

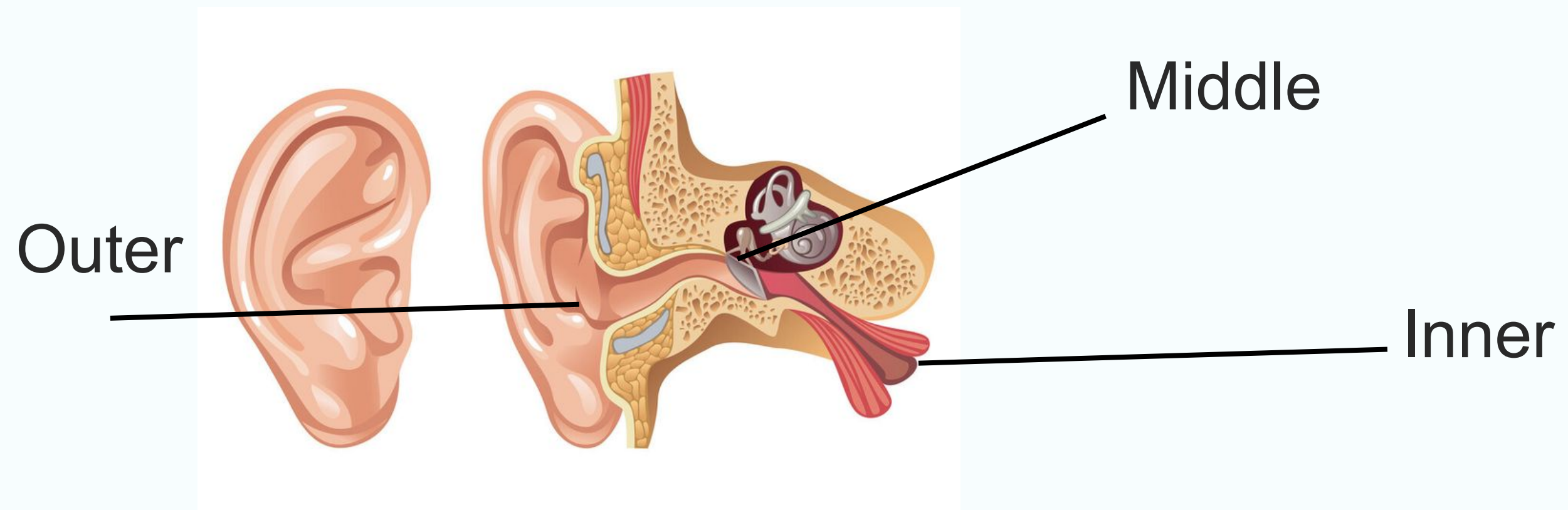
# HEARING CONSERVATION

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# WHAT IS HEARING LOSS?

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- *Hearing Loss* is the partial or total inability to hear.
- It results from problems with the ear (outer, middle, or inner)



