

Sounds Good to Me!  
Beth Sellers, Stone Spring Elementary School

**Overview**

**Sound Unit** – Lesson 1 of 8

This is the first lesson in a 2 week unit on sound. No pre-requisite knowledge is necessary for students to partake in this lesson.

**Keywords:** sound, vibration or vibrations, frequency, pitch

**Grades:** 4, 5, 6, 7, 8

**Time Allotment**

One 60 minute class-period, with some follow-up extending to future lessons.

**Learning Objectives**

On completion of this lesson students will be able to:

1. Investigate and understand how sound is made.
2. Begin to define, describe, and relate the following vocabulary words:
  - \* vibration
  - \* sound
  - \* frequency
  - \* pitch

This lesson addresses VA SOLs Science 5.2

**Media Components**

- Stage One Science – Sounds O.K.
  - United Streaming [www.unitedstreaming.com](http://www.unitedstreaming.com)
- [www.portaportal.com](http://www.portaportal.com)  
(web log for student and teacher use guest login: Miss\_Sellers)
- <http://trackstar.4teachers.org/trackstar/ts/viewTrack.do?number=249097>  
(web quest of websites annotated by Beth Sellers)
  1. <http://datadragon.com/education/instruments/>  
(A website of musical instruments designed to explore the pitch and tone of a variety of musical instruments)
  2. <http://www.galaxy.net/~k12/sound/>  
(A variety of sound information/ activities for younger students – an appropriate way for students to have free choice of activities on this site)
  3. <http://school.discovery.com/lessonplans/programs/soundwaves/#voc>  
(This site contains lots of information, but for the purposes of this lesson, only the vocabulary portion will be used.)

**Materials and Student Handouts**

- Sound Unit textbook alternative “What You Need to Know About Sound” (5 page hand-out) for each student. This handout can be found in the teacher resources section on my website: <http://staff.harrisonburg.k12.va.us/~bsellers>

- Computer with internet access, projector, computer speakers
- TV and VCR (only if using VHS tapes instead of video streaming)
- Overhead projector
- A clear plastic container filled with water.
- An assortment of tuning forks in various sizes
- Optional (though highly recommended) – A computer with headphones for each student.

## Teacher Preparations

- Preview all websites to ensure they are still active. Create bookmarks, or add links to a Portaportal page for students to access.
- Preview all videos and mark start and end points for each clip. If using VHS videos, cue videos to start points. If using video streaming, download all clips to a hard-drive, global network, or cd.
- Photocopy all student worksheets, handouts, and written assessments – 1 per student.
  - \* “What You Need to Know About Sound” handout can be found at: <http://staff.harrisonburg.k12.va.us/~bsellers>
- Ensure necessary equipment is available and sign-up for any shared equipment (see materials).
- Reserve mobile lab or computer lab.

## Introductory Activity

1. **Focus:** Start with a hangman game using the word Vibration. Ask students what they know about the word vibration (sample answers: “vibration is something moving,” “when something shakes,” “going back and forth really fast.”). Review student responses and tell students that a good definition for vibration is “the back and forth movement of an object.” Ask students to carefully watch the following video clip to find out what vibration has to do with sound.

**Activity:** Sounds O.K. Video clip

Play: Sounds O.K. Video beginning at 3:35 (children playing instruments, music begins to fade)

Pause: At 4:20, when the drum sounds and image fade away, pause the video clip and discuss the focus question (what does vibration have to do with sound?... The correct answer is that sound is caused by vibrations). Re-play the clip if necessary for student understanding.

**Follow-up:** Explain that vibration is the key to the production and transmission of all sound. Read and work through Part 1 and Part 2 of the “What You Need to Know About Sound” handout, and then go directly into the focus for Learning Activity number 1.

## Learning Activities

1. **Focus:** Ask students what makes sound (vibrations) and remind them that vibrations often can’t be seen. Ask students to think of vibrations that they can see and vibrations that they can’t see. Tell them that we are now going to make invisible vibrations visible.

**Activity:** Place a clear plastic container filled with water on top of the overhead projector. Touch a tuning fork to the surface of the water and show the students that nothing happens. Then, strike a tuning fork on a hard surface before placing it on the surface of the water. Students can see on the overhead how the water ‘jumps’ out of the container when the vibrating tuning fork touches the water.

**Follow-up:** Ask students to theorize how the invisible air molecules move when touched by a vibrating object.

2. **Focus:** Using the tuning forks, produce a high pitched sound and a low sound. Ask students what is different. Also produce a loud sound and a soft sound. Again, ask what is different. Instruct students to listen for what causes sounds to be high or low, and what causes them to be loud or soft.

**Activity:** Read aloud Part 3 of the “What You Need to Know About Sound” handout.

**Follow-up:** Using a Smart Board, have the students sort the words: pitch, volume, amplitude, and frequency into a chart with two categories labeled “how loud or soft” and “how high or low”. (If a Smart Board is not available, the sort can be done by individual students cutting and pasting the words on a plain sheet of paper at their desks.)

### **Culminating Activities**

**Focus:** Ask students to list the musical instruments that they’d like to play in band the next year. Ask them to describe how those instruments sound. Talk about how small instruments cause air to vibrate faster while big instruments cause instruments to vibrate slower, just like the tuning forks from activity 2. Relate that to a Sumo Wrestler and a skinny basketball player racing – who would be faster?

**Activity:** Go to:

<http://trackstar.4teachers.org/trackstar/ts/viewTrack.do?number=249097>

1. Direct students to the first activity, <http://datadragon.com/education/instruments/> (A website of musical instruments designed to explore the pitch and tone of a variety of musical instruments)
2. Explore the pitch of several instruments in each category (the categories are at the very bottom of the website- you’ll need to scroll down to find them)

**Follow-up:** Ask students to say “high” or “low” when a picture is shown of different instruments. Discuss why certain instruments have high or low pitches.

**Additional Follow-up** (maybe for morning work the next day): Allow students to finish the trackstar webquest and write down 3 new things they learned about sound.

### **Assessment**

- For this particular lesson (1 of 8), there is no formal assessment. However, the day after each lesson in the sound unit the students are given a small quiz on the vocabulary taught the previous day.
- For lesson 1, informal assessment will be noted by the teacher based on how well students are able to discuss the topic of vibration by the end of the lesson.
- As a culminating activity for the entire unit, the students create their own musical instrument. A rubric is used to assess these individual projects.

\* The rubric can be found at: <http://staff.harrisonburg.k12.va.us/~bsellers>