



Dangerous Decibels

dangerousdecibels.org

Dangerous Decibels Program Guide

Students will learn...



...to distinguish between safe and dangerous decibels.



...the sources of many dangerous decibels and what the effects of dangerous decibels are to their hearing.



...three ways to protect their hearing.



50 Minutes

Program Outline

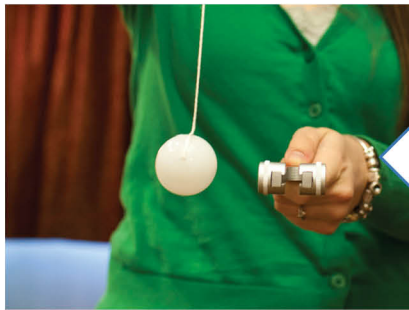


1 Introduction

- Hello!
- What are Dangerous Decibels?
- 3 Ways to Protect Your Hearing
- Class Rules/Expectations



3 Minutes



2 What is Sound?

- What is Sound?
- Tuning Forks
- Ping Pong Balls



5 Minutes



3 How Do We Hear?

- Ear Anatomy Poster



2 Minutes



4 How Do We Damage Our Hearing?

- Hair Cell Model (Pipe Cleaners)



10 Minutes

Program Outline

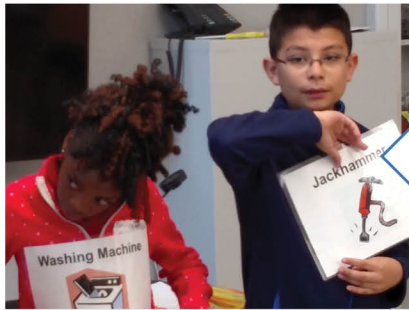


5 What's that Sound?

- dBZone! What's that Sound?



7 Minutes



6 How Loud is Too Loud?

- Flash Cards



10 Minutes



7 Protecting Our Ears

- Turn it Down (Headphone Flashcard)
- Walk Away (Sound Measurement with Blender)
- Protect Your Eards (Fitting Earplug)



4-10 Minutes



8 Rock Your World: Time to Act!

- Rock Your World Role Play



3 Minutes

Getting Ready

Materials Checklist

- 10 Dangerous Decibels Index Cards
- Dangerous Decibels Program Outline
- Dangerous Decibels Logo Sign
- 3 Dangerous Decibels Caution Signs
- Mounting Putty
- Decibels = A Measurement of Sound sign
- Earmuffs (Adult and Child size if possible)
- 4 Tuning Forks (256 Hz)
- 4 Ping Pong Balls (each with string attached)
- Ear Anatomy Poster
- Pipe Cleaners (3-5 per student)
- Single Hair Cell Photograph
- Image of Healthy Hair Bundle
- Image of Damaged Hair Bundle
- How Loud is Too Loud Flash Card Set
- 85 dBA 8 hours Sign
- Blender and Extension Cord
- Sound Level Meter (3 is ideal)
- Earplugs
(-30: one for each student and teachers/aides in the class, don't forget a pair for yourself!)
- Rock Your World Cards
(-30: one for each student and teachers/aides in the class, don't forget a card for yourself!)
- Computer with speakers & internet access
- Computer projector or large monitor
(to accommodate the size of the classroom)
- Access to What's That Sound
(internet at <http://dangerousdecibels.org/db-zone/> or stand-alone version)

Program Guide Key



Transitions between sections are shown in an orange box and will help to keep students engaged and create a seamless presentation.

Text that you can use as a guide to speak aloud is in blue.



Key points that are essential to the program are bold and noted with a blue line.



Actions and reminders for you, the educator, (not to be spoken aloud) are in black and are noted with a check mark icon.

1 Introduction

Educational Objective:

To familiarize the class with the educator, the purpose of the program, and educator expectations for the interactions.

Materials:

- display board or whiteboard (in the classroom)
- Dangerous Decibels logo sign
- 3 caution signs
- "Decibels = Measurement of Sound" sign
- mounting putty
- one pair of earmuffs for demonstration



Introduction

Introduce yourself:

- What is your name?
 - What organization are you with?
 - Is there anything interesting or funny you want to share?
 - Why are you here today?

Scientists are discovering too many kids, ages 6-19, are suffering from noise induced hearing loss. We will show you ways to protect your hearing so it won't happen to you.