# ANATOMY OF AUDITORY SYSTEM

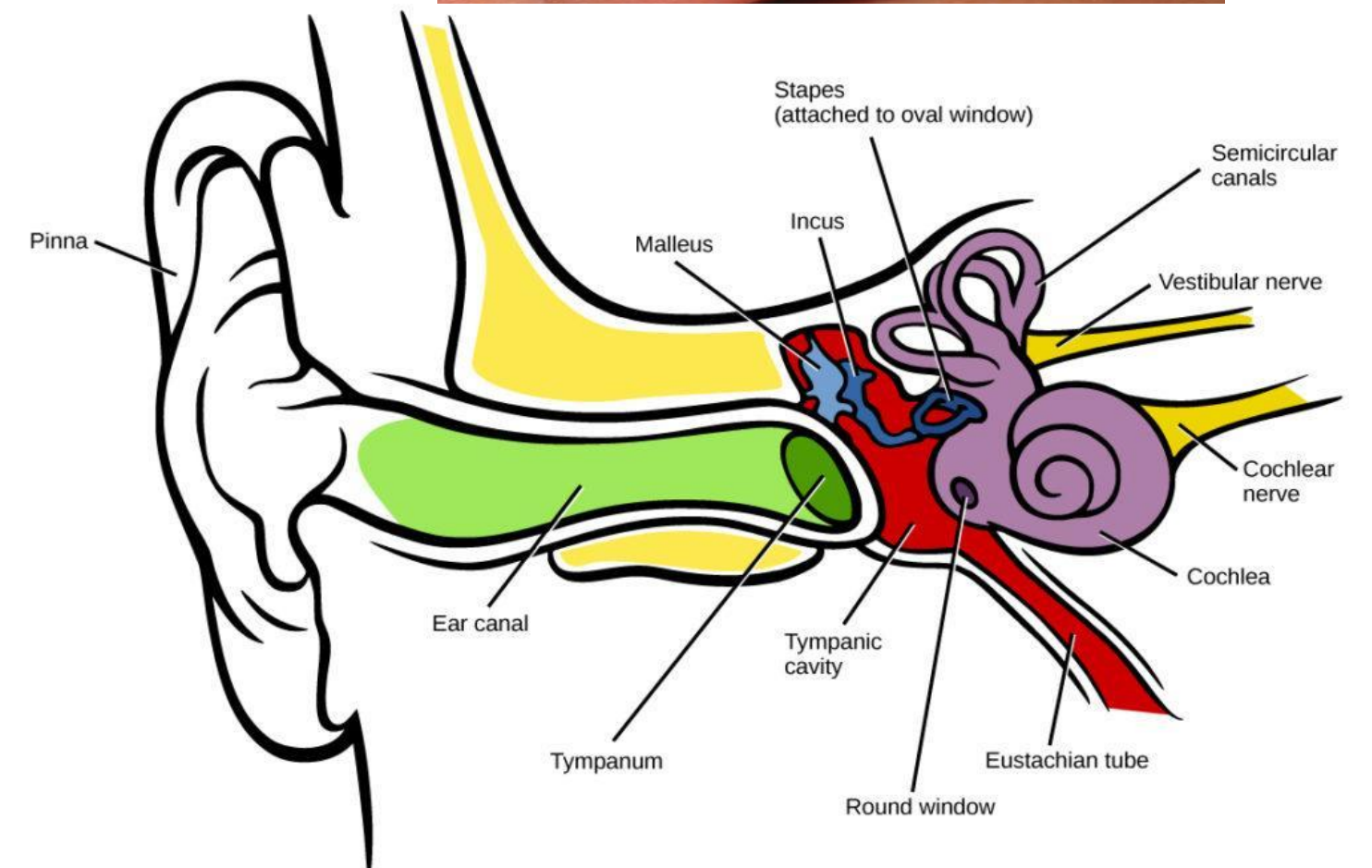


Every sound has a characteristic intensity and frequency which are deciphered by the auditory system and identified by the brain



