

Surviving Okinawa – Math Activity Sheet

Hearing Thresholds of Different Frequencies

An audiogram is a test that measures hearing thresholds of different frequencies in a hushed area. It detects the ability to hear. The threshold is the quietest sound one can detect about half the time.

Using "Degrees of hearing loss and hearing loss levels" ([healthyhearing.com](https://www.healthyhearing.com/report/41775-Degrees-of-hearing-loss))
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- Determine the percent of change for the right ear and left ear, respectively.
- Calculate the percent of change for the right ear (old) to left ear (new). A positive percentage indicates the left ear has better hearing at that frequency.

RIGHT EAR (RED LINE)	LEFT EAR (BLUE LINE)	% OF CHANGE FROM RIGHT TO LEFT
(Hz, dB) (x,y)	(Hz, dB) (x,y)	
(250, 10)	(250, 15)	$(10-15)/10 = 50\%$
(500, 10)	(500, 20)	
(1000, 15)	(1000, 10)	
(2000, 20)	(2000, 30)	
(3000, 40)	(3000, 50)	
(4000, 70)	(4000, 70)	
(8000, 80)	(8000, 70)	
		Rate of Change= (Right-Left)/Right

x= Frequency/Pitch of a sound (Hz) - like playing the keys on a piano from left (bass) to right (treble)
y=Decibels (dB) - Volume. A zero reading is a typical baseline.

In this case, a negative value means better hearing. In the value already calculated above, the right ear can hear better than the left. The higher the decibel reading, the greater the level of loss. Calculate the percent of change for the right ear (old) to left ear (new). A positive percentage indicates the left ear has better hearing at that frequency.