

Deaf Inclusion in Music: Creating Success for ALL!

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The background image shows the interior of a grand, ornate theater. The foreground is filled with rows of plush, red upholstered seats with dark wood frames. In the background, there is a balcony with more seating, draped with red curtains. The walls and ceiling are highly decorated with gold-colored carvings and moldings. Several large, ornate chandeliers hang from the ceiling, casting a warm, golden light. A staircase with a dark carpet is visible on the right side of the image.

I am not a deaf musician; I am
a musician that happens to
be deaf.

Evelyn Glennie, Percussionist

Session Objectives:

1

Provide a general overview of Hearing Loss/Deafness.

2

Provide suggestions on best practices to incorporate students who are Deaf or Hard of Hearing.

3

Provide resources for further assistance.



What is a Hearing Impairment?

“Hearing impairment is the disability label used in IDEA to indicate a hearing loss that requires special education and related services. In other words, the hearing loss is so severe that the child’s ability to process linguistic information is affected.” (Hardman, Drew, & Egan, 2016)

What does it mean to be deaf?

“For students who are deaf, the primary means of communication is through the visual channel. Their residual hearing or remaining hearing is not sufficient to process speech. These students have a hearing loss that is 90dB or greater.” (Darrow, 2006)

Congenital vs. Acquired Hearing Loss:

Congenital

- A loss that was present at birth. Usually detected before age 2.
- Children will not have normal exposure to sounds, especially speech.
- They are considered to have a “prelingual” loss.

Acquired

- Occurs at the age of 2 or later.
- They are considered to have “post lingual” loss that follows speech acquisition.
- Even though they have some advantages, they still need assistance on developing language skills.

Conductive Hearing Loss:

- Refers to a difficulty in conducting or transmitting sound vibrations to the inner ear, thus resulting in a reduction in the loudness of sounds.
- The obstruction can be due to excessive earwax, fluid build up, or parts of the ear such as the eardrum or middle ear bones that do not move properly.
- Can be corrected through surgery or some other medical intervention.

[Click for more info on Conductive Hearing Loss](#)

Sensorineural Hearing Loss:

- Refers to damage of the auditory nerves.
- This may cause sound to be delivered to the brain in a distorted or unclear fashion.
- This type of hearing loss can not be treated through corrective surgery.
- Use of hearing aids or other types of amplification do not always work.

[Click for more info on Sensorineural Hearing Loss](#)

One Ear or Two?

Unilateral Hearing Loss: Hearing loss occurs in only one ear.

Bilateral Hearing Loss: Hearing loss occurs in both ears.

Note: Hearing loss can occur to various degrees in each ear.

Measurement of Hearing:

- **Frequency**: is the number of vibrations produced per second and is measured in Hertz (Hz).

(Example: One vibration per second = 1 Hz)

