

# LEARNING WITH A HEARING LOSS

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Auditory Outreach  
Provincial Resource Program



*We would like to acknowledge that we are presenting from the qathet region, on the lands of the Coast Salish peoples, specifically the traditional territory of the Tla'amin Nation on which qathet School District resides. We value the opportunity to live, learn, and share educational experiences here.*



# AGENDA

Introduction

Auditory Outreach Services

Website

Students with hearing loss in the classroom:

- The unfair spelling test

- Remote Microphone systems

- Classroom strategies

Questions

# INTRODUCTION

Through funding and collaboration with the Ministry of Education and Child Care, qathet School District has hosted the Auditory Outreach program proudly and successfully since 2003. The Auditory Outreach Program provides outreach services and assistive listening device loans to over 1000 students who are deaf or hard of hearing across the province.



# MEET THE TEAM!

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# ABOUT AUDITORY OUTREACH

- Our program offers two main service streams: Assistive Listening Equipment loans and outreach services for students who have cochlear implants.
- We maintain a loan bank of assistive listening equipment which currently provides loans to over 1000 students in 56 school districts and at 132 independent schools across the province of B.C.
- We provide equipment loans, Easysheets, instructional videos, presentations, technical support, and equipment repairs/ replacements.
- Equipment loans and/or outreach services are available from Auditory Outreach to students attending public schools as well as group 1 and 2 independent schools.

# ABOUT AUDITORY OUTREACH

We are experts in remote microphone technologies and focus on the unique skills and learning needs of students who have cochlear implants.

Auditory Outreach consultative support for students with cochlear implants includes but is not limited to:

- Audiology, SLP and TDHH consultative support
- Assessments
- Assistive Listening equipment validation, implementation and technical support
- Long term and short-term goal identification including IEP support, and strategies for school teams
- Resource sharing, training and education for students, school teams, community teams and families
- Promotion of inclusion and advocacy for students who have cochlear implants in school environments
- Professional Development

# [WWW.AUDITORYOUTREACH.CA](http://WWW.AUDITORYOUTREACH.CA)



## **FORMS/ REFERRALS**

Access to forms,  
information on  
referrals and  
eligibility



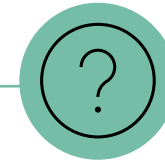
## **NEWS/ UPDATES**

Past newsletters,  
upcoming events and  
announcements



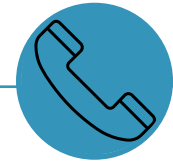
## **RESOURCES**

Easysheets, website  
links, presentations,  
videos and more!



## **FAQS**

Some frequently  
asked questions  
about procedures,  
equipment, forms,  
etc.