Hearing loss caused by loud sound is a problem for people of ALL ages.



DECIBEL =
A Measurement of Sound



What are dangerous decibels?

A decibel is a measurement of sound not unlike weight is measured in pounds or grams or height is measured in inches or centimeters.

DECIBEL =
A Measurement of Sound

☑ Place the sign on the display board.

What can make a sound dangerous? When sounds are too loud, they can damage your hearing! If it is a very loud sound, just one exposure can damage your ears.

What are 3 ways to fight dangerous decibels?

What are three ways to fight dangerous decibels? Does anyone have any suggestions?



☑ Put answers (caution signs) on the board as they are mentioned. When "Protect Your Ears" is mentioned, explain that:

Kleenex, toilet paper, and cotton balls are NOT good ear protection. They can break off in your ear and they do not even block dangerous decibels. Earplugs and earmuffs work well to protect your ears.

Being around loud sounds a lot WILL NOT help your ears get used to it.



☑ Use earmuffs to demonstrate protecting your ears.

Class Rules/Expectations

We expect that you will respect the educator, your classmates, and the materials. Our signal to designate that it is time to be quiet/pay attention is [signal/clapping/counting, etc.]. And, the most important rule...is to have FUN and learn!

2 What is Sound?

Educational Objectives:

Students will know that:

- Sound is a result of vibrations.
- Sound vibrations are called sound waves. You cannot have sound without vibrations.
- The energy in sound is what can cause damage to our ears.

Materials:

- (4) tuning forks
- (4) ping long balls with strings attached (prepped in advance)



 *Let's start by learning about sound.*

What is Sound?

- Sound is energy.
- Sound is made when objects vibrate.
- Sound/vibrations travel through molecules as **SOUND WAVES**.

Let's experiment!

Tuning Fork Activity

- Show a tuning fork to the class.

1. A tuning fork is scientific equipment and needs to be used with respect. *No vibrating tuning forks should ever touch glasses or teeth; it can shatter them.*



- Demonstrate how to hold the tuning fork by the handle and to strike the side of one prong against the sole of a shoe or another solid surface.



- ✓ Pass out enough tuning forks for everyone if you have enough. If you have just a few tuning forks, bring 3 volunteers to the front of the class to do the activity. Make sure to keep a tuning fork for yourself.
- ✓ Use the attention signal to get the class's attention.

2. Hold the tuning fork by the handle and strike the side of one prong against the sole of your shoe or another hard surface. It is **NOT OKAY** to strike your classmates-- show respect! What do you **SEE** and **HEAR** when the tuning fork is vibrating?

- ✓ Pause for student responses.

3. Try gently touching a vibrating fork to the back of your hand to **FEEL** the vibrations.

4. Now try striking the tuning forks and cover it with your hand. What happens when the tuning fork stops vibrating?

- ✓ Give the students time to experiment. Pause for student responses. Then explain:

5. The sound vibrations stop. You cannot have one without the other.

Ping Pong Ball Activity



- ✓ Call 3 **NEW** volunteers to front of class with their tuning forks. Give each a ping pong ball on a string. Show them how to hold the string so that the ball is hanging in front of them and about 18" away from their hand.

1. **This is a demonstration that will show that vibrations have enough energy to move an object. Touch the still tuning fork to the ball. What happens? Nothing.**

2. Strike the tuning fork on a shoe or table then touch the ball again. See how the ball flies away from the tuning fork? **The vibrations from the tuning fork are strong enough to move the ball. It is the power in the sound vibrations that can damage our ears.**

- ✓ Collect materials.

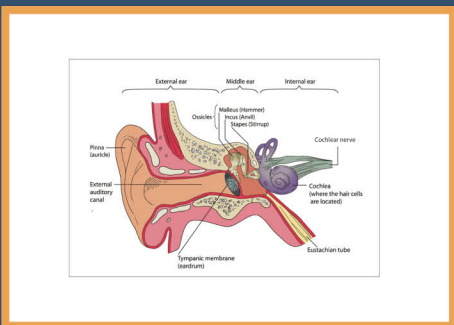
3 How Do We Hear?

Educational Objective:

Students will have a general understanding of how sound waves and vibrations travel through the parts of the ear to enable hearing.

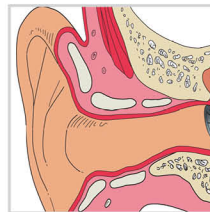
Materials:

- ear anatomy poster



Now we know what makes a sound, but how do we hear?