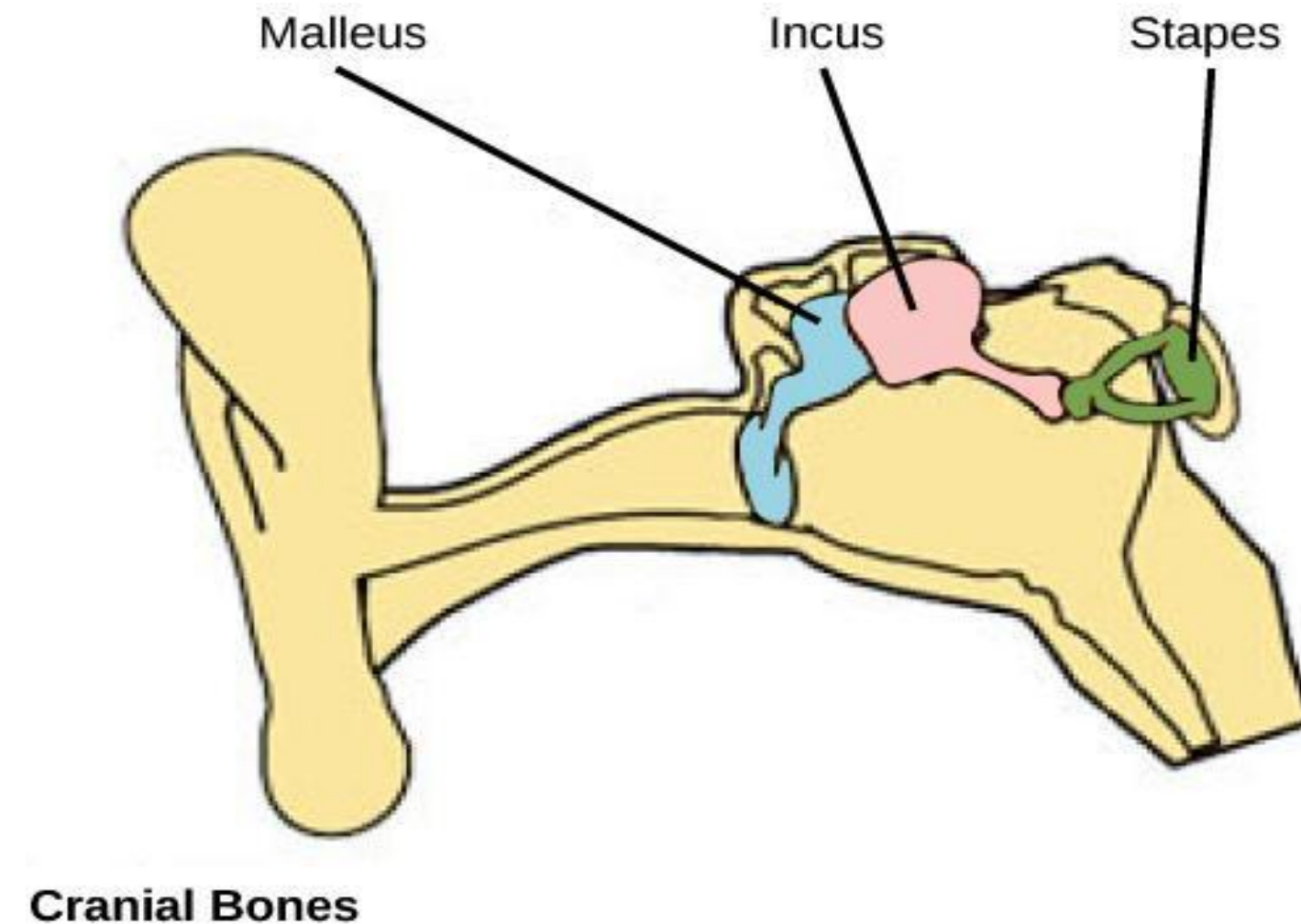
# THE OUTER EAR

- Begins at pinna the outermost part of the ear!
- Collects and funnels sound
- Ends at the eardrum
- Auditory Canal (or meatus)-funnels sound and increases intensity by concentrating sound into a smaller area
- Also protects ear by producing cerumen (wax)
- The auditory canal is approximately 1 inch long



