

# EXTENSION: 4.4 A-E TECHNOLOGY AND HEARING

**Introduction:** Most of us take our hearing for granted. We communicate with others easily and often through speech and listening. Unfortunately, we do not always take good care of our hearing and damage the delicate mechanisms that allow us to hear. When that happens, scientific engineering may allow hearing to be restored through the use of hearing aids. In this activity you will learn how hearing works and what can be done when it is damaged. Hearing aids:



**Task 1:** Go to: <http://www.dangerousdecibels.org/virtualexhibit/1whatsthatssound.html>

Following the web guide through each activity on this website. Follow the interactive suggestions on each page. Answer the questions below as you go:

Start with “What’s That Sound?”

- a. How do the sounds change for a person with hearing loss?
- b. Read “How Do You Hear?” Draw the hammer, anvil, stirrup and cochlea. Draw the hair cells in the correct place.
- c. How is sound transmitted through the ear?
- d. How is hearing damaged?
- e. Go to “How Loud is Too Loud”. List three sounds that are too loud:
- f. How is sound carried?
- g. Skip the next page.
- h. What are two ways to measure a sound wave?
- i. What is another way to describe amplitude besides “forceful”? What unit is amplitude measured in?
- j. What is frequency?
- k. How does the sound of the 262 Hz frequency compare to the sound of 4186 Hz?
- l. Besides frequency and amplitude, what else affects hearing damage?
- m. In general, the correct responses in “Rock Your World” are related to:

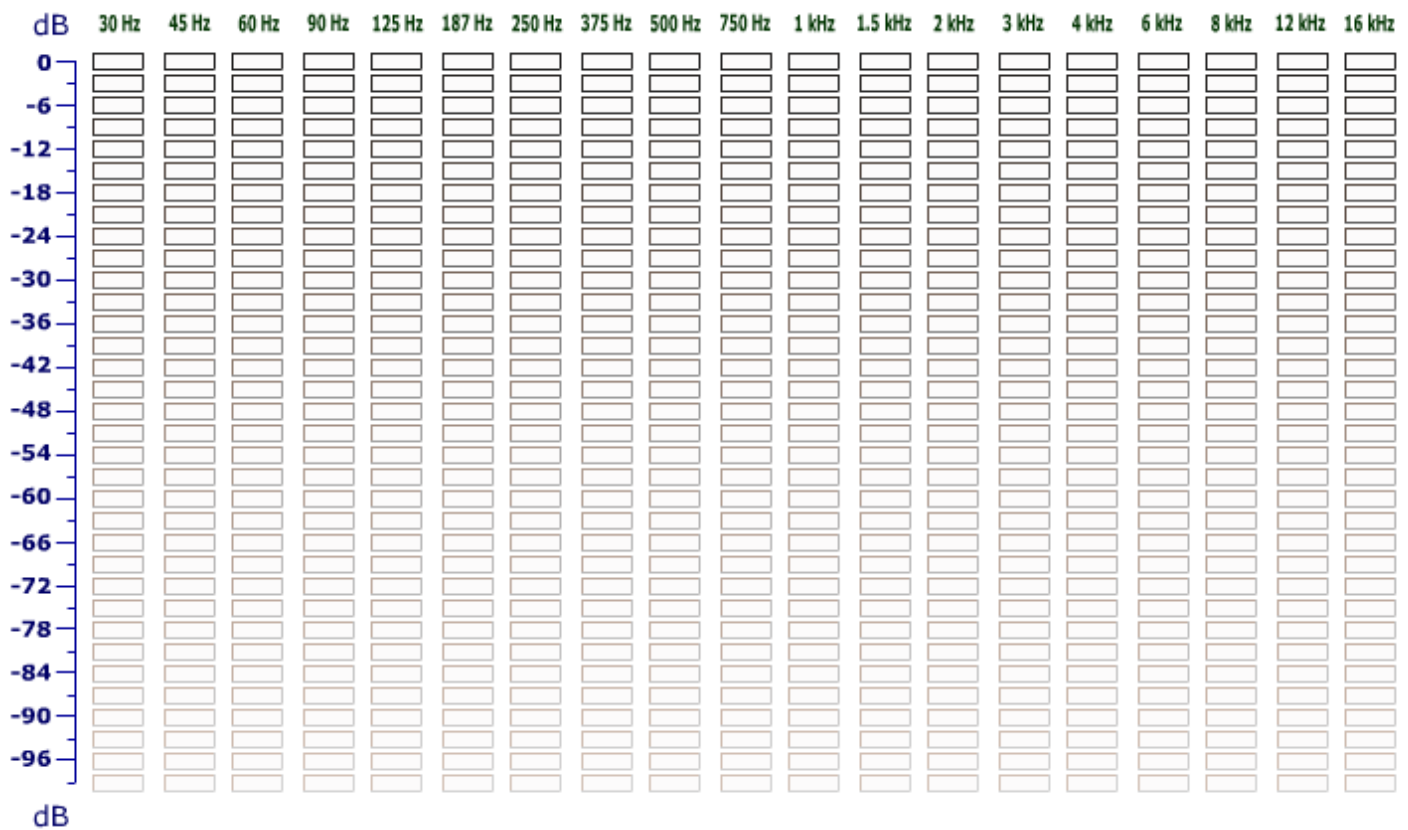
**Task 2:** Go to <http://www.beltonhearingtest.com/us/> and take the hearing test. It will ask for your email. Use your student email address. Open your email to view your results.

Describe how well you hear \_\_\_\_\_

**Task 3:** Go to <http://newt.phys.unsw.edu.au/jw/hearing.html>

WARNING: Do NOT start at the top... start at the bottom!!!

You will click on the rectangles and listen for the sound. Color in the rectangles that you can hear?



How does the sound change as you go from left to right?

How does the sound change as you go from bottom to top?

**Task 4:** Watch the following YouTube video <https://www.youtube.com/watch?v=4q1Jpcp8yD4v>

List the 4 parts of a hearing aid and explain how each part works.

- 1.
- 2.
- 3.
- 4.