



## Hearing Protection Demonstration: Heather the Hearing Mannequin

### What is provided:

1. **Heather the hearing mannequin with sound meter**, microphone in her “good” ear and a set of ear buds. To set up Heather:
  - a. Turn on the meter (it will turn itself off after a while).
  - b. Put one ear bud in Heather’s ear and have the other one ready to put in the student’s ear.
  - c. Plug the ear buds into the iPad/iPod or other music device and make sure that the meter is registering the sound.
  - d. Keep the music below 70 decibels as each student starts to listen. Let the student adjust the volume or you can ask them up or down and you can adjust it yourself. If the meter is under 85 congratulate them for listening at a good level. If above 85 turn it down to 85 and ask them if they could still enjoy the music. (Hopefully they say yes).
  - e. Remind them that a good rule of thumb is **“if the person next to your can hear the music from your earbuds it is too loud”**.
2. Pair of Ear Muffs
3. Ear plugs – 1 each participant
4. Pipe cleaners – 1 each participant
5. Beads – 3 per student
6. Hearing flyers – 1 each participant

### What you need to provide:

1. iPad or iPod with a song loaded. Volume adjustment needs to be fairly simple. I downloaded the “Happy Song”.
2. Volunteers (3 would be perfect) to teach lesson and assist with handing out materials.
3. Print off Picture of the inside of the ear – as large as possible (see attached jpeg)
4. Picture of damage hair cells (cilia) (see attached file)

### Suggested Lesson: (have fun and change it up if you like)

### Questions with *suggested responses*

1. Does anyone know someone who doesn't hear very well? It is hard to communicate if you can't hear well. You can even feel lonely if you can't hear what is going on around you.
2. What are some ways that people can lose their hearing?
  - a. *Loud noise exposure – equipment, loud cars, loud music, farm equipment, guns, monster truck rallies, people yelling in your ears, ....*
  - b. *Some people may be born with hearing loss.*
  - c. *Everyone loses some hearing as they get older*
3. Have you ever seen the inside of your ear?
  - a. Hold up model and talk about how the outside of your ear helps funnel the sound waves into your ear.
  - b. Does anyone know what this white thin thing is called (ear drum). If you put something too far into your ear you can break your ear drum.
  - c. The ear-drum helps send the sound to this snail shell shaped thing- does anyone know what this is called? It is the **cochlea**. It has teeny tiny hairs lining it that help send sound to your brain.

Hand out pipe cleaners – tell the participants *“don't bend these precious hair cells”*.

Once all the students have their hair cells tell them to hold them up in the air. Tell them that when you are around normal noise the hair cells wave gently (ask them to gently move their hair cell) sending messages to your brain. “When they stop waving the pipe cleaner is standing straight up.” “But **WHEN YOU ARE AROUND LOUD NOISE**” (yell this out and have them wave their pipe cleaners back and forth) “the hair cells get damaged – now try to straighten your hair cell- it won't straighten will it? Just like in your ear- now these hair cells can't send the message to your brain.” (Have them save their hair cells to make bracelets with them later.)

**“Here is some sad news: once your hearing is damaged it can't recover – when it's gone it's gone.” So we need to take good care of our hearing.**

4. What are 3 great ways to protect our hearing?
  - a. Turn down the volume (best way)
  - b. Move away from the noise (2<sup>nd</sup> best)
  - c. Wear hearing protection

Demonstrate how to put on ear muffs.

Demonstrate how to put in ear plugs. (See back of flyer for instructions)

5. How many of you listen to music with ear buds? Do you listen too loud? Sound is measured in decibels and anything **more than 85 decibels is too loud.**
6. Have the students line up in front of an 8' table table.
  - a. Place the beads on one end, as the students pass by they can grab 3 bead to remind them of the 3 great ways to protect their hearing (have them repeat these ways several times).
  - b. Have the ear muffs next on the table, as the students pass by they can try on the ear muffs.
  - c. Have Heather at the far end of the table. Follow the instructions in the first section to see if the students are listening to the music too loud. Congratulate those that listen below 85 dB and those that tell you that they can still enjoy the music below 85 dB.

**Some follow-up questions:**

1. Where are the hearing hair cells located? In the cochlea.
2. What are the three great ways to protect your hearing? Turn it down, move away, wear hearing protection.
3. How is sound measured? In decibels
4. Can your hearing be fixed after it is damaged by noise? NO!

**Handouts:**

Ear plugs and hearing flyer.

**Thank you for teaching this important lesson. I would love to have a picture to put on the CS-CASH website! Please call or email me with any questions or concerns.**

**Have Fun!**

Ellen

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