# THE MIDDLE EAR

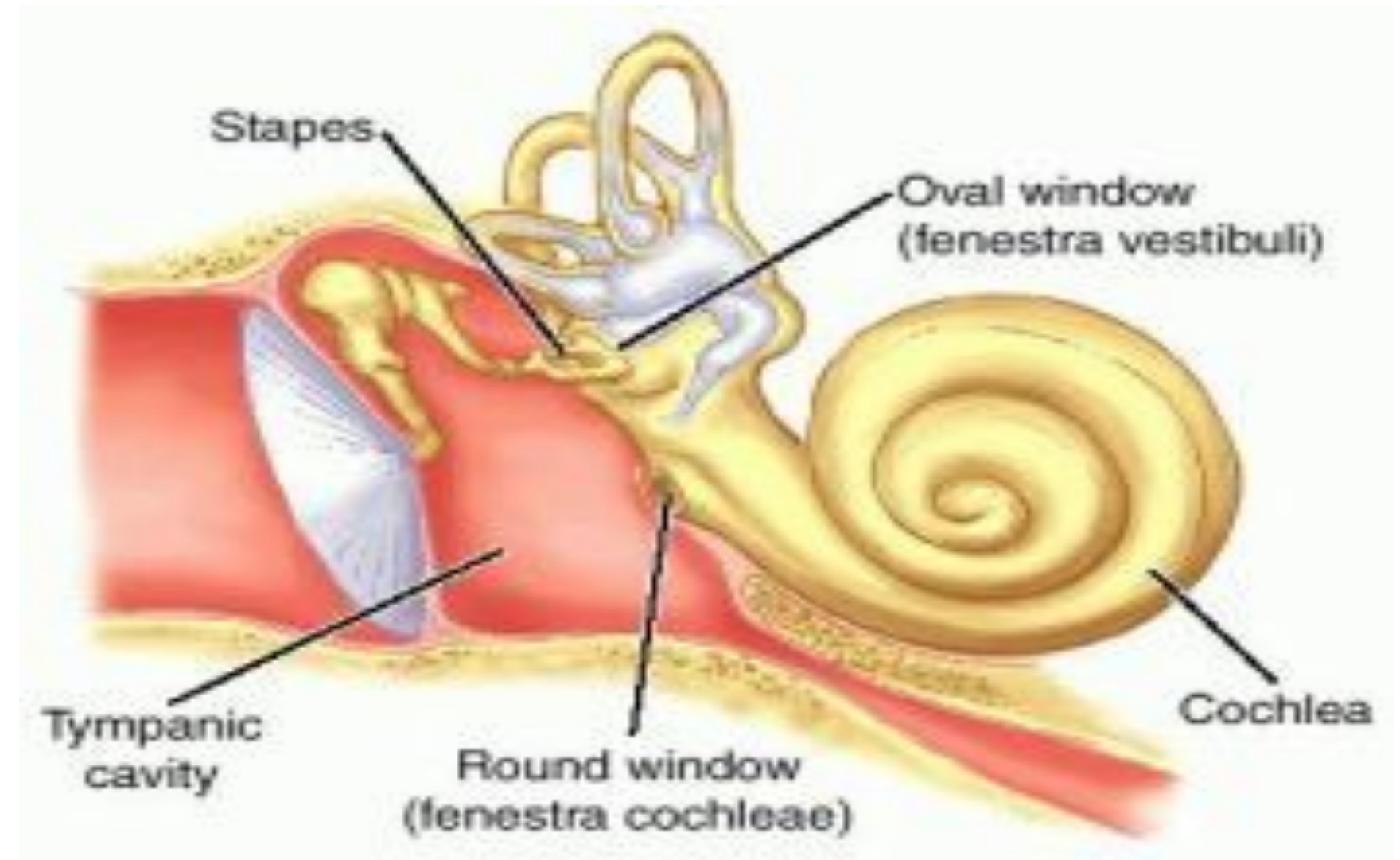
- Amplifies and transmits sound
- Acoustic energy is transferred to mechanical energy
- Air filled space