## **CONTACT INFO**

Contact Info for the  
entire team





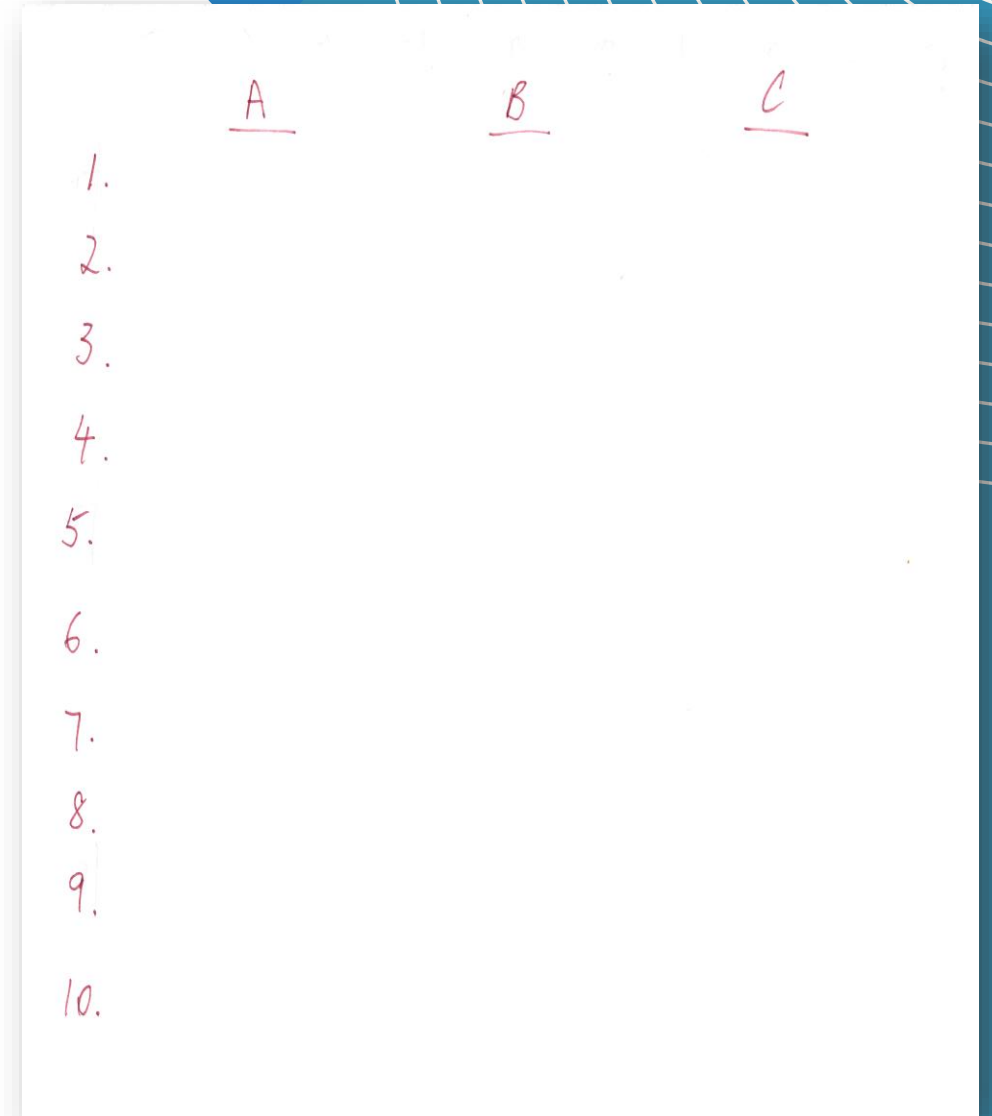
*Why is Assistive Listening Equipment so important?*

***Let's experience hearing in a  
classroom as someone with a  
hearing loss – The Unfair  
Spelling test***

**Please write 3 columns and numbers 1-10 on a sheet of paper.**

**\*\* Important:**

*Please refrain from adjusting the volume on your device or headphones once the spelling test has started.*



# SCENARIO FOR COLUMN A:

- You are a Grade 3 student with a mild high frequency hearing loss.
- You have been given preferential seating in the front row of the classroom.
- Teacher walks around the room while instructing.
- Please write the words as you hear them in Column A.



# SCENARIO FOR COLUMN B:

- You just received two hearing aids which made up for the loss of high frequencies.
- You are still seated in the front row.
- Teacher walks around the room while speaking.
- Please write the words as you hear them in Column B.



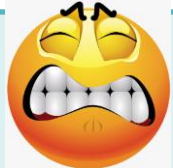


# SCENARIO FOR COLUMN C:

- Because of teacher noticing and reporting you still appeared as though you were not hearing at times, you now received a personal remote microphone system that is attached to your hearing aid.
- Teacher wears a microphone that transmits their voice via DM signal to your ears.
- Teacher still walks around when giving spelling test, but now with personal RM, you can now choose a seat farther from the front which gives you a better view of the teacher's face. You chose a seat in the middle row on the right side of the room.
- Please write the words as you hear them in Column C.

# DISCUSSION

- How was the spelling test unfair?
- In which scenario did it finally feel fair?
- What were the tools/conditions that enabled you to hear as well as other students with normal hearing sensitivity?

Hearing aids & RM systems  
*level the playing field for*  
learners with hearing loss !!

