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SPEECH AUDIBILITY AUDIOGRAM FOR CLASSROOM LISTENING

Student _____ Grade _____ School _____ Date _____

Loudness in dB HL	250	500	1000	2000	4000	8000 Hz
	Soft speech (35 dB HL)			Teacher voice (50 dB HL)		
0	Typical hearing children: 93-98% word recognition in quiet 86-94% at 35 dB HL in 0 S/N noise. ¹			Typical hearing children: 92-100% word recognition at 50 dB HL in quiet, 90-97% in +5 S/N, and 89-96% in 0 S/N noise. ¹		
10	95% audibility of speech energy perceived with hearing levels between 0 – 10 dB HL 64% at +10 S/N, 34% at 0 S/N²			0-20 dB HL should perceive 98% of speech sounds at a comfortable level in a quiet classroom and acceptable reverberation levels (35 dBA or less background noise in an unoccupied classroom & reverberation no greater than 0.9 sec ³) 84% at +10 S/N, 48% at 0 S/N		
15	75% audibility of speech energy perceived with hearing levels between 10 – 15 dB HL 44% at +10 S/N, 24% at 0 S/N					
20	60% audibility of speech energy perceived with hearing levels between 15 – 20 dB HL 29% at +10 S/N, 9% at 0 S/N					
25	40% audibility of speech energy perceived with hearing levels between 20 – 25 dB HL 9% at +10 S/N, 0% at 0 S/N			95% audibility of speech energy perceived with hearing levels between 20 – 25 dB HL 81% at +10 S/N, 55% at 0 S/N		
30	25% audibility of speech energy perceived with hearing levels between 25 – 30 dB HL 0% in any setting that is not quiet			81% audibility of speech energy perceived with hearing levels between 25-30 dB HL 67% at +10 S/N, 41% at 0 S/N		
35	15% audibility of speech energy perceived with hearing levels between 30 – 35 dB HL 0% in any setting that is not quiet			60% audibility of speech energy perceived with hearing levels between 30-35 dB HL 46% at +10 S/N, 20% at 0 S/N		
40	10% audibility of speech energy perceived with hearing levels between 35 – 40 dB HL 0% in any setting that is not quiet			45% audibility of speech energy perceived with hearing levels between 35 – 40 dB HL 31% at +10 S/N, 5% at 0 S/N		
45	<input type="checkbox"/> Hearing with amplification <input type="checkbox"/> Hearing without amplification			30% audibility of speech energy perceived with hearing levels between 40 - 45dB HL 16% at +10 S/N, 0% at 0 S/N		

S/N means the loudness of the speaker's voice (i.e. teacher) over the background noise. 0 S/N = noise and voice are the same loudness. FM negates the affects of background noise and distance and provides optimal access to verbal instruction in large and small groups.

Results of Functional Listening Evaluation⁴: Type of speech materials used:

SPEECH PERCEPTION	Close / Quiet	Close / Noise	Distant/Quiet	Distant/Noise
Auditory + Visual				
Auditory Only				

Loudness: _____ dB
 Close = _____ Feet
 Distant = _____ Feet
 Quiet = _____ S/N*
 Noise = _____ S/N*
 *at child's ear level

Audibility represents the listening challenge, or fragmented speech perception, experienced by listeners with hearing loss. Audibility should not be interpreted as speech perception.

AUDIBILITY	Quiet No noise	+10 dB S/N Good classroom listening condition	0 dB S/N Very noisy classroom listening condition
Estimated Audibility Soft Speech			
Estimated Audibility Teacher's Speech			

**Recommended Hearing Technology/
Accommodations:**

1. Bodkin, K, Madell, J., & Rosenfeld, R. (1999). *Word recognition in quiet and noise for normally developing children*, AAA Convention, Miami, Poster Session.
 2. Nelson, P. Anderson, E., Nie, Y., Katare, B. (2010). Effect of reduced audibility on masking release for normal- and hard-of-hearing listeners, *JASA* 127, 1903
 3. Yang, W., & Bradley, J. S. (2009). Effects of room acoustics on the intelligibility of speech in classrooms for young children. *J. Acous. Soc. Am.*, 125(2), 922-933.
 4. Revised 2004 by Johnson. Based on Functional Listening Evaluation by C.D. Johnson & P. Von Almen, 1993.

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