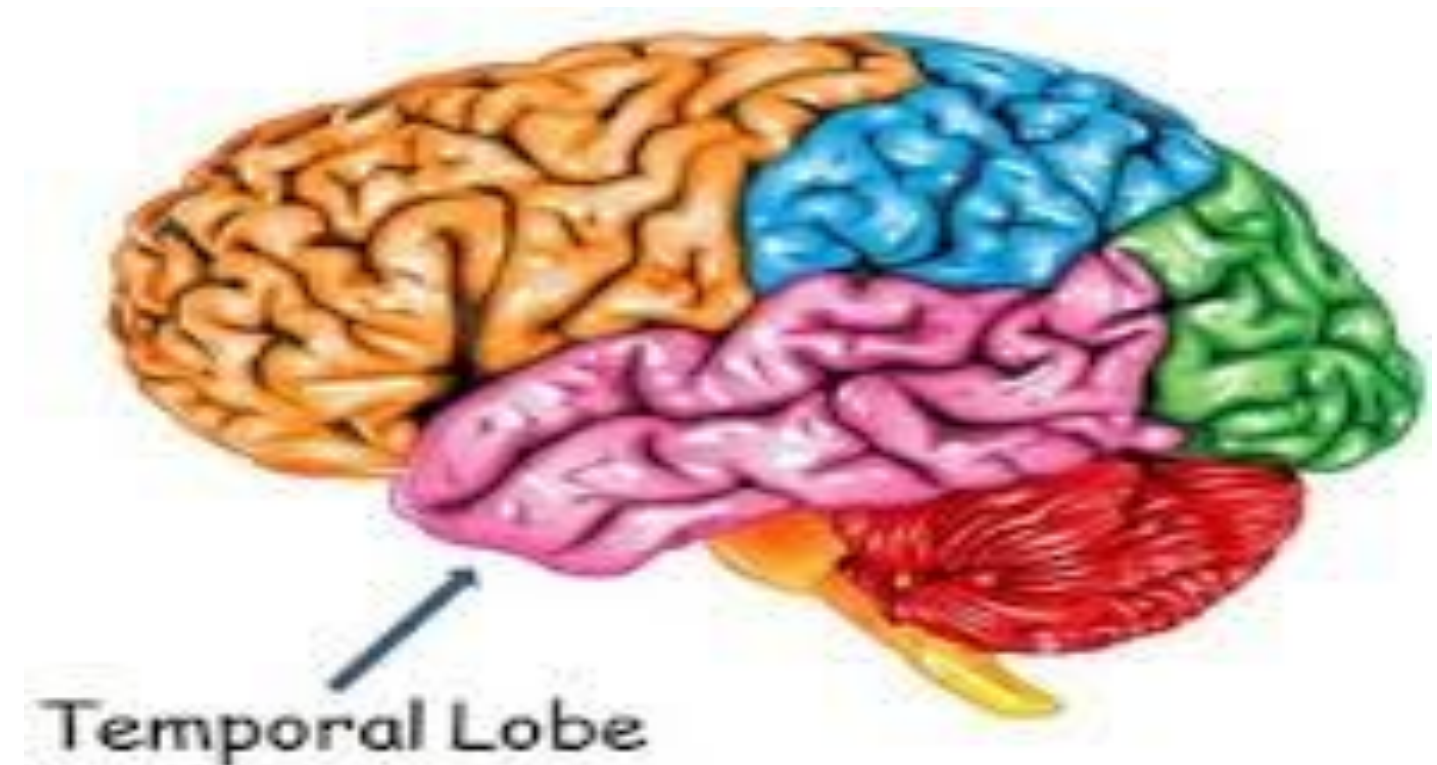
# THE INNER EAR

- Begins where stapes connects to inner ear.
- Semicircular canals – contain receptors for balance and spatial orientation
- Cochlea: “Organ of Hearing” contains hair cells in its fluid filled chambers
  - Contains the auditory sensory receptors, these hair cells respond differently to different frequencies of sound
  - These hair cells tend to be disrupted as we age



