonious, pleasing to the ear.
30. Crescendo – gradually louder
31. Da Capo(D.C.)– from the beginning
32. Dal Segno(D.S.)– from the sign
33. Decrescendo – gradually softer
34. Diminuendo – gradually softer
35. Dolce - sweetly
36. Dissonance – harsh, lack of harmony. Not pleasing to the ear.
37. Dot – Adds half the value of the note to itself.
38. Double Bar – indicates the end of a piece of music.
39. Duet – A composition (piece of music) with two different parts being played or sung at the same time.
40. Dynamics – the loudness or softness

41. Etude – a study
42. Fermata – a hold or pause
43. Fine (fee-nay) – the end.
44. Flat - makes the note sound lower and remains in effect for the entire measure.
45. Forte – loud
46. Fortissimo – very loud
47. Grandioso – grand or noble style
48. Grave – very slow or solemn
49. Harmony – two or more notes played together. Each combination forms a chord.
50. Key Signature – tells us which notes to play as sharp or flat throughout a piece of music.
51. Ledger Lines – short lines above and below the staff. These lines extend the staff so that more notes can be played than just the notes on the staff.
52. L'istesso – the same
53. Larghetto – slow, but not as slow as largo
54. Largo – very slow
55. Legato – smooth and connected
56. Lento – very slow
57. Maestoso - majestically
58. Marcato – marked with emphasis
59. Marcia – march style
60. Marziate – martial
61. Measure – the space between two bar lines.
62. Melody – the main theme or idea of the piece of music.
63. Meno – less
64. Mezzo – medium; half
65. Mezzo Forte– medium loud.
66. Mezzo Piano– medium soft
67. Moderato– moderately
68. Molto – very
69. Mosso – motion; movement
70. Ottava – an octave
71. Natural - cancels a flat or sharp and remains in effect for the entire measure.
72. Pesante – heavily; with emphasis
73. Pianissimo – very soft
74. Piano – soft
75. Pick-up Notes – One or more notes that come before the first full measure. The beats of Pick-up Notes are subtracted from the last measure. May also be called an anacrusis.
76. Piu – more
77. Poco – a little
78. Poco a poco – little by little
79. Prestissimo – very fast; more so than presto
80. Presto – very fast
81. Rallentando – gradually slower
82. Ritardando – gradually slower
83. Ritenuto – a steady pace, but slower than the preceding tempo
84. Rubato – temporary irregularity of time, lengthening some notes at the expense of others

85. Segno – the sign
86. Sempre – always; continually
87. Sforzando – forced; with emphasis
88. Sharp – makes the note sound higher and remains in effect for the entire measure.
89. Simile – the same
90. Slur – Curved line connecting notes of different pitches. Indicates to the performer to not tongue the notes.
91. Soli – more than one performer in unison
92. Solo – one person plays.
93. Staccato – separated, detached style
94. Staff – a set of 5 lines and 4 spaces where notes and rests are placed
95. Tacet - silent
96. Tempo – time; speed
97. Tenuto – sustain full value
98. Tie – A curved line connecting notes of the same pitch and indicates to the performer to add the connected note values together and play as one unbroken note.
99. Time Signature – indicates how many beats per measure (top number) and how many beats the whole note receives. (bottom number)
100. Vivace – vivacious; lively
101. Tuning - the act of raising and lowering a pitch of an instrument to produce the correct tone of a note. 57.
102. Tutti–everyone plays.

Advanced Techniques

Col Legno: Passage where the sound is produced by striking the wood of the bow against the string(s).

Con sordino: With mute.

Harmonics: Bell-like tones created by lightly touching the string with the flat part of the left finger, which breaks the string into partials.

Left-hand pizzicato: pizzicato created by a sharp plucking of the string with the fingers on your left hand.

Ponticello: Orchestral technique of playing on the bridge (sul ponticello).

Portamento: An audible slide from one position to the next.

Sul tasto: Playing over the fingerboard (which produces a softer sound).

Vibrato: An oscillating of the sound, used to provide warmth to a note. Basically three kinds of vibrato: finger vibrato, hand vibrato, and arm vibrato.