

## Influence of hearing sounds

### Materials:

-The White noise. You can find this by clicking on FINDER which is in the dock on the far left. Next click on MUSIC, then the GARAGEBAND. Once you have clicked this two white noises will pop up, use them both. One after the other.

-With Masking Tape, Mark distances of 5, 10, 15ft from the BL bench for activity #6.

-Shakers- to make these you will need:

-Anything that can be used as a small sealed container.

-A variety of object, such as beans, rice, rocks, paper clips. something that easily identifiable for a small child.

-Tape, markers and anything kids can use to decorate their shaker.

### Activities:

Discuss

Why is hearing influential for cognitive development? (how our brains develop)

b. What are some dominant sounds that we depend on for survival?

EARS: contain structures for both the sense of hearing and the sense of balance. The eighth cranial nerve (vestibulocochlear nerve made up of the auditory and vestibular nerves) carries nerve impulses for both hearing and balance from the ear to the brain.

SOUND WAVES (changes in air pressure): cause the tympanic membrane (eardrum) to vibrate. Humans can hear sounds waves with frequencies between 20 and 20,000 Hz. The three bones in the ear (malleus, incus, stapes) pass these vibrations on to the cochlea. The cochlea is a snail-shaped, fluid-filled structure in the inner ear. Inside the cochlea is another structure called the organ of Corti. Hair cells are located on the basilar membrane of the cochlea. The cilia (the hair) of the hair cells make contact with another membrane called the tectorial membrane. When the hair cells are excited by vibration, a nerve impulse is generated in the auditory nerve. These impulses are then sent to the brain.

Play the "White noise" and "White noise 2".

They are sounds clips with voices that run together to a point that your brain can't differentiate the independent voices. Have the kids listen to the recording, whose location is provided below, and have them tell you when they can no longer separate out one voice. Once they have done this show or point on the screen the different locations that they lost the separation ability

3. Three Guessing games:

a. shake the shakers- then proceed to have the participants guess what they hear within the shakers. Be sure to give them a list of choices.

A: Pebbles

B: Wooden blocks

D: Bouncy Balls

Have them make their own Guessing Containers!

Can they tell the difference between pennies, nickels and dimes?

c. Have them close their eyes and listen to:

-Hands clapping

-stapler

-tear up some paper

<http://seaworld.org/en/Animal-Info/Animal-Sounds>

4. Marco Polo: Have one person sit in the middle with eyes closed and play “marco polo” and have them point to the direction of the sound.

5. 2 better than 1: To show the importance of two ears, measure out distances from a seat 5ft, 10ft, 15ft. have the subject close their eyes and you go stand on a line and say their name and they have to tell you which line you’re standing on. have them try with both ears and then just one ear.

6. Make a Model Eardrum: to see how sound travels through the air. Also called tympanic membrane. Stretch plastic wrap over a large bowl or pot. Stretch it tight. Then place rice on top. use your noise makers and hold close to the plastic wrap and see if it makes the rice jump.

7. Activity 1 for little kids (5 and under):

Close your eyes and be quiet. Well, what do you hear? Talk about everything you can hear when everyone is trying to be quiet. Can you hear the clock? Wind? Talking? Breathing? Cars? Airplanes? Footsteps? See what interesting noises everyone can hear.

Ask them how do we hear? How do we know what it is that we’ve heard?

8. Listen to and guess sound effects

<https://faculty.washington.edu/chudler/flash/sounds.html>

9. listen to Da, Da, Da

<https://www.youtube.com/watch?v=XSjOXyutkCM>

Why is having the sense of Hearing seen as an advantage in society?

Its a source of independence.

It provides us with the tools to be aware of danger. Predators, speeding cars, or any number of things that may cause us harm.

Hearing also helps us communicate to each other!

Evolutionary, how have our ears and our ability to perceive sounds changed?

A persons senses will become duller with age. Hearing

<http://www.sumanasinc.com/webcontent/animations/content/soundtransduction.html>

(By the way...the stapes is the smallest bone in the human body. It is only 0.25 to 0.33 cm long [0.10 to 0.13 inches] and weighs only 1.9 to 4.3 milligrams.)