

Listening Fatigue



Charlotte Mullen, AuD, CCC-A and Yoav Shimoni, PsyD

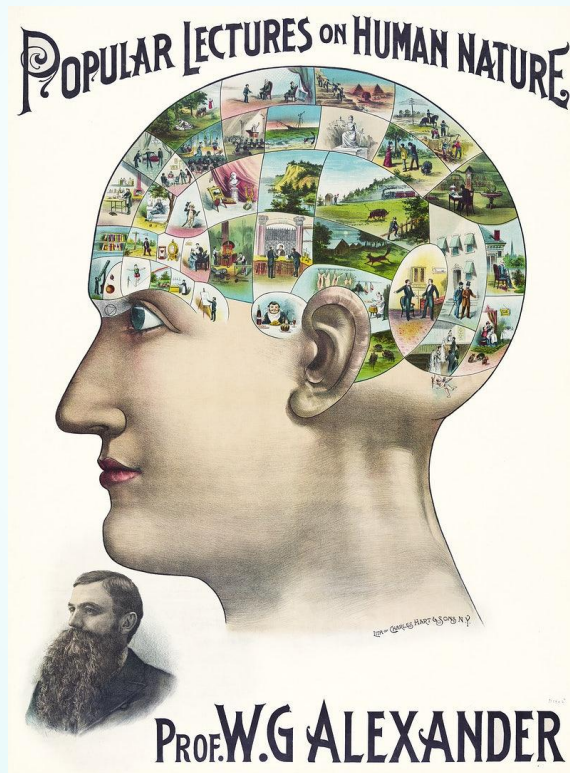


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We hear with our ears, but listen with our brains.

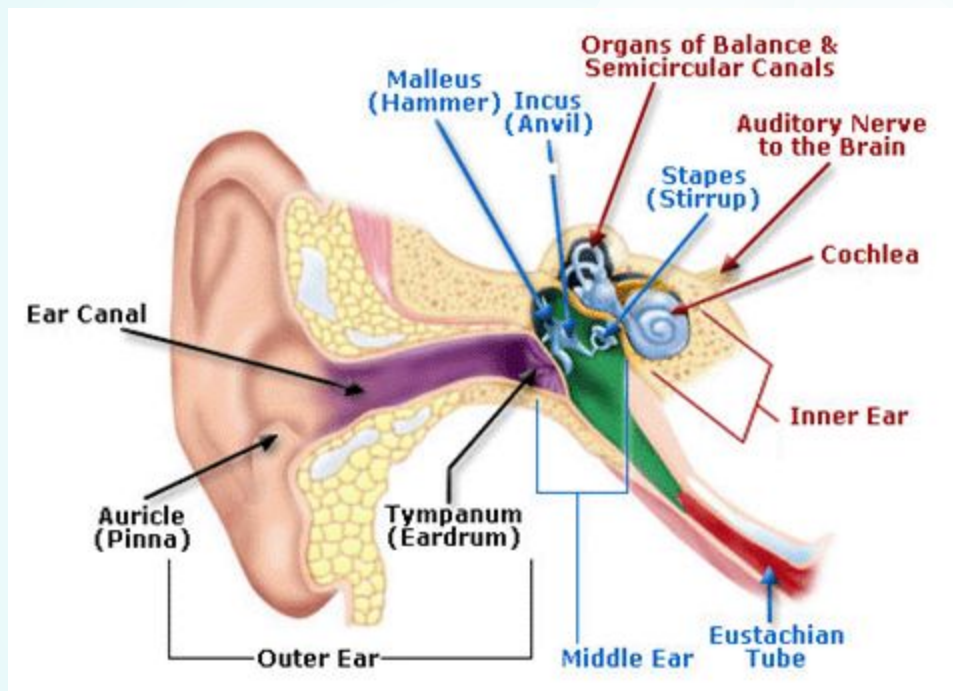


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How We Hear



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What are the challenges to hearing and listening?