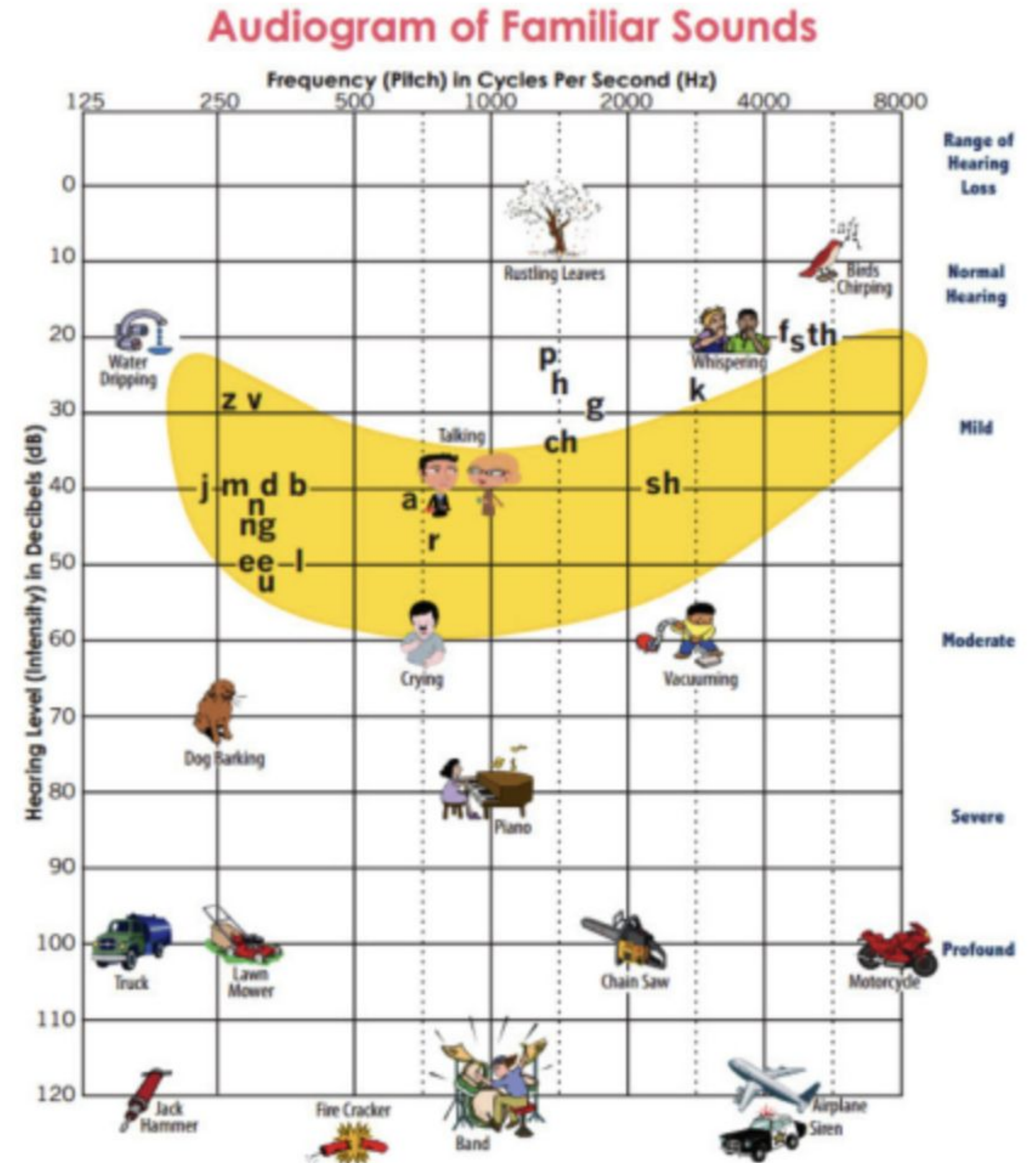
# BRAIN: LISTENING CENTER

- Info travels from from the brainstem to primary auditory cortex in the brain (temporal lobe)
- This is where we add meaning to sound!



# SPEECH BANANA

- Speech sounds have their own frequency or pitch characteristics
  - high frequency sounds
  - low frequency sounds
- Intensity or loudness of speech varies
  - conversational loudness is around 60 dB





# HOW DOES AGE IMPACT HEARING?

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- Age-related hearing loss, also known as presbycusis is gradual loss of hearing in both ears
- One in 3 adults over age 65 have hearing loss
- It mostly affects ability to hear high pitched sounds and voices

John Hopkins Medicine, 2023

# HEARING LOSS PREVENTION

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- Turn down the volume of music systems and TVs
- Use ear protection in loud environments
- Get regular hearing check-ups

(Preventing Noise-Induced Hearing Loss | CDC, 2021)

# EAR HEALTH TIPS

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- Avoid Q-tips
  - Can cause damage to eardrums
- Keep your ears dry
- Wear earplugs in loud environments & take listening breaks
- Turn down volume of TV, radio etc!



