

## Sense of Hearing (Audition)

“Turn that music DOWN!” shouts your parental units above the clamor of your favorite CD. “I can’t hear myself think!”

“Okay, man, don’t give live birth to a bovine,” you sass back, at which point you plug in the earphones and settled back on your bed determined to permanently damage your inner ear.

Your sense of **hearing (audition)** is extremely sensitive. A normal ear, before being trashed by the latest CD, can tell the differences among about **40,000** sounds. Your ear has **three main parts**:

- The **outer ear**, designed to collect sound waves.
- The **middle ear**, designed to change sound waves to vibrations.
- The **inner ear**, designed to change vibrations to nerve impulses.

Let’s do some testing to see how sensitive your **audition** is.

### Materials

- Cassette tape recorder
- Mystery Sounds Tape 1 and Mystery Sounds Tape 2 (Each contains ten household sounds)
- Headphones

### Procedures

- Place Mystery Sounds Tape 1 in the recorder.
- Have your subject put on the earphones.
- Allow your subject to play the tape and tell you what he/she thinks the ten different sounds are. Record the responses in **Data Table 1**. (*Note: Your subject can only listen once.*)
- Check the results by reading the Answer Key found on the inside cover of the plastic cassette cover.
- Switch places and repeat procedures except this time play Mystery Sounds Tape 2 and check by reading the Answer Key in the cover of Tape 2.
- Complete **Challenge Activities**.

**Data Table 1**

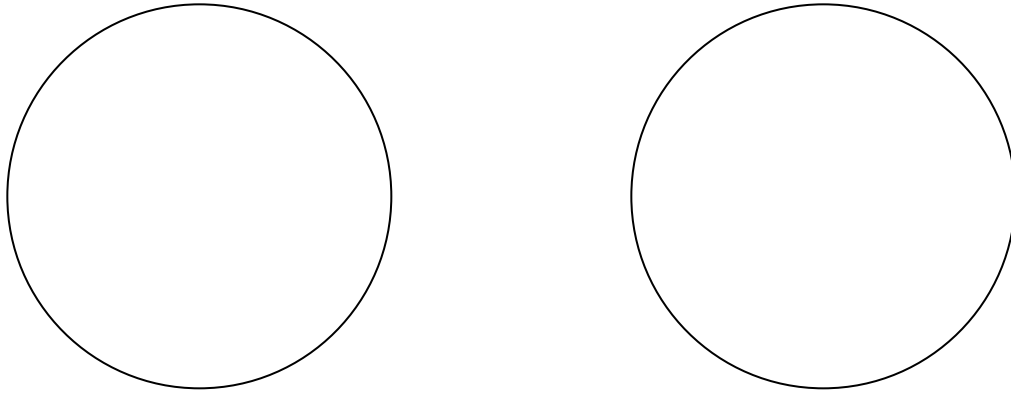
Subject's name _____		Your name _____	
Responses	Correct or incorrect	Responses	Correct or incorrect

**Challenge Activities**

1. How many of the sounds did your subject correctly guess? \_\_\_\_\_  
What percent did your subject guess correctly? \_\_\_\_\_\*
2. How many of the sounds did you correctly guess? \_\_\_\_\_  
What percent did you guess correctly? \_\_\_\_\_\*

*\* You can calculate % by dividing the number correct by 10 and then multiplying that number by 100. For example, if you got 8 correct, you divide 10 into 8 (  $8/10 = .80$  ) then multiply by 100 (  $.80 \times 100 = 80\%$  ).*

3. Use the space below to create a pie chart of your results. Use different colors to help show your data. (NOTE: If you are familiar with spreadsheet programs, use a computer to complete this part.)



4. How would the results of this experiment be different if your subject were visually impaired? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

How would you change the experiment to address any special needs of this visually impaired subject? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. There are interesting websites about your **audition**. Here's a list of a few.

<http://www.hhmi.org/senses/>

<http://faculty.washington.edu/chudler/bigear.html>

<http://www.davidclark.com/hearprot.html>

<http://www.sedl.org/scimath/pasopartners/senses/lesson3.html>

<http://www.mech.port.ac.uk/av/AVALearn.htm>