Ear Anatomy Poster



Use the anatomy poster to explain the parts of the ear and how we hear.

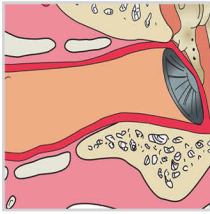


Call on students as they volunteer to answer your questions throughout.

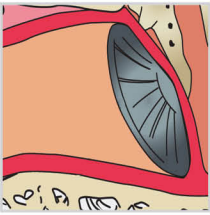


Point to each part of the ear as you speak about it.

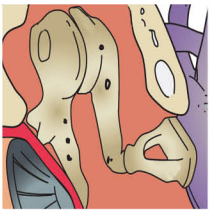
1. Do you know what the outside of the ear is called? It is called the **pinna**. What do you think it is for? The pinna funnels sound into the ear.



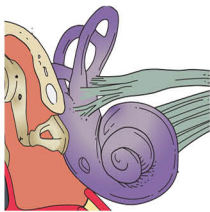
2. Sound waves (or sound vibrations) traveling through the air reach the pinna and travel through the **ear canal** to the eardrum.



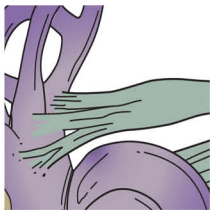
3. Sound waves hit the **eardrum**, causing it to vibrate.



4. Vibrations from the eardrum travel through the **3 small bones** of the middle ear. This is similar to the way vibrations traveled from the tuning fork to the ping pong ball.



5. Then the vibrations travel to the cochlea. The **cochlea** is filled with fluid and thousands of tiny sensors called **hair cells**. On top of the hair cells are even smaller hair-like structures called **hair bundles** that are moved by the vibrations in the fluid.



6. When hair bundles rock back and forth, they send signal to the rest of the hair cell, which in turn send a signal through the **hearing nerve** to the brain. The brain receives these signals and identifies the sound, for example a cat meowing or a dog barking.

4 How Do We Damage Our Hearing?

Educational Objective:

Students will know loud sounds create strong vibrations that can permanently damage hair bundles in the cochlea.

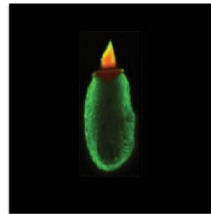
Materials:

- single hair cell photograph
- pipe cleaners
- healthy and damaged hair bundle photographs



We know that we detect sound vibrations with the tiny hair cells in our ear. We also know that vibrations from loud sounds have power. Let's see how loud sound can permanently break our hair cells and cause hearing loss. Let's build a model.

Hair Cell Model



Show the photo of the single hair cell.

1. The green part is the **hair cell body**; the orange top is the **hair bundle**.

2. We have as many as 18,000 of these in each ear and they have to last us a lifetime – that is a long time. If we damage them, they will be damaged permanently – they cannot be fixed by medicine or surgery.

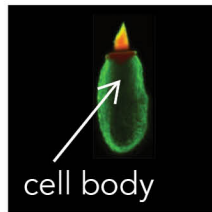
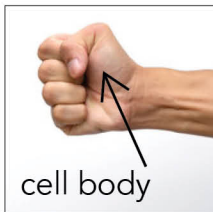
3. We will be building a model of our hair cells. These are the hair cells that change vibrations into electrical signals that are sent to the brain and let us hear sound. We will be using some VERY serious scientific materials.



- ☑ Pass out 4-5 pipe cleaners to each student.
- ☑ Have them leave the pipe cleaners (un-touched) on their desk for now.

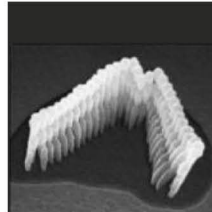
4. In science we use “models” to understand how things work. A model is something that looks or behaves like the real thing (e.g., a model airplane). We are going to make a model of a hair cell and do an experiment to see what happens to that hair cell in loud noise.

5. Hold up an empty fist, facing forward as if you were holding a mug. This represents the cell body.



- ☑ Point to the cell body on the hair cell image.

6. Now place the pipe cleaners in your fist so the cleaners are pointing straight up. This is the hair bundle on top of the hair cell. What do you think your arm represents in this model? The nerve connecting the hair cell to the brain.