	Speech sounds audible?	Teacher's face visible?	Signal close?	Score & Emotion
Column A	X	X	X	
Column B	✓	X	X	
Column C	✓	✓	✓	

# REMOTE MICROPHONE TECHNOLOGIES (RM)



## PERSONAL RMT

Teacher's voice is transmitted via frequency-modulated signals (FM or DM) from a microphone worn by the speaker to a receiver **worn** by the listener.



## SOUND FIELD RMT

Teacher's voice is transmitted via frequency-modulated or infra-red signals from a microphone worn by the speaker to one or multiple loudspeakers that distribute the speech across the room.

# SOUND FIELD SYSTEMS

- Distribute sounds evenly throughout the room
- Help students with **normal hearing** who need the additional volume to focus better or for speech sound emphasis, e.g. ADHD, ELL
- Help with classroom control and relieve teacher's voice
- However, Schafer and Kleineck (2009) compared improvements in speech recognition for students with HL using Three types of RMT:

Results:	Soundfield	3.5%
	Desktop	17.1%
	Personal FM	38.1% (+30% higher now with DM) (Thibodeau, 2014)





# PERSONAL RM SYSTEMS



**HEARING AID +  
INSTALLED  
RECEIVER**

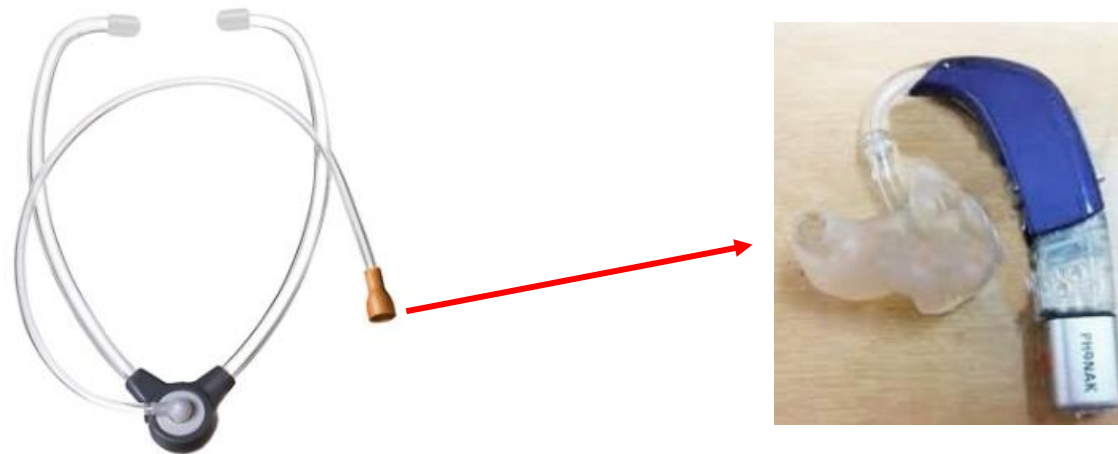
**HEARING AID +  
AUDIOSHOE +  
RECEIVER**

**COCHLER  
IMPLANT  
PROCESSOR**

**BONE  
CONDUCTION  
PROCESSOR**

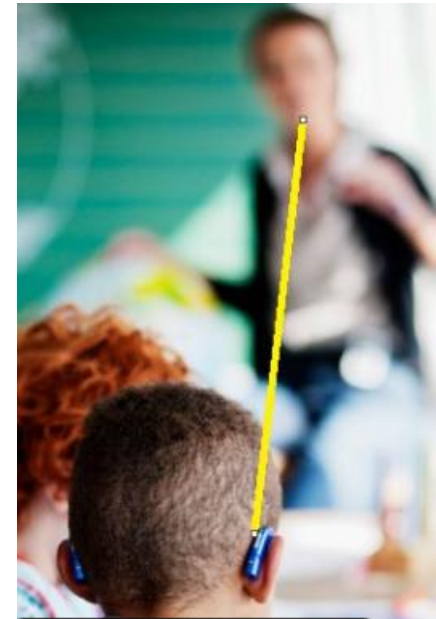
# CARE & MAINTENANCE OF PERSONAL RM

- Importance of the *Listening Check*
  - >50% hearing technology is not working on any given school day (Madell 2013)
  - Most common problem is dead or weak batteries
  - Problem reduced by half if someone in the school checks technology daily