# EAR PROTECTION

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## EAR PROTECTION DEVICES



Earplugs



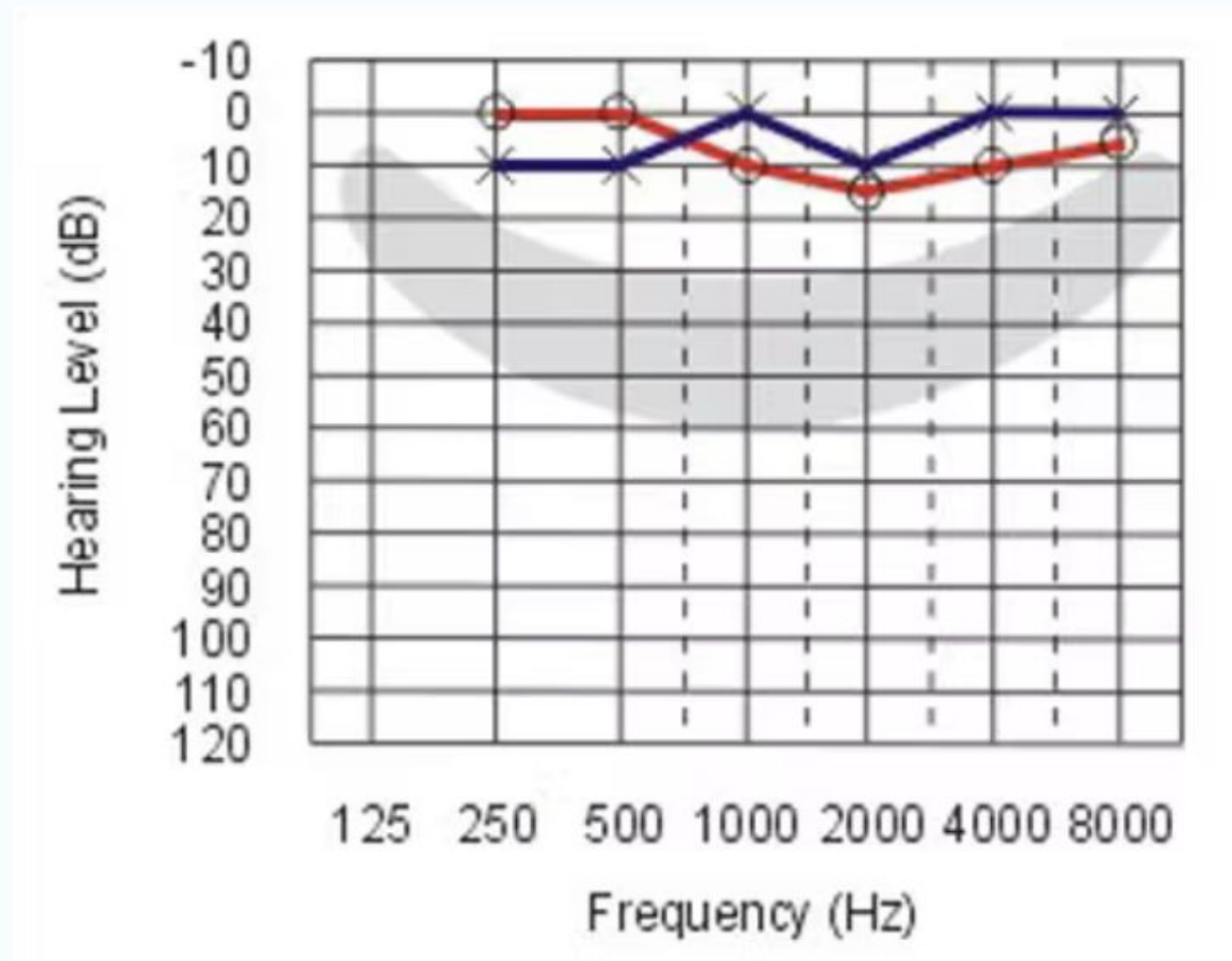
Semi-earplugs



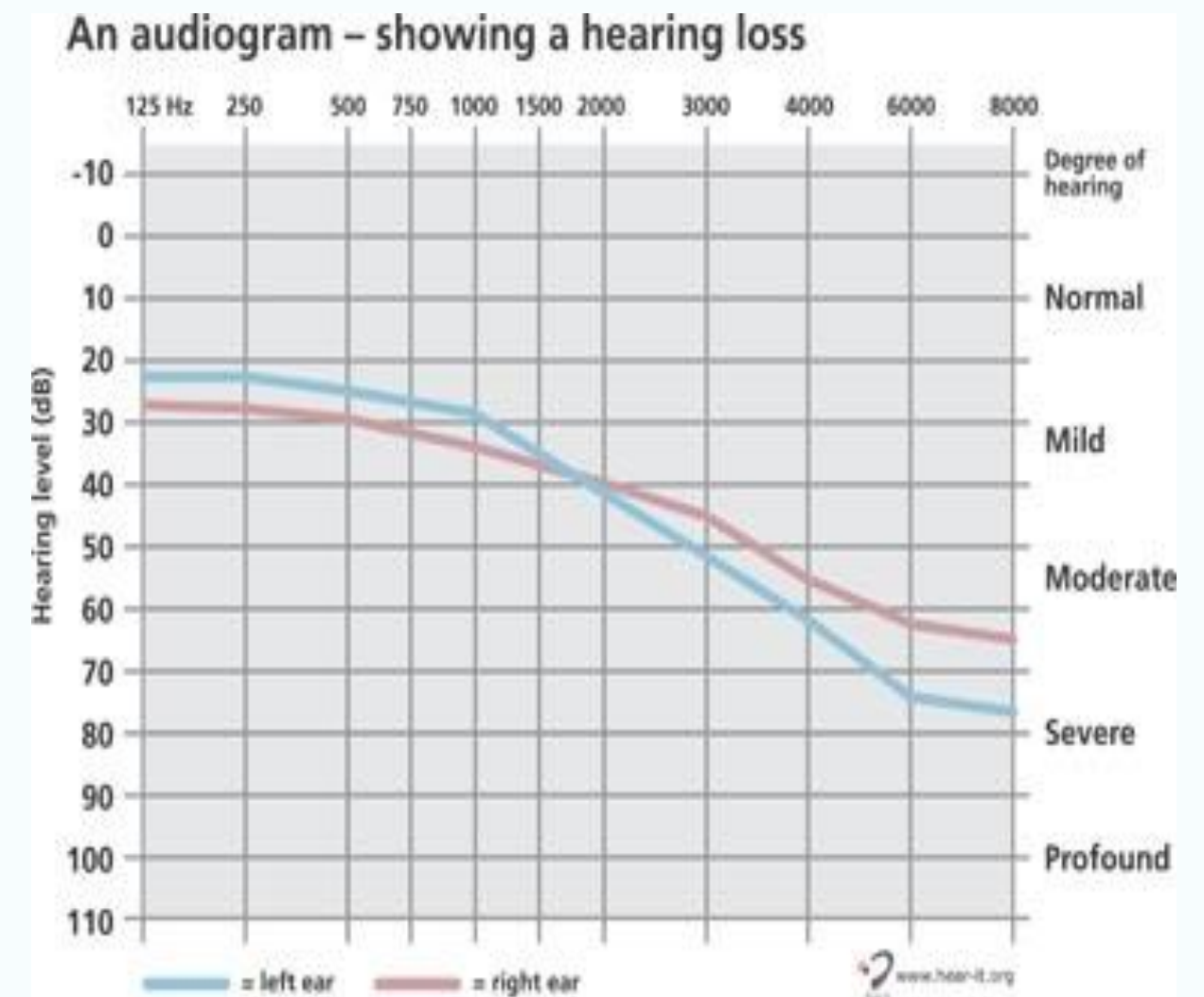
Earmuffs

# AUDIOGRAMS

Good Hearing



Presbycusis



# SIGNS OF HEARING LOSS

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- The television or radio volume is too loud
- “I can hear, but I can’t understand”
- Asking people to repeat themselves
- Having trouble hearing in noisy environments
- Listening in a conversation becomes tiring

(Cleveland Hearing and Speech Center, 2018)



# ROLE OF AUDIOLOGIST

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- Conducting hearing screenings and evaluations
- Manage tinnitus (ringing in the ear)
- Remove ear wax
- Provide tools for management of the impact of hearing loss on everyday life
- Provide testing for people who are experiencing dizziness or balance issues
- Help people adjust to wearing hearing aids

# ASSISSTIVE TECHNOLOGY

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Hearing aids



Alerting Devices  
& Closed  
captions



Remote  
Microphones

# COMMUNICATION STRATEGIES

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- Ask specific clarifying questions instead of “what?”
- Face the person you are talking to
- State your conversational needs
- Ask communication partner to speak slowly and louder
- Take turns and frequent pauses when speaking in a group
- Repeat back main ideas to verify understanding



# COMMUNICATION STRATEGIES FOR CAREGIVERS AND FRIENDS

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- Face the person you are talking to
- Make sure the person is paying attention before speaking
- Speak slowly and loudly