- ☑ Hold up the image of the healthy hair cell.

7. This is a healthy hair bundle on top of a hair cell, standing nice and straight.

- ☑ Place image on the display board.

8. Next, we will be walking through events in an imaginary day where we expose our “hair cells” to different levels of sound. The hand that is not holding the pipe cleaners will run over the pipe cleaners just like the sound vibrations brush over them. This will be our experiment to see what loud sound does to a hair bundle.



- ✓ Demonstrate the actions below as you describe what you are doing.

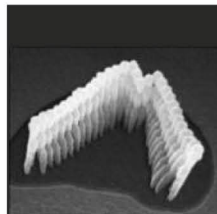
9. When our hair bundles are exposed to sound vibrations they sway back and forth, this creates signals that are sent to the brain where we hear that sound.

- ✓ Other hand brushing gently across the pipe cleaners

10. When the sound stops, so does the movement of the hair cells.

- ✓ Hand brushing stops.
- ✓ Begin telling the story for the day.

It’s Morning. Your friends come over as you are eating breakfast and share the exciting news that there is going to be a huge fireworks show tonight in your local park! You and your friends discuss plans to go to the show. When you talk to each other, the decibels are at a “safe” level for your ears.



- ✓ Model for the class how to gently wave your opposite hand over the pipe cleaners/hair bundle to mimic the safe sound vibrations. When the sound (talking) is stopped, the pipe cleaners/hair bundle resume their prior upright position.

Now you try it! [After a few waves] Do you see how the hair bundles are still standing up, nice and straight, ready to respond next time there is sound, just like in the healthy hair cell bundle picture?

Now it is afternoon. Before you go to the fireworks show the lawn has to be mowed. You have a gas-powered lawnmower, and it is “pretty loud”.



Model how swiftly hands are to be waved over the hair cells, fast and hard enough to cause slight bending of the pipe cleaners, but not complete devastation. Have the class join in for a few rounds, then stop.

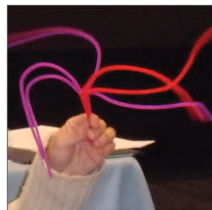
What shape are our hair bundles in now?

Our model shows us how our hair bundles respond to dangerous sound levels and how we begin to lose our hearing. When the hair bundles no longer stand up straight, they cannot respond to the vibrations and send messages to our brain so we can hear.

Sound that is too loud can damage the hair cells of our inner ear.

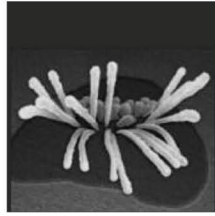
Evening has finally arrived! You are at the fireworks show and are lucky enough to get front row seats!! But fireworks are even louder than the lawnmower, aren't they?

On the count of three, the fireworks will begin. 1, 2, 3.



Demonstrate how dangerously loud sounds wreak havoc on their hair cells! Hair bundles can collapse and even fall out. After a few seconds of hair cell debauchery, get the students' attention.

Do you remember what your hair cell bundles looked like before fireworks? Nice and straight like in the healthy hair bundle image. What happens to REAL hair bundles that are exposed to loud sound?



- ☑ Show the damaged hair bundle photo.

Do your hair bundles look like these?

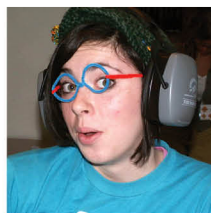
- ☑ Pause for responses. (This should be a dramatic moment).

*Now try and repair you hair bundles! Can you straighten them out and make them look like the healthy hair bundle image? No matter how hard you try, you can't repair a hair cell. Will these hair cells help us the next time we want to hear? NO! These hair cells will NOT grow back (unless you are a bird or a frog), **once our hair cells are damaged, we have lost that little bit of hearing forever.** Each time we expose our ears to sounds that are too loud we do a little bit of damage that adds up over time.*

Hearing an extremely loud sound even one time can also cause you to lose some of your hearing. Once your hearing is damaged, there is nothing that will make you hear as well as you do now.

Have you ever experienced a ringing or buzzing in their ears after being around loud sounds? That is called Tinnitus.

TINNITUS is ringing, hissing, buzzing in your ear after exposure to very loud sound. Often the ringing goes away but the damage that was done by exposure to the sound does not. Sometimes the ringing will stay forever. Tinnitus is a signal to you that you have damaged your hair cells and your hearing.