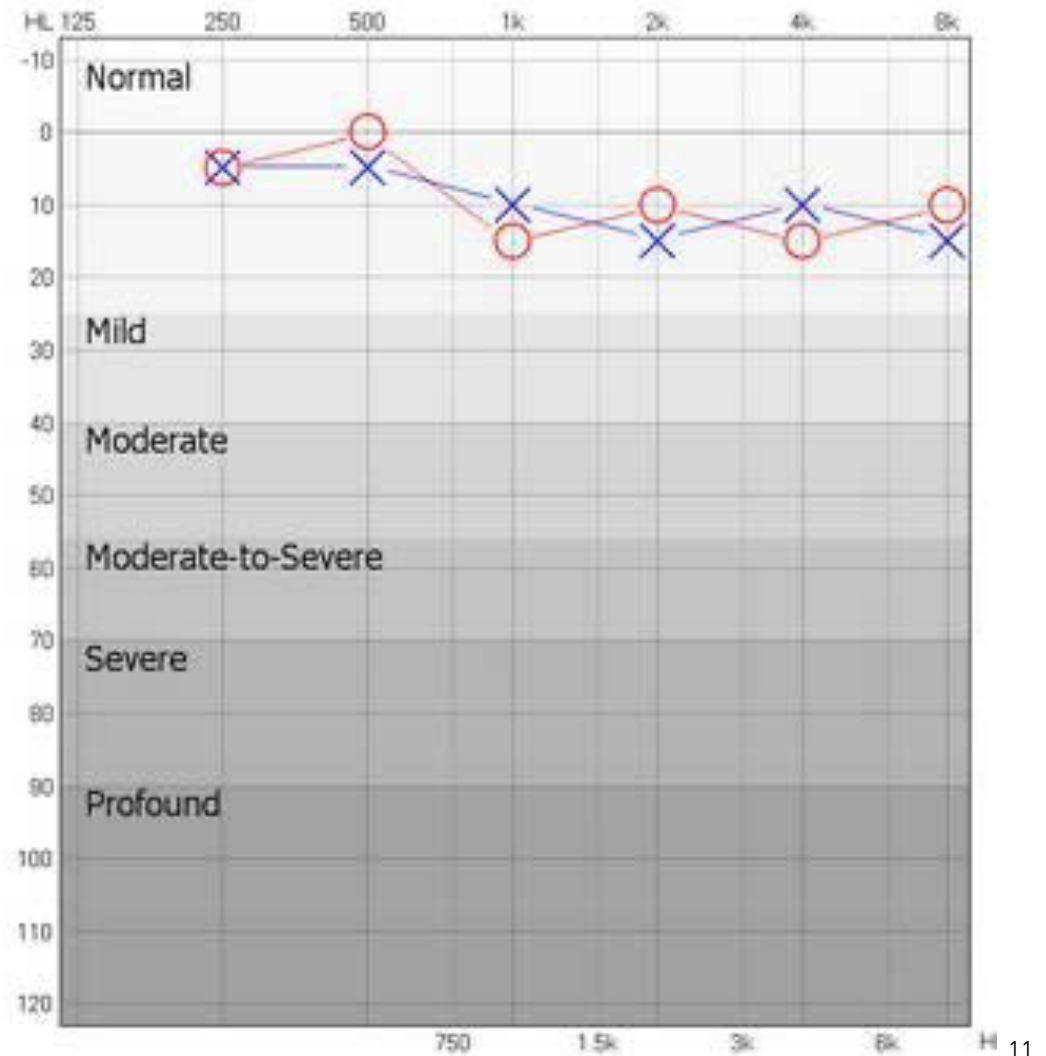
- **Decibel**: The intensity of sound would be measured in decibel (dB).

(Example: Zero Decibel = 0db (The quietest))



