

## “SOUNDS” LIKE MUSIC

### WHAT CAN YOU HEAR?

Lesson: Sight is the most dominant sense in most humans. When our vision is limited, our other senses can gain dominance and become stronger.

Directions: Have students sit quietly in the room with their eyes closed. Have them listen for subtle sounds in the classroom and the surrounding area. What can they hear? Discuss why closing your eyes helps you to hear better.

### WHAT KIND OF SOUNDS ARE THERE?

Lesson: The four basic sounds are high, low, loud, soft

Materials: Metal can, large cardboard box, stick

Directions: Bang on the cardboard box and gong and listen for all four sounds. Have each child say his/her name high, low, loud, soft. Change the order of the sounds so that the children realize that they can come in different orders or combinations.

### HOW SOUNDS GET WHERE THEY ARE GOING

Materials: Tuning forks or metal tube or gong - ping pong balls glued to pieces of string

Directions: Have kids play with tuning forks or metal tube or gong. They should hold the fork by the "stem" and tap sharply on their shoe. By placing the fork stem on various surfaces in the room, sounds can be amplified or muffled. If the stem of the vibrating fork is placed on elbow and index finger of hand is inserted in ear, the sound can be heard through the BONES! (This explains why our voice on a tape recorder doesn't sound right to us. We can hear our own voices through our bones and ears.)

After a few minutes of playing, hand out ping pong balls on string. By dangling the ball next to the vibrating fork so that it is gently tapped, one can see the "wiggle" of the vibrating fork transmitted to the ping pong ball.

The final (optional) activity after class is to take the children out into the hall and have them lean one ear against a long metal hand railing. Place the music box at one end of the rail and have the children listen. Even the last child at the end of the hall will hear music through the metal rail!

Further Questions for Discussion:

--What is music, and how does it differ from "noise"? Is there a difference?

--What roles does music play in our society?

## VOCABULARY

1. Acoustic – having to do with hearing or sound

3. Pitch – the high or low quality of a musical sound
4. Timbre (pronounced “TOM-bur”)- the quality given to a sound by its overtones
5. Harmony – a pleasing arrangement of musical notes in a chord

3. Given "ordinary" materials such as paper clips, paper, cups, rulers, rubber bands, pens, and other supplies on hand in the classroom, students can see how many different sounds they can create. Give each small group a different item with which to make sound, and ask the group to document how each sound is made, what sound is made and why, and ways that one can vary the sound. Groups can give their "instrument instructions" to other groups and challenge them to make the same sounds.

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## Sounds like “Music” - Drums

**Grade level:** K-5

**Subject:** Science and Art (may be used in cooperation with music lesson, We Love Calypso)

### **Objectives:**

1. Understand the concepts and differences between force, pitch and volume.
2. Explore the science of instrument design and construction.
3. Explore the field of sound engineering.

Sound is caused by a movement or vibration created by **force**. Some vibrations cause air to move, to create sound waves that we can hear. The **pitch** of the sound (how high or low the sound is), depends on how fast an object vibrates. The **volume** (how loud the sound is), depends on the degree of force used to make the object vibrate. When we increase the volume of a sound we are **amplifying** it.

With drums, we strike the skin to create a sound. The force that causes the vibration is the blow on the drum. The harder we strike, the louder the sound. You can manipulate the pitch of a drum in three ways: 1) tighten the drum’s skin to make the pitch higher; 2) put a thicker skin on the drum to lower the pitch; and 3) strike the drum closer to the center to produce a slower vibration and lower pitch, which sounds more resonant.

### **Materials:**

- wide-mouthed jars without lids in a variety of sizes
- paper - tissue paper, letter paper, construction paper, other types of paper

- balloons
- rubber bands large enough to fit the mouth of the jar
- New #2 pencils...not sharpened.
- rice, small lentils or peppercorns
- paints, markers and other design material

### **Procedures:**

Discuss how force is needed to produce vibration and how different kinds of vibrations produce a variety of sounds. Demonstrate how force is used to make drums vibrate.

Drums can be made with just about anything. Using the materials provided, design a drum.

1. To make a drum, place paper or a balloon over the mouth of the jar. (You might even try placing the paper down with a balloon on top of it.)
2. Place the rubber band around the mouth of the jar to secure the paper/balloon skin.
3. If you like, place some rice on the skin so you can observe the vibration as you apply force to the drum. Be sure to spend some time designing the exterior of your drum.

### ***Activity***

- Tap on your drums to produce sound.
- Is it different than that of other students' drums?
- Do different skins produce different sounds? What might cause these differences?
- Do different sizes of jars produce different sounds? What would happen if you filled the jars with something? Does it sound the same?
- Are different sounds produced when you strike different parts of the skin?
- What happens to the sound when you increase the force with which you strike the drum? Does the pitch or volume change?
- What happens when rice is placed on the drum? Can you see the vibrations? Does it affect the sound?

- What causes the rice to react differently when you strike the skin harder?

### *Teaching Tips*

- Before doing this activity, you may want to test the paper you will be using for drum skins to be sure it doesn't tear too easily.
- Try having the students work in groups of four when they are testing the drums.

### *Science All Around Us*

Various cultures throughout the world use drums as a way to communicate. Drum beats can signal warnings or transmit elaborate messages, much like Morse code, as long as the person receiving the message is within earshot. Have the students design their own drumming code so that they can send secret messages to their classmates.

### **Resources:**

Drums have been used throughout history for religious, spiritual, technical, musical and recreational purposes. Have the students identify the types of drums used by their own culture and share the story of these drums with their classmates. They may even want to tell their story while beating a rhythm on a drum.