- ☑ Be sure to collect all the pipe cleaners from the students. If you don't, the students will end up distracted and will play with them throughout the rest of your program.

5 What's that Sound?

Educational Objectives:

Students will understand:

- one of the consequences of being exposed to dangerous sound levels
- what it is like to try to identify sounds with a high-frequency hearing loss

Materials:

- computer with internet access and speakers
- computer projector or large screen monitor to accommodate the size of the room
- access to Dangerous Decibels - dB Zone! What's That Sound?



⇒ We have learned about what happens inside the ear when loud sound breaks hair cells. But what is it like to have hearing loss? Our next activity will show us what it is like to listen to sounds with noise-damaged ears.

What's That Sound?



Access the "What's That Sound" activity on the dBZone! at the Dangerous Decibels website (link below).

<http://dangerousdecibels.org/db-zone>



The “What’s That Sound” game is a way to understand how difficult it would be to hear with a hearing loss. You will hear a sound and see a group of pictures on the screen. The sound is from one of the items or activities pictured on the screen, but you will hear it as if you had a (high-frequency) hearing loss. Try to guess what picture item or activity matches the sound.



- ⊙ You can have the students hold up their hands to share their guesses or do it as an open group, if you have good class control.
- ⊙ When you hear a guess, use the mouse cursor to select the guessed picture. If it is correct, you will hear the sound without hearing loss for contrast. If the guess is wrong, ask them to listen and guess again.

What sounds were the most difficult to recognize? What sounds surprised you the most when you heard them clearly?

Did you notice how difficult it is to hear some sounds and how much work you have to do to recognize them with a hearing loss? Hearing loss doesn’t mean you completely lose the ability to hear anything at all.

- ⊙ Set the computer screen to dark and continue the presentation.

6 How Loud is Too Loud?

Educational Objectives:

- Students begin to associate different sounds with decibel levels.
- Students identify which method of hearing protection is the best to practice when exposed to dangerous decibels from different sources.
- Students discuss the social norms and challenges associated with practicing hearing protective strategies.

Materials:

- How Loud is Too Loud flash cards, for example:
- 85 dBA sign



Having a hearing loss is a struggle. You miss out on a lot of wonderful and important sounds. We know that loud sound can cause permanent damage to our ears. Let's learn how loud some sounds are and how long we can safely listen to them before our ears can be hurt.

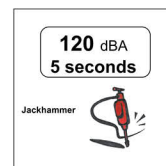
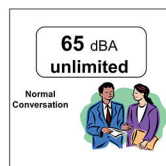
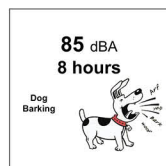
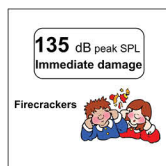
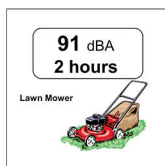
Flashcard Activity

Do you remember what a decibel is?



If the class needs a reminder: a decibel is a measurement of sound.

This next activity is a way to start identifying different sounds with their decibel levels.



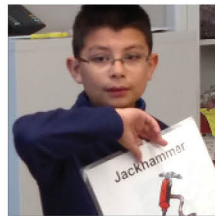
On the decibel scale the number 85 is VERY important. Any sound 85 dBA for 8 hours and up is considered a dangerous decibel level. If listened to too long, it can damage your hearing.



Show the 85 dBA for 8 hours sign and place on the display board.

85 dBA is the sound of the average factory or a busy street corner in the city (or find some other examples in your community).

The softest sound that the healthy human ear can hear is around 0 dBA. The higher the sound volume, the less time you can listen to it safely.

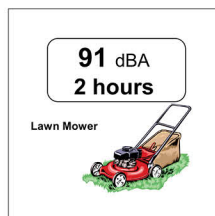


Bring up 3-4 volunteers to the front of the classroom. Randomly give each volunteer (or let them choose) three flash cards. Depending on time available, you could choose a larger group of cards to show.

Hold the flash cards in front of you so the class can see the image of the sound source. You'll each take a turn holding up your card(s).



front



back



For each flash card ask the class, Is this sound safe or dangerous? And how many decibels do they think it is? Then ask the student to show the back of the card to find out how many decibels and how long they can safely listen to that sound. Discuss each sound source.