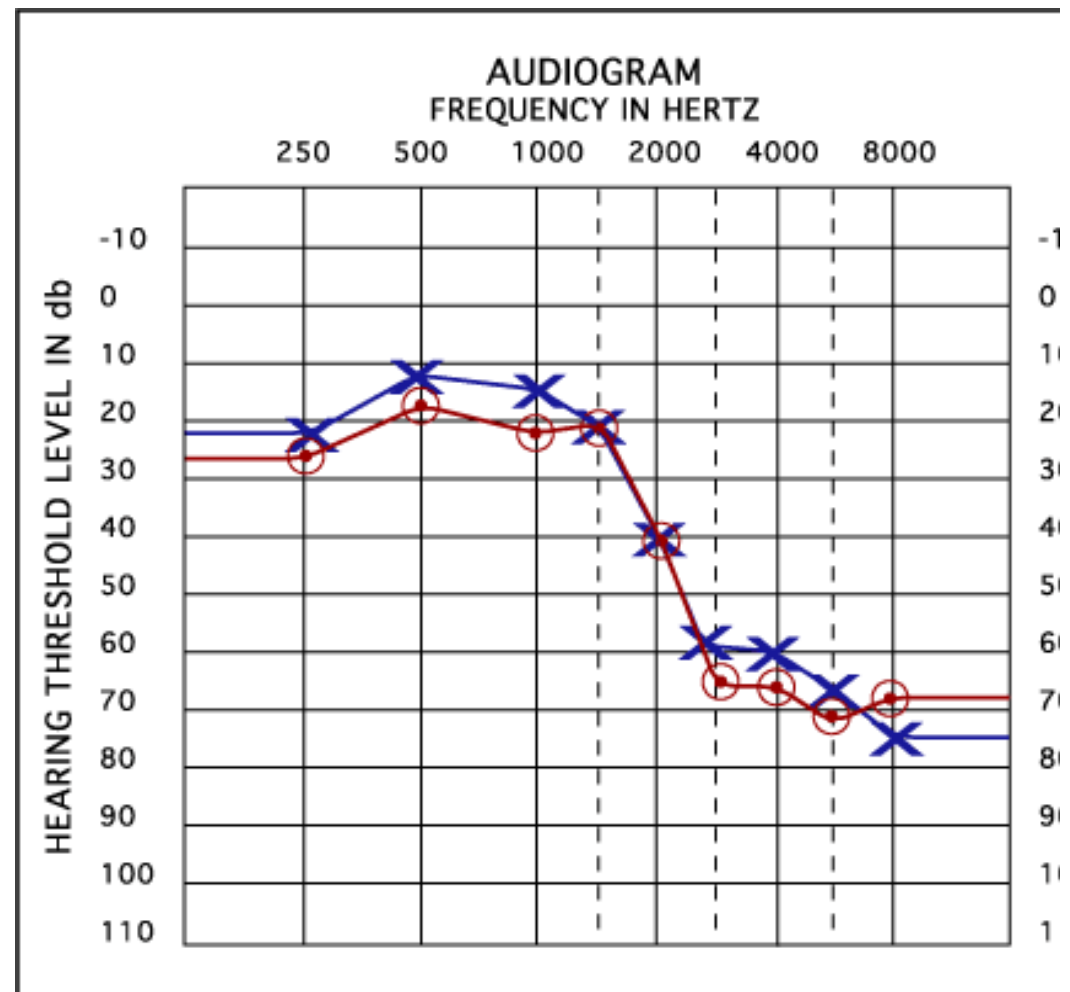
Sample Audiogram

Note: This is an example of how normal hearing is indicated on the Audiogram.



Sample Audiogram

Note: This is an example of what hearing loss looks like on the Audiogram.



Decibel Overview

Decibel Level	Sound Source	Musical Levels
0 dB	Just audible sounds	
20 dB	Soft rustle of leaves	
30 dB	Quiet whispers	Background music
40 dB	Soft speech	Piano - <i>p</i>
50 dB	Normal conversation	Mezzo Piano - <i>mp</i>
60 dB	Loud conversation	Mezzo Forte - <i>mf</i>
80 dB	Shouting	Forte - <i>f</i>
90 dB	Heavy traffic	Fortissimo - <i>ff</i>
100 dB	Riveter 35ft away	Marching band
120 dB	Jet engine	

Adamek, M. S., & Darrow, A.-A. (2018). *Music in special education* (3rd ed.). American Music Therapy Association.

Hearing Assistive Technologies

Hearing Aids

- Come in a variety of sizes and strengths with various features.
- Some devices have RF connections, Bluetooth, smart phone connectivity, etc.
- Typically, a device is selected with an audiologist that will determine which strength and models suit the wearer's needs.