01

Reduced Hearing

02

**Distance between
the speaker and the
listener**

03

Background Noise

04

Room Acoustics



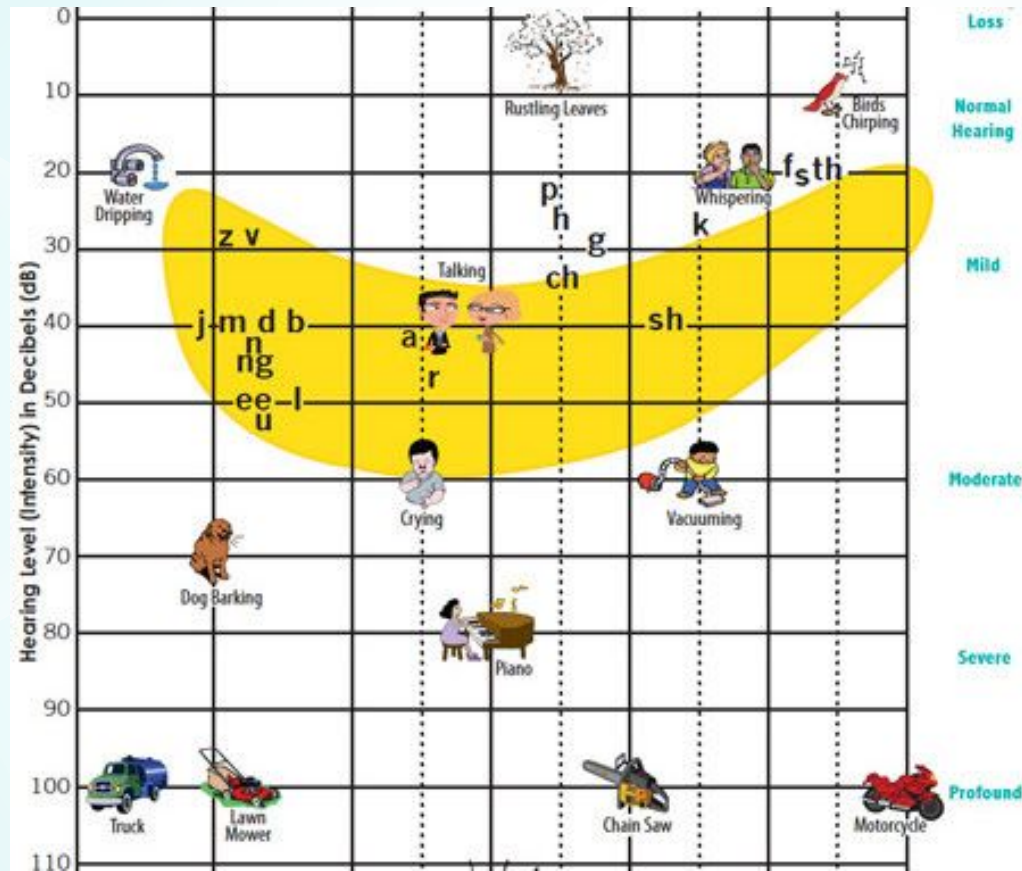
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01

Reduced Hearing



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THIS IS WHAT DEAF
OR HARD OF HEARING
PEOPLE FEEL WHEN
HEARING PEOPLE
SPEAK TO THEM.

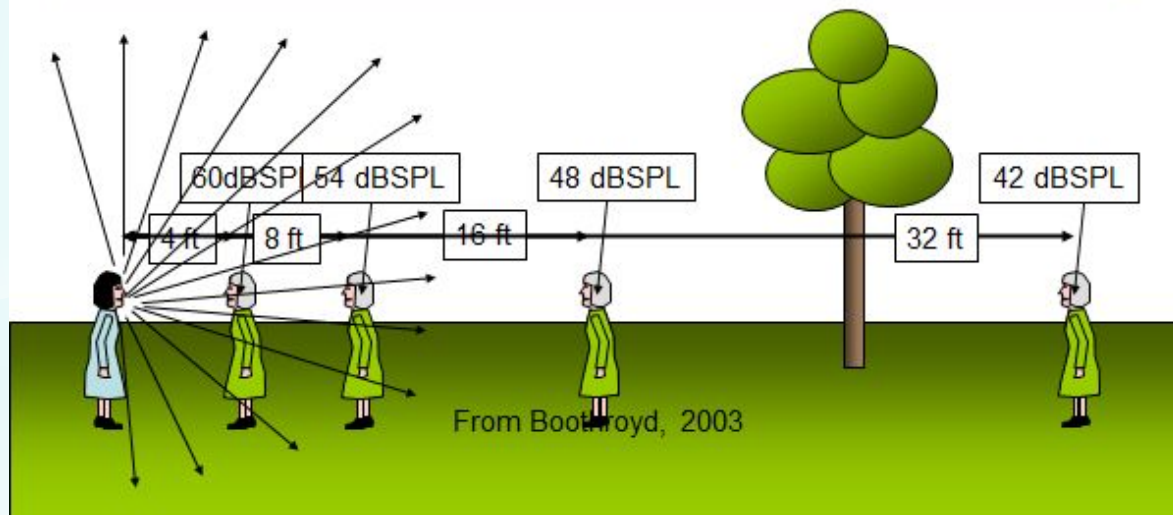
IT IS HARD WORK .