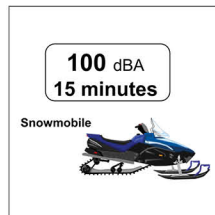
Is the sound source dangerous? What could you do to protect your hearing if you are exposed to that sound?



Optional Discussions: If time permits, you can share the following information when these cards are shown during the activity.

- ☑ You do not need to memorize these discussion points word for word but please hit on the issues mentioned in your own style:

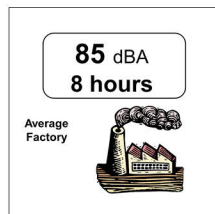
Snowmobiling and other sports that require motorized equipment-- (use earplugs) These activities can often be activities that put one in range of dangerous decibels. What if no one else was going to wear hearing protection? Would you? What if they laughed at you? Sometimes it is difficult to do the right thing. But you know what the consequences will be if you don't use hearing protection.



- ☑ Show the snowmobile flashcard.

Factory – (turn it down if possible, otherwise earplugs)

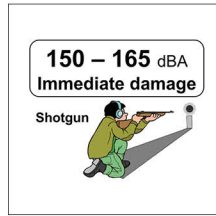
The typical factory sound level is 85 dBA. Is this dangerous? (Class votes.) Yes, any sound 85 dBA and over hits the range of dangerous decibels. What happens if you are old enough to work in a noisy factory? Whose responsibility is it to protect you from these dangerous decibels? You can choose to wear earplugs or earmuffs, but it is also the responsibility of the employer to provide a safe working place. Sometimes employers can forget that they need to do this and ultimately you need to be aware and responsible for your safety. Sometimes we need to be activists for things that are important for us. Make sure the company follows laws to protect their workers' hearing!



- ☑ Show the factory flashcard.

Firearm (shotgun, pistol, starter pistol, air rifle)-- (use earplugs)

How many of you have gone or go hunting or to shooting ranges with family or friends? How many of you have seen a race official shoot a starter pistol? Do they use hearing protection? Why? Why not? You can help be trendsetters. Watch closely in loud places and notice how many people are using hearing protection.



☑ Show the firearm flashcard.

Power Tools, Chain Saw, Jackhammer being used near you--(walk away)

One area we have seen a great increase in the sources of dangerous decibels over the years is in the home. How many of you help with yard and housework and have been around power tools? Did you and the person running them use ear protection? Why/Why not? As you get older there is a good chance you will be using equipment like this, whether it is a job or around the house. These are the types of places dangerous decibels creep into our lives and little by little damage our hearing. Notice these situations and make smart decisions on how you want to take care of yourself!



☑ Show the power tools flashcard.

7A Protecting Our Hearing:



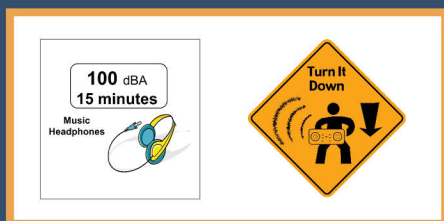
Educational Objectives:

Students learn:

- dangers of listening through headphones at high sound levels
- parameters for safe listening through headphones.

Materials:

- How Loud Flash Card for headphones
- Turn it Down sign



Now that we know how much sound energy it takes to damage our ears, let's learn about the 3 ways to protect ourselves.

Turn it Down



Show the headphone flashcard.

I have another flash card from the How Loud is Too Loud set that we should see. Do you think that listening to your headphones at full volume is safe or dangerous?



Review the relationship between sound volume and listening duration.

Headphones produce sound levels as high as 100 dBA or more, far exceeding 85 dBA and therefore is considered to be a source of dangerous decibels.

| Simply turning our music down will allow us to listen safely for longer periods of time.

We usually listen to headphones or earphones when we are alone. This is an opportunity for you to be responsible for yourself and not feel the pressures of other people telling you how to listen to your music. Sometimes those people may be instructing you to turn it down but there may also be times when others are influencing you to listen at too high a volume.

The best option to protect your hearing:

| Turn it down so you can enjoy your music for a lifetime.



☑ Show the Turn it Down sign.

7B Protecting Our Hearing:



Educational Objectives:

- Students measure sound pressure levels with a sound level meter.
- Students learn how effective walking away from dangerous sound levels can be to reduce their exposure to dangerous sound.