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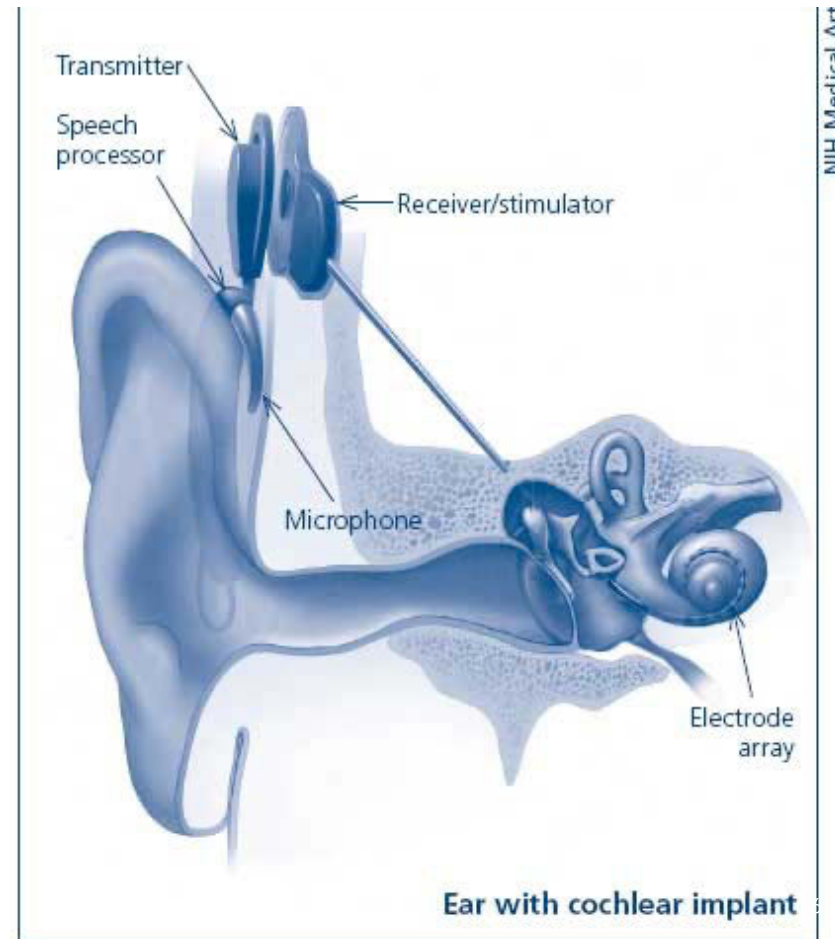
[Click here for more information](#)

[Article: "Hearing Aids: How to choose the right one."](#)

Cochlear Implant

- A small, complex electronic device that can help to provide a sense of sound to a person who is profoundly deaf or severely hard-of-hearing.
- The implant consists of a microphone, a speech processor, a transmitter, a receiver/transmitter, and an electrode array which sends the signal to the auditory nerves.
- An implant does not restore normal hearing. Instead, it can give a deaf person a useful representation of sounds in the environment and help him or her to understand speech.

[Source: National Institute on Deafness and Other Communication Disorders](#)



Roger Pen/Microphone

- The Roger Pen/Microphone is a device that directly connects to a hearing aid wearer's devices.
- It increases the signal-to-noise ratio by focusing amplification on the spoken language of the person wearing the microphone.
- One draw back to this device, is the distortion that can occur if the surrounding is too noisy.



[Additional info on the Roger Pen](#)

Bluetooth Connections and Remotes

- The Bluetooth ability found in many new hearing aid models allow for integration to smart phones, computers, smart watch, and any other device that can be connected.
- This will be a very valuable feature for students to be able to stream recordings of musical content to their hearing aids.

[Bluetooth Hearing Aids and the various features.](#)



Hearing Aid Apps

- One of the most popular feature of Bluetooth, is the ability to allow the user to modify the sound experiences.
- These apps provide control of most basic functions of the hearing aid, along with with other features for music, large venues, and specific "listening environments".

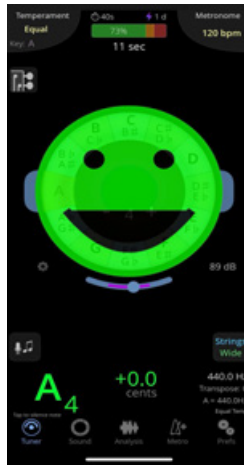


Wearable Technology

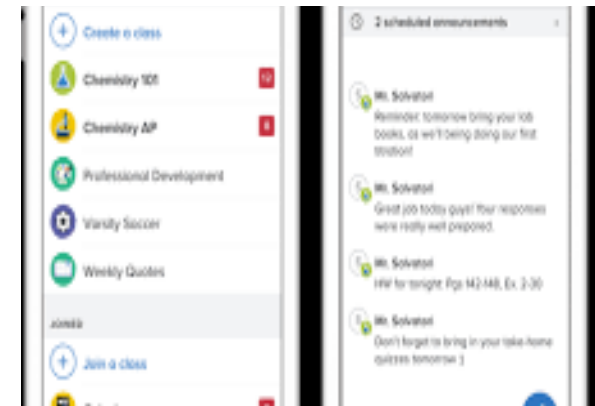
- Some wearable devices can be utilized to help the student “feel” music along with assisting with communication in a rehearsal setting.
- Devices like the [Apple Watch](#) and the [Soundbrenner](#) watches allow the user to keep time and, in some cases, can be used as a tuning device.
- The [XanderGlass](#) is a new innovative wearable tech that “captions” speech in the room.