02

Distance between the speaker and the listener

The distance between listener and talker

- The level of the direct speech signal falls by 6 dB for every doubling of distance

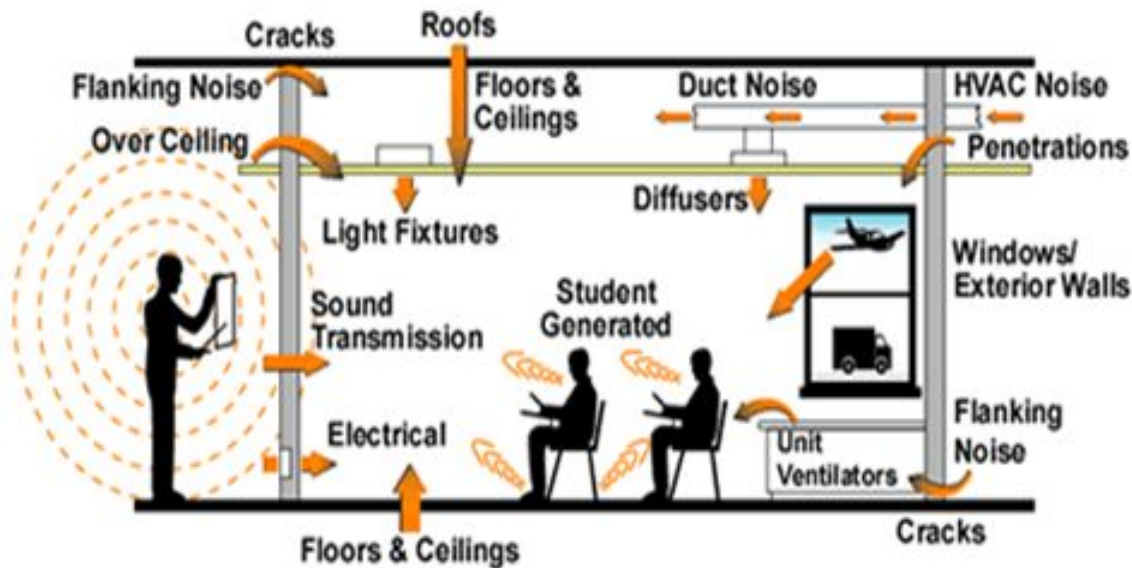


03

Background Noise

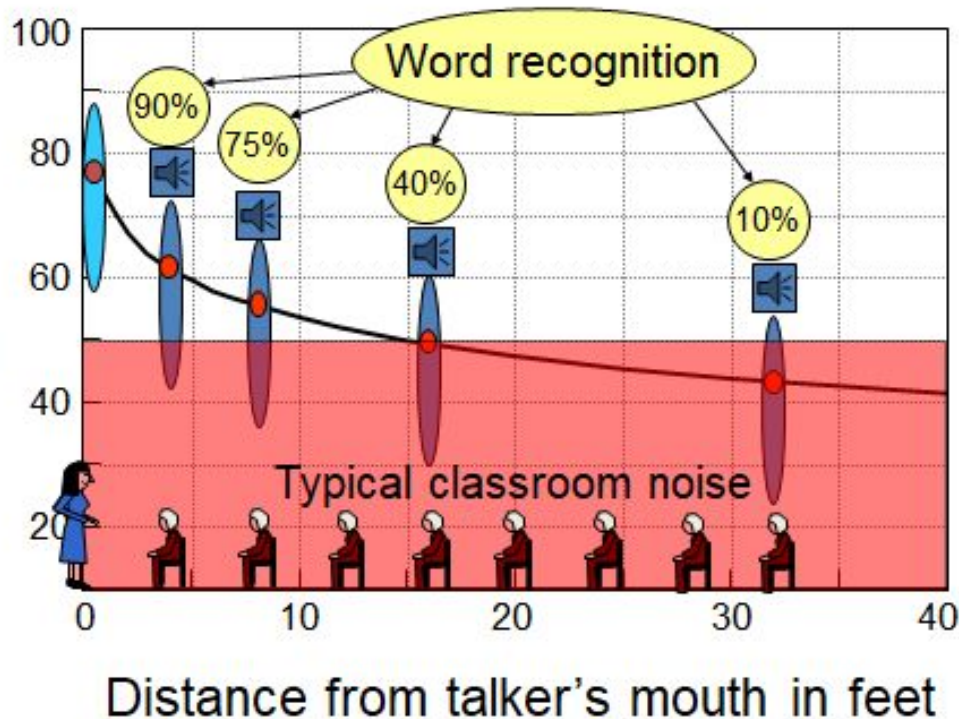
AMBIENT OR BACKGROUND NOISE LEVEL

Is the totality of all sounds within the room when the room is unoccupied.



Room Acoustics

Speech level at listener's ear in dBSPL



The Noise Effect on Word Recognition



Poor Room Acoustics

The hard tile floors, large window panes, high ceilings, hard cement walls, etc. degrades sound quality and causes sounds to echo (reverberate) around the room.

Think of the difference in sound in your living room versus your kitchen or bathroom.

One of the most highly reverberant places is a gymnasium.



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What is listening fatigue?



Listening Effort

“The mental exertion required to attend to and understand, an auditory message”



Listening Related-Fatigue

“The extreme tiredness resulting from effortful listening”

