



Broward County Public Schools Videoconference

Writing Traits: Organization and Ideas
Lesson: Science of Sound
Instructor: Evelyn Nelson
BECON Distance Learning Teacher

Grade Level: Grade Four

Sunshine State Standards: LA.B.1, LA.B.2, SC.D.1, SC.H.1.2, and VA.B.1.2

Benchmarks: LA.B.1.2.1, LA.B.2.2, SC.D.1.2, SC.H.1.2.1, SC.H.1.2.2, SC.H.1.2.4, and VA.B.1.2.1

Infusion Points: Language Arts, Science, and Visual Art

Objective(s):

1. Students will prepare for writing by focusing on a central idea and listing supporting details.
2. Students will organize key ideas of an experiment using a graphic organizer.
3. Students will understand that sound is caused by vibrations.
4. Students will understand the importance of keeping accurate records and descriptions in repeated experiments.
5. Students will observe, record, analyze, and communicate the results of an experiment with sound.
6. Students will learn that to compare and contrast observations and results is an essential skill in science.
7. Students will create unique works of art from their personal observations.

GUEST WRITERS: Students will read their paragraphs from last week's lesson.

LITERATURE EMPHASIS:

Book Title: The Science Book of Sound

Author: Neil Ardley

Publisher: Harcourt Brace & Company, Orlando, FL (1991)

Summary: Simple experiments demonstrate basic principles of sound and music.

Book Title: The Kid's Science Book: Creative Experiences for Hands-On Fun

Author: Robert Hirschfeld & Nancy White **Illustrator:** Loretta Trezzo Braren

Publisher: Williamson Publishing, Charlotte, Vermont (1995)

Summary: Hands-on science activities for children ages 4 – 10.

ACTIVITIES:

- Videoconference Instructor will introduce the concept of sound.

What is sound?

- *“The energy that lets you hear is sound. Sound is made when things vibrate, or move back and forth very fast.”*

- **Read:** The Science Book of Sound (pages 6 & 11)...**Show:** webpage http://www.freehearingtest.com/about_animated.shtml
- **Students will answer the following questions:**
 - What part of the ear first receives vibrations? *The outer ear*
 - What “drum” vibrates inside of the ear? *The eardrum*
 - Where do the electrical impulses travel when they leave the ear? *The brain*
- *Let’s look at an example of how a drum detects sound.*
- **Ask students:** What materials do I have set out for this experiment?
 - *Bowl, plastic wrap, rubber band, saucepan, wooden spoon, uncooked rice*
- Instructor **demonstrates vibrations** on a drum
 - **Tightly wrap a piece of plastic wrap over the top of a bowl**
 - **Secure plastic wrap with a rubber band**
 - **Place uncooked rice on top of plastic wrap**
 - **Hold a metal saucepan near the bowl**
- **Ask students:** What is your hypothesis? What do you think will happen?
 - **Wrap sharply on pan with a wooden spoon**
- **Ask students:**
 - What happened to the rice? *It moved*
 - What caused the rice to move? *vibrations*
- Instructor will then guide students in recording the process and results of this experiment using the **Note This** observation guide.

WRITING ASSIGNMENT:

- Students will conduct an experiment and record the process and results using the **Note This** observation guide.
- Students will write an essay developed from their **Note This** observation guide.
- Students will complete a drawing depicting their experiment.
 - Famous Scientists made drawings of their observations
 - Leonardo Da Vinci (*Teachers: Please do **not** send students to this website*) <http://drawsketch.about.com/gi/dynamic/offsite.htm?site=http%3A%2F%2Fwww.visi.com%2F%7Ereuteler%2Fleonardo.html>
 - Galileo http://galileo.rice.edu/sci/observations/sunspot_drawings.html

MATERIALS NEEDED:

- **Note This** observation guide and pencil for each student

LESSON EXTENSION:

Related Websites:

Free Hearing Test.com

Animated diagram of how an ear detects sound

http://www.freehearingtest.com/about_animated.shtml

NASA Science Files

Scientific Method Flowchart

http://whyfiles.larc.nasa.gov/text/kids/Research_Rack/tools/scientific_method.html