Additional Apps for classroom use

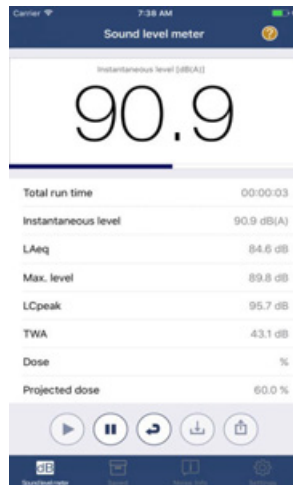


- Tonal Energy is a popular instrumental app that allows the musician to tune with their smart phone, tablet, or smart watch.
- The app has a metronome feature that "visualizes" the beats in a variety of ways/options.

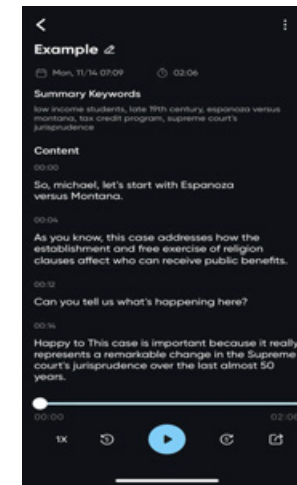


- Apps like Remind or Band App allows for seamless and discrete communication to all students.
- Texts can be received on various device types, making accessibility attainable for all situations.

Additional Apps for classroom use

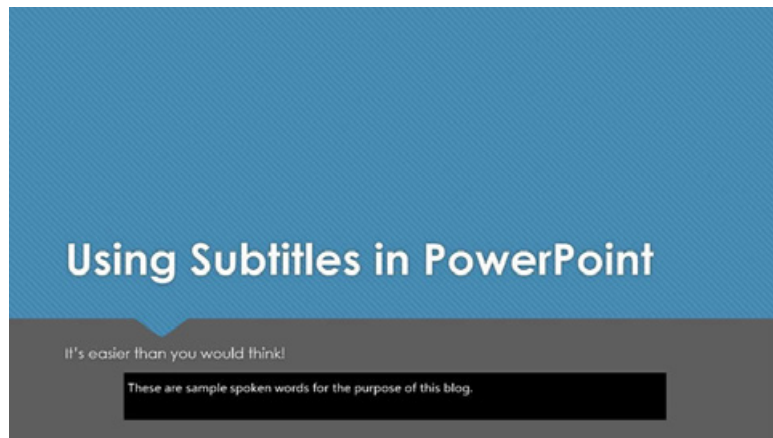


- **NIOSH Sound Level Meter App**
- This app is provided by the Center for Disease Control to help you assess your surrounding and determine safe hearing levels.



- iTranscribe is an app that records and transcribes speech. This resource can be used to "caption" conversations and also record class lessons for archival purposes.

Additional resources for classroom use



- PowerPoint has various built-in features for accessibility. One of those features is the ability to caption your lectures/discussions/lessons.



- Spirometers and other “breathing aids”. These devices can be used to help “visualize” the breathing.
- Popular band regimens like the [Breathing Gym](#) serves the same purpose while using similar devices.

Rehearsal Strategies: For the Ensemble Setting

Working with an interpreter

- ✓ The role of the interpreter is to facilitate communication between the teacher and the student.
- ✓ Speak directly to the student.
- ✓ Maintain eye contact with the student.
- ✓ **You will more than likely need to create a system with your interpreter since there is currently no set standard to ASL signs and music.**

[Please click this link for additional resources on using an interpreter.](#)



Chair/Stand Placement:

- **It's OK to change the norm!**
- Experiment with various ways to achieve your ensemble sound while accommodating the student.
- Place D/HH student in between to help with tone, tuning, and timing.
- Avoid placement on the end rows as their "weaker" ear might not be sufficient to hear the inner parts of the ensemble.
- Have students on either side assist the D/HH students by pointing out music or quietly answering questions.
- Placing the student near lower pitched instruments or the percussion section can help enhance the FEEL of the beat and nearby instruments.