(McGarrigle et al., 2014)



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How does it feel?

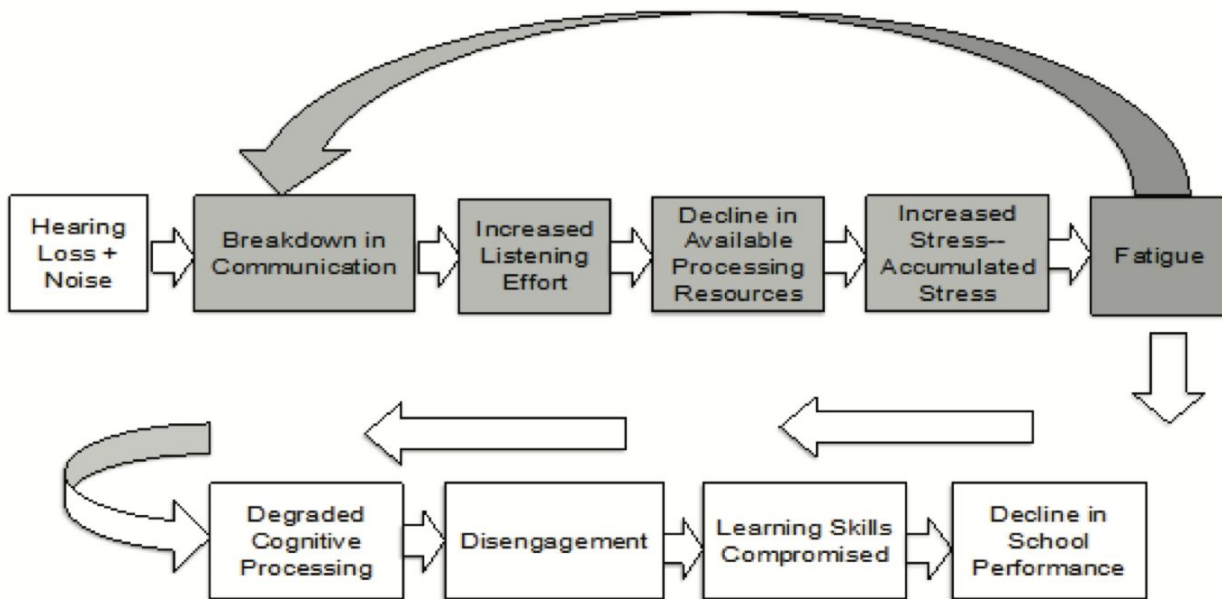


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Listening Fatigue and School Performance



(Bess & Hornsby, 2014)



Signs of Listening Fatigue



Stress and avoidance



Inattentiveness



**Poor classroom
performance**



Irritability and tiredness



**Requests for
listening breaks**



**Relational
Discomfort**



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Strategies for Reducing Listening Fatigue

Preferential seating

Near teacher, favoring a better ear, away from noise sources.

Noise reduction

Close doors/windows, turn off HVAC blowers



Remote Microphone-Hearing Assistance Technology

"FM systems"

Listening Breaks

After extended listening, after being in noise, when attention is faltering, when needed



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Strategies for Coping with Listening Fatigue

Breaks breaks breaks

Plan breaks, Get into the habit of taking breaks, make sure people in your life are aware of your need for breaks.

