Creating Calm in your Classroom with Sound

Presentation by Tina Thrussell, *Woman That Dances with Light*
(name gifted through Cree Elder, White Thunderbird)

It's scientifically proven that sound has a huge impact on the body and mind. In this interactive session learn how some sounds hurt, while other sounds heal. Discover ways to use sound to bring peace and calm into your classroom to facilitate better learning.

Sound is everywhere, impacting us every day. Because sound is such a constant in our world we tend to ignore it. We don't think of it as important, or worth noticing… but sound is a formidable energy that affects all matter… ALL matter – including our bodies.

For this reason, it is important to pay attention to sound and how it affects you.

First, it's important to understand What Sound Is.

All matter is made of up molecules. All molecules move, or vibrate.
Vibration is, in fact, the oscillation of molecules.

Sound is Vibrational energy. Sound is defined as "vibrations that travel through a substance and can be heard when they reach ear."
Sound vibrations can travel through the air – or through any gas for that matter - through liquids, and through solid matter.

It works like this: A sound is generated by a physical force. Clap your hands. That clap is a force that sets molecules into motion.

It is the back and forth movement of these molecules – their vibration – that makes a sound wave that we hear.

Those vibrations will move at different rates through different substances. Sound moves through water 4 times faster than air, and through dense objects even faster than through water. Sound moves through metal, for example, about 17 times faster than through air.

Here's where it gets interesting. Since our bodies are about 80% water, sounds moves through your body about 4 1/2 times faster than through air – which means you're feeling the effect of the sound moving the molecules in your body even before the vibrations in the air reach your ears! And sound moves about 12 X faster through the dense material of your bones, impacting your bones even more quickly!

How does sound affect you?

One way sounds can affect you is that it can damage your hearing. Sound is a physical force. As atoms and molecules move, they exert a physical pressure. This pressure is measured as decibels. The greater the energy of the physical force or pressure, the louder the sound is.

The louder the sound is, the more likely you are to sustain permanent hearing damage!

Why? The tiny little hairs in your ears that filter sound have a limited range of motion… louder sounds can move those tiny hairs beyond their range of motion and break them. Once those hairs are broken, they are broken and cannot be fixed. The sound now has easier access to your ear drum, and the damage that can result in hearing loss.

To give you a guideline of what is safe:

40 db = quiet conversation

60 db = normal conversation

90 db = subway train

95 – 100db = gas-powered lawn mower

110 db = rock concert

130 db = jet engine

But note this: An increase of 3 db actually *doubles* the intensity of the sound.

This means that while 80 db can be tolerated by an adult for 8 hours in a day, (reduced to only 60db for child!) but 90db can only be tolerated for 2 hours/day and 100 db for just 15 minutes before your hearing is damaged! And that rock concert causes hearing damage in just 1 minute!!

What do we take away from this? **Avoid sounds that are louder than normal conversation as much as possible!!** Wear hearing protection when you have to be around louder sounds.

Damaged hearing is one way that sound can hurt you. How else can sound hurt you… or conversely, heal you?

Everything vibrates at its own natural frequency. Tap the top of your desk or table - go ahead - and you hear the natural frequency of the material your desk is made of. Tap on the wall, and you hear the natural frequency of the drywall, or brick, or whatever the material is.

Every part of your body has its own natural frequency, too. Your liver vibrates at a different rate than your lungs, and your kidneys vibrate at a different frequency than your heart.

Now let's look at resonance. Resonance is the tendency of one object (let's say a soprano singer's voice) to force another object (let's say a wine glass) to vibrate at the original object's frequency. Most people have seen video footage of the soprano who breaks the wine glass by hitting a certain note with her voice.

This is **how sound can either hurt you or heal you.** Sounds like traffic noise, office noise, and heavy equipment all have a natural frequency that disturbs your body's natural frequencies.

Even white noise sounds – the background noise that is so prevalent in our daily world that we hardly even notice it anymore – the hum of computers, air conditioning units, furnaces – affect our natural frequencies.

All these unpleasant sounds will release stress hormones in the body… and that is bad news, since high levels of stress hormones can increase the risk of illness and disease.

We all know that too much stress can make us moody, irritable, anxious, quicker to anger….

But the effect of stress is much more serious than that. Research indicates that between 70 to 90% of all visits to the doctor are symptoms rooted in stress!

Stress compromises your immune system, making you susceptible to catching colds and flus.

Stress also increases muscle tension, causing aches and pains, and headaches.

Stress increases the amount of glucose in the bloodstream… too much glucose will generate a racing mind that won't turn off… which leads to lack of sleep, and in turn, can lead to diabetes.

Stress also affects your respiratory system, causing you to take quicker, shallower breaths, which can make asthma or other respiratory conditions worsen.

Longer term, stress contributes to many chronic conditions – high blood pressure, cardiovascular disease, irritable bowel syndrome…

The potential negative impacts of stress is a long list!

Noise – sounds that we find unpleasant – aren't just an annoyance, they cause stress and therefore harmful to our health!

But the good news is that you can consciously use sound to counter the negative impacts of stress.

The sounds of nature are naturally soothing to our bodies and minds.

The "Woodland Song" track contains two of the healthiest sounds for the human being – bubbling water and birdsong. The low sounds of water calm the nervous system, slowing down your heartbeat – which lowers blood pressure – and

creates a shift in your brainwave state to the alpha state – a state of feeling relaxed, yet focused and receptive.

The brain loves patterns and constantly looks for them. Birdsong consists of high sounds without any predictable pattern, so the brain becomes alert, focused and productive as it searches for patterns in the birdsong.

Note: Some people LOVE this track and others hate it. If you find the high pitched birdsong annoying, it's because your brain is already overloaded. Searching for the patterns in the birdsong accentuates the brain activity, so keep the volume low to enjoy this recording.

You can download a free track at https://soundwellness.com/nutritious-sound/ This can be an amazing tool to use with students to help them stay calm and focused!

In opposition to sounds that disturb your body's natural frequencies, are sounds that help to restore your bodies frequencies back to their natural state. The sound of a Tibetan singing bowl can slow your heart beat, calming you down.

Two basic principles to how sound can positively impact us:

Low frequency sounds tend to discharge emotional energy from the nervous system. Sounds like: water, instruments like a bass guitar, tuba, drum, electronic sounds on a synthesizer….

Music with a slow beat will support relaxation. This is why many dairy farmers play classical music for their cows in the milking room – it keeps them relaxed and the milk flows more readily, reducing processing time.

Such a simple way to create calm and relieve stress - incorporate slow, low frequency music into your learning environments and places in your life that are stressful – like in the car, especially when you are driving in heavy traffic!

But don't take my word for it. You'll never know if this works for you or not unless you test it for yourself.

High frequency sounds – or music with a fast beat – on the other hand, tend to charge the nervous system and brain. Birdsong, instruments like flute, clarinet or violin, high note created on a synthesizer support this charging of the system.

Notice how the violin music played by Lindsay Stirling, “Electric Daisy Violin” affects your body and brain activity.

Our own voice is the best musical instrument known to man.

We can calm ourselves with slow, low tones, or recharge ourselves with higher notes.

Use the toning chart to help calm yourself and your students.

Play with your voice to shift your state of being. If you feel sluggish and sleepy, sing some high notes. If you feel uptight and wired, sing some low notes. Encourage the children that you work with to play with their voices to shift their state of being, too! This can be a really fun exercise to do together.