Voice Amplification:

- [Use of microphones and amplification devices can help ALL students hear better in the ensemble setting.](#)
- Use of amplification will more than likely be listed on the 504 or IEP paperwork for student.
- Amplification allows for delivery of instruction in a clear fashion regardless of class size.
- Benefits of amplification also helps reduce and/or eliminate vocal-chord injuries.
- Directors are to face the ensemble while speaking to facilitate lip-reading for the D/HH student.
- More students hearing the instructions will lead to more productive rehearsals.
- **More success to be had by EVERYONE!**

Metronome Set-up:

McAdams Metronome (Visual Learning)

- This metronome has a blinking light on the front and back of the device.
- Placement should be centralized on by the podium to allow for optimum visual access during a rehearsal.
- [McAdams Metronome info](#)

Audio Speaker (Audio Learning)

- Experiment with placement of the speakers to allow for optimal sound reception.
- Adjustment of volume/pitch may be necessary according to the type of loss and hearing aids that may be worn.
- Synchronization of audio source with the metronome would be ideal.

Soundbrenner Metronome (Tactile Learning)

- This assistive device can be worn by the student and director to FEEL the vibrating pulse of the tempo.
- This device can be used by all musicians. It provides physical feedback to the tempo while you perform/practice.
- [Soundbrenner info](#)

Adaptations to Breathing Exercises:

- **"Shark fin" (ASL-letter B)** : Place hand perpendicular against the lips to allow for sensation of the air to be felt while inhaling.
- Placement parallel to lips while exhaling will allow the student to feel the air in the palm of the hand.
- **Hand Placement:** Place one hand on stomach (to feel the air inhale/exhale) and one hand at back (to keep back straight).
- **Hand movements:** to illustrate the air moving inward while inhaling and away while exhaling.
- This will allow the director to gauge and assess the breathing/timing of their students visually to ensure continuity.

Adaptations to Tuning:

Korg Tuner with Clip (Visual Learning)

- Tuner clip attaches to the instrument for immediate feedback on tuning while playing.
- Clip can also be applied to mouthpiece shank to allow for feedback on pitches played with vibrations/buzzing.
- [Korg Tuner](#)



Tonal Energy App (Audio & Visual Learning)

- Tuner features a large visual circle for tuning the note flat, sharp, and in-tune.
- Don't forget the **HAPPY FACE** when in tune! 😊
- This can be projected on a screen for ensemble feedback.
- Drone and sustained note can be heard and viewed on the screen.
- [Tonal Energy](#)



Rehearsal Adaptations (Continued):

Scales

- Solfege: use of Solfege will allow all students to **SEE** and **HEAR** the changing of the notes.
- Can help re-enforce speech/language development.
- Can be done with number degree (1-8) or Solfege (do-re-mi).

Rehearsal Numbers/Sections:

- Use of colors: change the rehearsal letters/numbers to a specific color. For non-verbal communication, hold up color cards to indicate to the ensemble where the music is to begin.
- Letters: change the rehearsal numbers to letters. Use the ASL alphabet to communicate to the ensemble.
- Have students respond with the correct ASL letter to ensure understanding. This also helps re-enforce language acquisition for the ensemble.

Rehearsal Adaptations (Continued):

Rhythms

- Tapping on Chest: teachers can SEE it while the students can SHOW it.
- Counting the Rhythm: student verbally counts out loud with a metronome for feedback.
- Using a syllable system: Too, Ta, Ti, etc. Words to associate various patterns can be used as well.
- Clapping the rhythm: can be done while counting. More modern repertoire incorporates clapping into the literature.