Materials:

- a noisy blender or other constant high level sound source (and usually an extension cord)
- sound level meter (SLM)



Sometimes we are around intense sounds, and we cannot turn down the volume. We are going to do an experiment to learn another way to protect our hearing.

Walk Away

Has anyone ever thought that making a smoothie could be dangerous in any way!? Let's find out.



Ask for 3 volunteers to come up to the front.



Turn the SLM on and give the SLM to the student closest to the blender.

Point the tip at the base of the blender and hold it about 1 inch away from it.



Be sure it's not pointed at the exhaust fan area.



Have a 2nd student stand about 4 feet away from the blender and the 3rd student stand at least 15 feet from the blender. Make sure that nothing and no one is blocking the path between each SLM and the blender.

I am going to start the blender soon. You'll each get a turn with the sound level meter. When it is your turn, hold it so that the tip [microphone] is pointed at the blender. Your job will be to read the number of decibels recorded from the SLM when you have it, but keep it a secret and don't tell anyone until asked.



Start the blender; make sure the reading is stable for each student. (If you just have only one SLM, transfer it now to the 2nd student. Have this student read the number on the SLM. Then transfer the SLM to the 3rd student. Have this student read the number on the SLM.) Then, turn off the blender.

Can you guess how many decibels were recorded by the student closest to the blender?



Ask the first student to tell the class the answer.

How many decibels were recorded by the 2nd student?



Ask the second student to tell the class the answer.

Do you see that by simply moving back or WALKING AWAY a few steps, you moved from a clearly dangerous sound level to a safe one (at student two location)?

How many decibels do you think were recorded by the 3rd student?



Ask the third student to tell the class the answer.

What did you learn about sound from this experiment?

Sound energy DECREASES as you move away from the source!

7C Protecting Our Hearing:



Educational Objective:

Students will practice the proper technique and fitting of pre-formed earplugs in their ears.

Materials:

- one pair of pre-formed earplugs for the instructors demonstration
- one pair of earplugs per student
- Protect Your Ears sign
- one set of earmuffs to show to the class



The third way to protect our ears is to use earplugs. Would you like to have your own pair of earplugs and learn how to use them the right way?

How to Use Earplugs



Note: Individuals who have surgically altered ears, implanted medical devices in their ears or any medical conditions that contra-indicate the use of earplugs should refrain from this demonstration and might possibly substitute with an earmuff demonstration.

It is important to be prepared so that you have your earplugs with you so that they are handy in case you are exposed to loud sounds. It is important to use them and even more important that you use them properly. There are several kinds of earplugs made and you will learn how ONE kind works today.

I'm going to demonstrate how to insert an earplug into your ear.



If you have enough earplugs, and the teacher has given permission, you can distribute earplugs to all the students. Demonstrate the steps below as you describe them.

1. This is a small tree-shaped earplug. Hold the earplug by the small stick or handle in one hand. This should stick out of the ear after you are done. Do not put the handle into the ear.

2. **You are going to reach over your head with the opposite arm and pull your outer ear (the pinna) up and back. This straightens the ear canal. Slowly insert the earplug into your ear. Twisting it a little may be helpful for a secure fit.**

3. Now you can release your hand that is pulling on your outer ear and lower your arm. If the plug is still in position, then release your other hand. If the plug is not sealed in the ear, then repeat the same steps until it is in the proper position and makes a seal with your ear. You can tell if the earplug is fitting correctly if the sound around you gets quieter and it feels comfortable. Does it sound different between your two ears?



Instruct the students how to remove the earplug BEFORE they they insert the second earplug in their other ear so they'll be able to hear you and do it safely.

4. **When you are ready to remove the earplug, you can gently twist the earplug and wiggle it out of your ear.**

5. Next, insert the second earplug in their other ear using the same procedure. You might not be able to hear very well with both earplugs inserted and it might sound as though you are under water, so I'll gesture to you when it is time to twist and remove both earplugs so that you can hear me again for the rest of the lesson.

6. The best earplug is the one that fits properly and helps keep the loud sound out. Sometimes this is like learning to wear a new pair of shoes, and you have to wear them awhile before they become more comfortable. Practice wearing earplugs at home with your parents when around loud sounds.

7. This type of earplug that you have can be reused, so they should be washed to keep them clean. **You can get replacement or additional earplugs or earmuffs at hardware stores, drug stores, and sporting goods stores.** (Give them some specific examples of places to purchase.)

