

Sound Unit Teacher Masters: Table of Contents

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Dear Families,

Our class is beginning the Science Companion® Sound Unit. The Sound Unit builds on the natural curiosity children have about the world around them and encourages them to investigate the sounds that permeate their lives.

During the Sound Unit, the children will:

- Act as “sound detectives” to heighten their awareness of the sounds all around them.
- Experiment with their lips, voices, rulers, rubber bands, metal pans, spoons, plastic bottles, and other common materials to discover that all sounds are produced by vibrations.
- Test how well sound transmits through a variety of materials.
- Enact sound vibrations traveling through the ear.
- Develop an “ear” for differences in pitch and volume and discover ways to vary the pitch and volume of sounds.
- Synthesize and apply the concepts they learn to design, build, refine, and demonstrate their own musical instruments.

In addition to the work your child will do in class, you and your child can explore this rich topic together at home in the following ways:

- Visit the library and search for books about sound to read together and share with the class. There are book suggestions on the Science Companion web site. This web site also features a list of recommended web sites about sound. The address is: **www.sciencecompanion.com**
- Work together on the Family Link activities that are sent home from time to time. Your child may also want to repeat and vary some of the activities we do in class, as well as explain what they discovered and learned. Try to encourage their independent experimentation at home.

The combination of hands-on, multisensory learning, creative design, and music make the Sound Unit very engaging for children and adults. Hopefully, you will share some of your child’s enthusiasm, thereby learning with them while helping them explore.

Sincerely,

Ear Labels

(page 1 of 2)



ear canal

eardrum

anvil

external ear

cochlea

hammer

Ear Labels

(page 2 of 2)



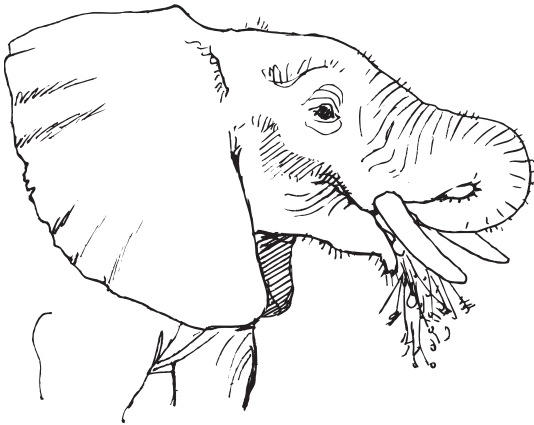
brain

ear canal

**auditory
nerve**

stirrup

Amazing Animal Ears



African Elephant: Elephants have large, movable external ear flaps that allow them to detect very faint sounds, which helps make up for their poor eyesight.

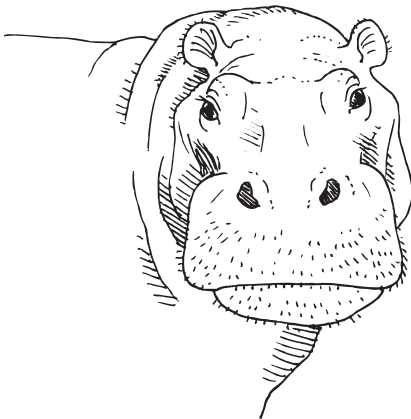


Bullfrog: Frogs do not have external ear flaps; the circles behind their eyes are their eardrums. Frogs can receive sound vibrations in air or water.

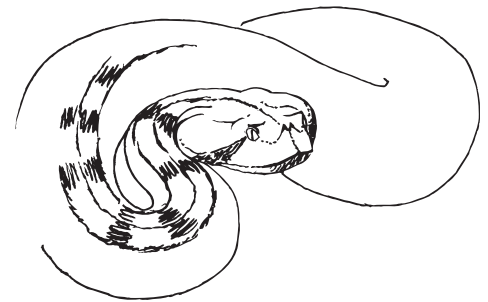


Western Spotted Bat

(*Euderma maculatum*): Bats can hear sounds that humans can't. Bats send out very high-pitched sounds and listen for the echoes that bounce off objects around them. They use the echoes to locate food, find their way in the dark, and communicate with each other. This is called echolocation.



Hippopotamus: Hippos have ears that are high on their heads and can open and close. When hippos are above water, their ears stick up; when they go underwater, hippos can close their ears.



Gaboon Viper (*Bitis gabonica*): Snakes do not have ears at all, although they can sense vibrations through their skin.

Family Link with Science

Sound Notes

Our class has just begun a unit on sound in science class and we need your help!

Collecting Materials

Many of our experiments involve generating sound from everyday household materials. *Please send in an empty **plastic bottle**, labeled with your child's name, by _____.* (The children will blow into the bottles to produce sound, so any shape or size bottle with a small opening, such as a water, soda, or juice bottle will work well.) Please also send in empty **cardboard boxes** (all shapes and sizes) to make sound boxes.

To culminate this unit, the children will be designing and building their own musical instruments. We would appreciate any materials from around the house that you think might be useful for this project. The following are some ideas:

- Different kinds of string, twine, or thin rope
- Containers (yogurt containers, plastic bowls and bottles or jars, cardboard boxes, metal cans)
- Cloth
- Wood (small and large pieces)
- Old pans and silverware
- Old broom handles, dowels, or bamboo sticks
- Metal tubes or old chimes

Sharing and Playing Instruments

It would help the children to be able to relate the concepts they are learning about, such as vibration, volume, and pitch, to real musical instruments. If anyone in your family (child or adult) has an instrument that he or she would be willing to bring in and share with our class at some point during the unit, please fill out this form and return it to school as soon as possible. I will contact you to make arrangements.

Thank you for your assistance and participation!

Name _____

I (or someone in my family) can bring in and share a _____
with the class. *Musical instrument(s)*

Name: _____ Date: _____

Family Link with Science

Bathtub and Swimming Pool Sound Experiments

To find out how well sound vibrations travel through water, try to listen for some of the following sounds when you are under the water of your bathtub or a swimming pool.

- Something knocking against the edge of the tub or pool
- The side of the tub or pool being rubbed with your hand
- Two wooden blocks tapped together in the water
- Two metal spoons clinking together in the water
- Someone speaking to you from outside the tub or pool
- Yourself or someone else humming

Think about your findings by answering the following questions:

1. Could you hear low sounds such as the tapping blocks or the humming?

2. Could you hear high sounds such as the clinking metal spoons?

3. Are any of the sounds clearer or louder under the water than they seem to be in the air?

4. Is it easy to understand what people are saying?

Name: _____ Date: _____

Family Link with Science

Stereo and Water Bowl Experiment

Fill a large bowl with water and place it on top of a loudspeaker. Turn the stereo on. Turn the volume all the way down and watch the water in the bowl to see if it moves. Gradually turn up the volume. Describe what happens on the surface of the water. (*Write your answers on this page.*)

1. What changes do you see on the water surface as the volume gets louder?
2. Do ripples get bigger or smaller as the volume gets louder?
3. Do you think the sound vibrations get bigger or smaller as volume gets louder?
4. Does the water move at all when the volume is very soft?
5. Do you think the sound vibrations get bigger or smaller as the volume gets softer?

Name: _____ Date: _____

Family Link with Science

Instrument Materials

In science class, we are building musical instruments. Although we have a large selection of materials to choose from at school, your child would like you to provide the following additional items:

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Name: _____ Date: _____

Family Link with Science

Making Musical Instruments

In science class, we've been experimenting with sound and have designed musical instruments. Your child might enjoy building the attached design, or creating and building a new one, at home.

Ask your child about their design and offer your help (as needed) to build it. Have fun playing the results!