Dynamics

- Decibel meter reader: can be utilized to illustrate various dynamic levels within the ensemble.
- Any tool that can illustrate volume such as the Tonal Energy Analysis setting, can be an asset for students. It will allow them to “conceptualize” the abstract ideas of dynamic into something tangible.
- Allows for a more efficient way to facilitate ensemble balancing.

Sample Adaptations:

Sample Rhythm Activity:

RHYTHM GUIDE				
 HOT DOG 	 GRAPE SODA 	 APPLE PIE 	 HOT FUDGE SUNDAE 	 COCONUT SHRIMP 
 RICE KRISPIE TREAT 	 CHOCOLATE STRAWBERRY 	 CINNAMON OATMEAL 	 MILK AND CEREAL 	 AVOCADO TOAST 
 CHEESE RAVIOLI 	 STRAWBERRY ICE CREAM 	 CHIPS AND GUACAMOLE 	 TATER TOT CASSEROLE 	 PEPPERONI PIZZA 

Rhythm Guide

Sample Color Coding of Music:

Example of color coded rehearsal markers, to be coordinated with the color flash cards on the podium. This can also be combined with non-verbal gestures and/or with ASL

Allegro feroce
Play on D.C. only



To Coda

f *ff* *Poco piu sostenuto*

Rehearsal Adaptations (Continued):

Note Length/Separation:

- Utilize visuals: use visuals to illustrate the various notations and its defined length.
- Blowing “articulated” air into the palm of the hand: demonstrate the note length by blowing air onto the palm of their hand. (Note: should only be considered if both student and teacher are comfortable with it)
- Tonal Energy app: can illustrate and provide immediate feedback on the shape of their notes.
- Feeling the resonance/vibrations of the instrument: having students feel the differences between note lengths being played while placing a couple fingers on the instrument.
 - “How do the legato notes FEEL compared to the detached notes?”
 - Can be done teacher to student, student to student, etc.

Final Thoughts:

Things to keep in mind when adapting your ensemble:

- **There is no "one way" to a solution.** Be willing to adapt and experiment to see what is best for your students and your ensemble setting.
- **When in doubt, ask for help!** There is a large community of people that are ready and able to assist. The success of YOUR student is the success for ALL.
- **Use whatever resources you have at your disposal** to effectively communicate with your students. There are so many options when it comes to technology that is available for this purpose.
- **Advocate** for your students to ensure that they all have a fair and equitable music education experience.
- **Finally:** HAVE FUN making music; and most importantly, enjoy the experience together!

Questions?

**Please feel free to reach out!
We are more than happy to be a resource for you and
your students.**



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Adam Chitta

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Thank you!

**We would like to thank TMEA
for the opportunity to present
today!**



Appendix:

Deaf Education: Regional Day School Program for the Deaf

Regional Day School Program for the Deaf is for students ages 0 to 22 with a hearing impairment. Services are provided to eligible students in a variety of instructional settings. Assistance may be provided in the areas of reading comprehension, oral and written language structure, vocabulary building, as well as speech reading, auditory learning, and correct usage of note takers and/or sign language interpreters. Information about audiograms and on the use and care of amplification and other assistive devices is also provided.

- North East ISD (<https://www.neisd.net/Page/9112>)

Appendix:

List of school districts within the state's Regional Day School Programs for the Deaf

Abilene ISD	Cypress Fairbanks ISD	Katy ISD	Northside ISD
Aldine ISD	Dallas ISD	Killeen ISD	Plano ISD
Arlington ISD	Denton ISD	Laredo ISD	Round Rock ISD
Birdville ISD	Ector County ISD	Longview ISD	Temple ISD
Beaumont ISD	El Paso ISD	Lubbock ISD	Texarkana ISD
Brownsville ISD	Fort Bend ISD	Lufkin ISD	Uvalde ISD
Clear Creek ISD	Fort Worth ISD	McAllen ISD	Victoria ISD
Conroe ISD	Goose Creek ISD	Mesquite ISD	Waco ISD
Copus Christi ISD	Greenville ISD	Nacogdoches ISD	Waxahachie ISD
Corsicana ISD	Humble ISD	North East ISD	Weatherford ISD
Crowley ISD	Irving ISD	North Lamar ISD	Wichita Falls ISD