- During conversation pause and ask if the person can hear you
- Instead of repeating what you said when you are misunderstood, rephrase what you are trying to say
- Take frequent pauses in conversation
- Provide visuals to promote better understanding

# MODIFYING THE ENVIRONMENT

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- Choose quiet locations for conversations
- Request preferential seating in large crowds
- Position yourself close to the speaker in large crowds
- Turn off any TVs, fans, or devices that might be creating extra noise
- Request visual aids like written directions or information

# CONSEQUENCES OF HEARING LOSS

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- Cognitive decline and dementia
- Increased risk of social isolation and depression
- Higher incidence of cardiovascular issues
- Reduced quality of life



# HEARING SCREENINGS

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## Otoscope Exam

- Assess the condition of the physical structures of the ear



## Pure tone Evaluation

- Assess hearing ability for different pitches
- You raise your hand when you hear the sound
- Results can be used to inform further evaluation



# WHERE TO GET HEARING SCREENED?

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- Today's meeting!
- Cleveland Hearing and Speech Center
- Reach out your primary care doctor for a referral to an audiologist

# ADVOCACY

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- Explain to people who maybe unfamiliar that you have a hearing loss and state your conversational needs
- Join community groups
- Seek services develop positive communication skills (SLP, audiologist, counselor)

**LET'S LISTEN TO COMMON/EVERYDAY**  
**SOUNDS!**



**QUESTIONS?**

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