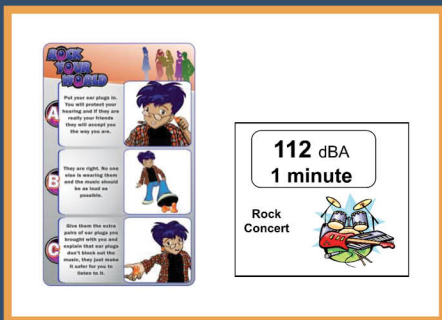
8 Rock Your World: Time to Act!

Educational Objectives:

- To bring awareness of peer pressure that a person can encounter when practicing smart hearing.
- Students practice making personal decisions on individual behavior in social settings and discuss

Materials:

- Rock Your World response cards
- Rock Concert flash card



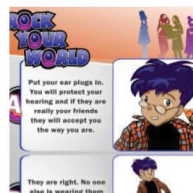
Up to this point we have learned:

- *how vibrations make sound, and sound has energy,*
- *how we hear, and how loud sounds can damage our hair cells*
- *how many different things have dangerous sound levels*
- *3 easy ways to protect ourselves from the effects of dangerous sounds.*

Now let's talk about what YOU would do if you knew you needed to use your earplugs, but your friends didn't think so.

Rock Your World

Let's pretend for a moment that you will be attending a rock concert. I want you to think about what you would do.

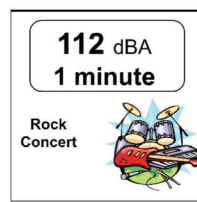


Hand out the Rock Your World response cards (one to each student).

- Share the following scenario with the class and ask students to respond. Students are to listen closely and think hard about which decision they would make. **There are no right or wrong answers**, what is needed are honest thoughts!

So! Let's use our imaginations and fast forward to age 16! You have your driver's license, a car, and permission to go to the..... (ask students who some of their favorite groups are) concert. Do you think concerts are sources of dangerous sounds?

I forgot to show ONE CARD left from "How Loud Is Too Loud" and it is a rock concert.



- Act like you forgot to show one card from the How Loud is Too Loud activity. (Act embarrassed.) Show the rock concert card so they can guess how loud. Show them the answer on the back.

A concert is definitely in the dangerous decibel range! What can you do to protect yourself?

Walk Away?

After spending \$100 on a ticket that would be a shame.

If you were in front of a speaker it would certainly help to move away.


Turn It Down?

Difficult to do when you are at the concert but maybe something to think about for future school dances.

Earplugs!

This would certainly be a good option, especially if you brought earplug with you.

So, now let's go back to our concert.....The music starts. It is LOUD, definitely dangerous sound levels. You pull out your ear plugs and your friends look at you like you are crazy! They say- "hey the music is for hearing, not blocking out!" What will you do?"

- 
 Read aloud through the possibilities together using Rock Your World Cards.


I have three choices for what you could do in this situation.

Answer A: Put your earplugs in. You will protect your hearing and if they are really your friends they will accept you the way you are.

Answer B: They are right. No one is wearing them and the music should be as loud as possible.

Answer C: Give them the extra pair of earplugs you brought with you and explain that earplugs do not completely block out the music, they just make it safer for you to listen to.

I'd like you to raise your hand showing what you would do in that situation. I'll read back each option one at a time, and raise your hands for the option you'd choose.

- 
 After the class has raised their hands according to how they think they would respond use the following discussion points to commend them for ANY answer they give!

Discussion for Answer A:

Good friends should respect your needs and decisions.
 Ultimately, only you are responsible for your health and safety.
 If your friends decide to damage their hearing, will you follow?

Discussion for Answer B:

What do you think about having to wear hearing aids when you are older?
 What will you think when you leave the concert or wake up the next morning and you have a bad case of tinnitus (ringing in your ears)?
 Sometimes people around us make poor decisions, we cannot always follow the pack.

Discussion for Answer C:

You are assuming a leadership role! Lead by example, teach others, and have extra earplugs to share. Become an advocate for ear plug accessibility. Write a letter to the band, or the concert hall, or (even better) both, explaining the need for hearing protection.

Wrap Up!

Thank you for your honest answers! I wish you luck using this new knowledge to protect your hearing-- and be sure to pass it on! Do you remember the three ways to protect your hearing?



Job well done!