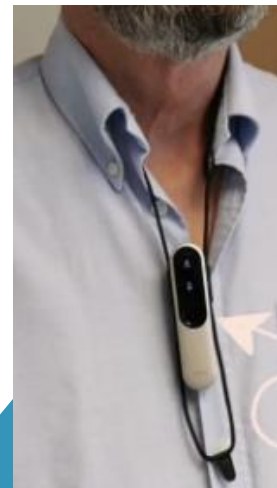
# BEHAVIORAL CHECK

- student wearing hearing aid coupled to RM receiver
- examiner wearing transmitter microphone (powered on and charged the night before)
- From across the room (at least 3 metres from student) and with face covered (or back turned), speak to student and check for understanding
- E.g. “can you point to the door?”, “where am I?”
- *Important tip: choose questions that require more than a yes/no answer*
- for non-verbal students, look for awareness, e.g. tell a joke and look for a surprised face – “look at the heavy snow outside!”



# TIPS FOR EFFECTIVE USE OF RMT

- Use the MUTE button !
- Correct position of microphone
- Use lanyard
- Behavioral checks before instruction starts each morning and after break times
- Listening checks once a week



20 cm

# CLASSROOM COMMUNICATION STRATEGIES FOR STUDENTS WITH HEARING LOSS <sup>21</sup>

## Create a listener-friendly classroom

- Identify noise sources and minimize them, e.g. tennis balls on chair legs, seat student away from pencil sharpeners and HVAC systems, keep the door closed
- Maximize sound absorbing materials such as carpet, curtains and soft seats

## Ensure the speaker's face is visible

- Seat the student so they can see both you and other students in the class
- Minimize moving around the room during instruction
- Do not stand with your back to the window

# CLASSROOM COMMUNICATION STRATEGIES FOR STUDENTS WITH HEARING LOSS <sup>22</sup>

## Visuals

- Write key words on the board, use pictures and diagrams as much as possible
- Use videos with subtitles or captioning whenever possible
- Symbols, visual schedules, step by step photos

## Language

- Highlight important points with the same phrase, e.g., “It is important to note that...”
- Say the key message at least 2 different ways
- Don’t answer for the student, give them time to respond
- Comprehension checks

# CLASSROOM COMMUNICATION STRATEGIES FOR STUDENTS WITH HEARING LOSS <sup>23</sup>

## Vocabulary

- Choose vocabulary intentionally
- Continue using sophisticated vocab – check for comprehension
- Revisit and track unknown vocabulary words
- Pre-teach academic vocabulary

## Other Strategies

- Provide a note-taking buddy for the student with HL if that would be deemed helpful
- Repeat questions from other students for the whole class before answering them during Q & A
- Watch for the student turning their ear, hearing aid or processor toward the speaker

# QUESTIONS?





# REFERENCES

- Deaf Children Australia. (2012). A Deaf or Hard of Hearing Student in the Classroom.
- Madell, J. (2013). Educational Audiology: from Observation to Recommendation. Audiology Online.
- Schafer, E & M Kleineck. (2009). Improvements in Speech Recognition Using Cochlear Implants and Three Types of FM systems: A Meta-analytic Approach. Journal of Educational Audiology, 15; 4-14.
- Speech & Audiology Canada (2024). Toolkit: Classroom Acoustics. [Classroom Acoustics - SAC \(sac-oac.ca\)](https://www.sac-oac.ca/classroom-acoustics) Retrieved October 9, 2024.
- Thibodeau, L (2014). Comparison of Speech Recognition With Adaptive Digital and FM Remote Microphone Hearing Assistance Technology by Listeners Who Use Hearing Aids. American Journal of Audiology (AJA), Vol23, 201-210, June 2014.

**THANK YOU**