Breathing and Mindfulness

Practice Breathing and self-awareness skills with a trained mental health professional



Sleep

Follow basic guidelines: Enough sleep, relaxing setting, avoid electronics at night, and be consistent.

Self compassion

Be kind to yourself when feeling overwhelmed and vulnerable.



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05

Breaks

See what's coming



Add breaks to your schedule!



Find appropriate settings



Schedule constructive breaks



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06

Sleep

Age Group		Recommended Hours of Sleep Per Day
Newborn	0–3 months	14–17 hours (National Sleep Foundation) ¹ No recommendation (American Academy of Sleep Medicine)
Infant	4–12 months	12–16 hours per 24 hours (including naps)
Toddler	1–2 years	11–14 hours per 24 hours (including naps)
Preschool	3–5 years	10–13 hours per 24 hours (including naps)
School Age	6–12 years	9–12 hours per 24 hours
Teen	13–18 years	8–10 hours per 24 hours
Adult	18–60 years	7 or more hours per night
	61–64 years	7–9 hours
	65 years and older	7–8 hours



07

Self compassion

Identify Stressors



Practice Self
Kindness



Find a hobby that makes
you happy



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08

Breathing and Mindfulness

Warning



Consult with a qualified
mental health professional
and practice *mindfully*

Non-judgmental
awareness

Acceptance

Breathing

Gratitude



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Additional Considerations During the Public Health Covid-19 Pandemic 🦠

**MASKS
and
FACE
SHIELDS**

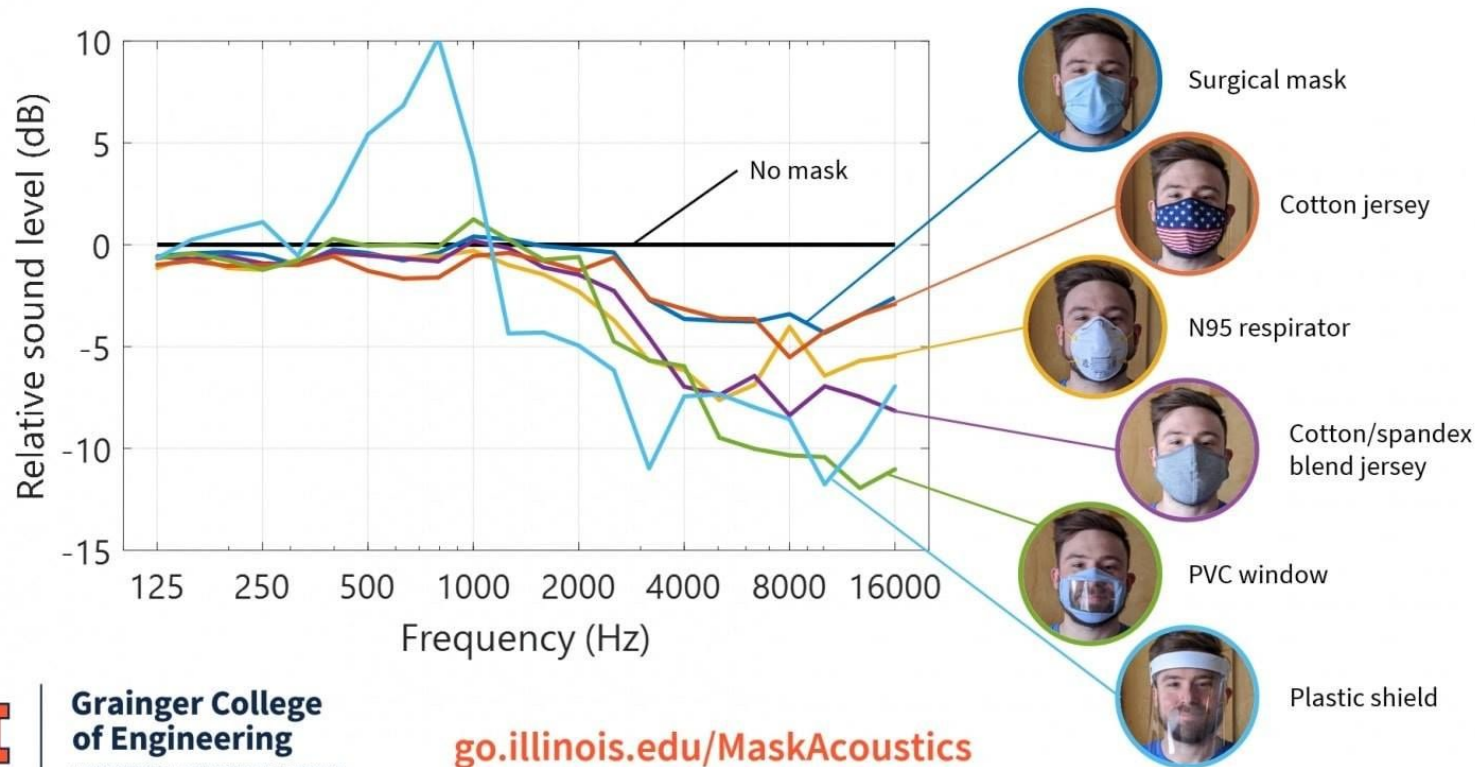


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Face masks degrade high-frequency speech sounds



**Grainger College
of Engineering**

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

go.illinois.edu/MaskAcoustics








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Tina Childress informal testing

August 12 and 14, 2020

		Auditory Only		Auditory + Visual	
		Quiet	+5 Noise	Quiet	+5 Noise
No mask		96%	92%	X	100%
Paper mask		92%	96%	X	X
Cloth mask		92%	76%	X	X
Mask with clear window		80%	76%	96%	96%
<u>ClearMask™</u>		80%	76%	92%	100%
Face shield		72%	0% <small>Stopped at 0/10 words</small>	96%	72%

NU-6 word lists

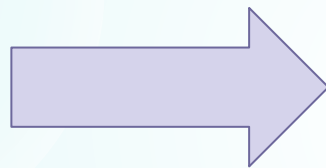
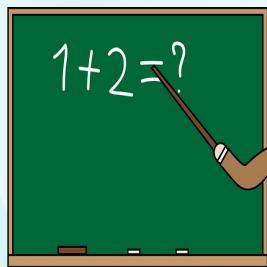
Presented at 50 dB HL, MLV, boom mic in front of masks/shield



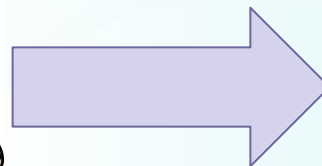
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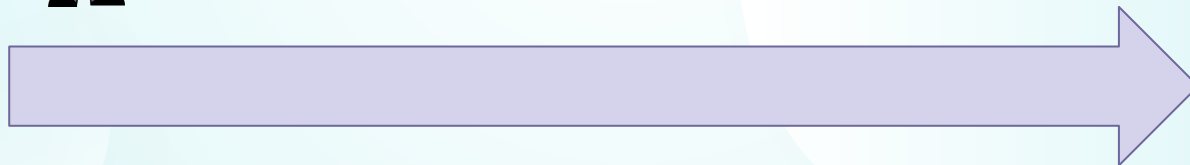
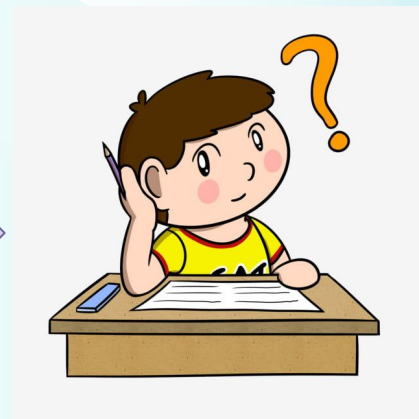
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6 feet



6 feet



12 feet (or more!)



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Students may need MORE support and accommodations during this time!

More visual and written support

Captions and classroom transcription (CART or C-Print)

Use of Remote Microphone-Hearing Assistance Technology

More frequent listening breaks



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THANK YOU!

Do you have any questions?

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Resources

Success for Kids with Hearing Loss (Karen Anderson)

www.successforkidswithhearingloss.com

See Hear Communication Matters (Tina Childress)

www.TinaChildress.Wordpress.com

Outcomes of Children with Hearing Loss

www.ochlstudy.org

Massachusetts Educational Audiology Resources

Sound Outreach to Schools (Boston Children's Hospital) soundoutreach@childrens.harvard.edu

Public School Partnership Program (The Learning Center) www.tlcdeaf.org

Clarke School for the Deaf www.clarkeschools.org

READS Collaborative www.readscollab.org

Willie Ross School for the Deaf www.wrsdeaf.org