LESSON PLAN STUDY

Student Teacher: Elizabeth White | Supervising Practitioner:
Grade 1 | School Wetherbee | Date: March 14, 2018

LESSON INFORMATION			
Subject	Science		
Topic or Unit of Study	Sound		
Sequence in Unit			
Instructional Group			
Whole group: X	Small group: ____	One-on-one: ____	Other:_____

Stage 1 - DESIRED RESULTS	
CONTENT STANDARDS (ESTABLISHED GOALS) STE His/SS Math	1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. • 1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* • Disciplinary Core Ideas o PS4.A: Wave properties § Sound can make matter vibrate, and vibrating matter can make sound. PS4.C: Information Technologies and instrumentation- People also use a variety of devices to communicate over long distances. Science and Engineering Practice: Planning and Carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. MATH : 1.MDA.4 Organize, represent, and interpret data up to three categories; ask and answer questions
ESSENTIAL QUESTIONS ENDURING UNDERSTANDING *(SMK)*	(Students will understand the broad topic/content or theory well enough to respond to the following Essential Questions) -Do vibrations make sound? -What happens when materials vibrate? What objects can be used to communicate over a distance?
Prerequisite Knowledge Understandings	Patterns, Cause and effect relationships: The Mechanisms, Structure and function, Stability and change.
Essential Vocabulary and Definitions	• Vibrations: a rapid back-and-forth movement • Pitch: the quality of a sound governed by the rate of vibrations producing it; the degree of highness or lowness of a tone: • Communication:the act or process of using words, sounds, signs, or behaviors to express or exchange information or to express your ideas, thoughts, feelings, etc., to someone else. : a message that is given to someone

INSTRUCTIONAL OBJECTIVES Standard 1.a Essential Element 1.a.4	- Define the word *vibration* - Show that vibrations make sound - Recognize that vibrations can be changed to alter the pitch of a sound - Determine that sound travels through solids as well as gases (air) - Students should be familiar with sound being described as a wave. This activity works well accompanying a science unit on sound or waves.
LANGUAGE OBJECTIVE WIDA Standards Standard 1.a, SEI a Essential Element 1.a.4	(Include plans to support comprehension for ELL) - Conceptualize the information:Videos, Pictures, - Use word banks provide opportunities for ELs to engage actively in the discussion and hands- activities. - Encourage ELs to participate and share their experiences. - Show a picture of a bell and then an actual bell to the class, while repeating slowly. - When asking questions, institute wait time by pausing 5–7 seconds between question and soliciting an answer. This pause allows ELs time to process info
Related Misconceptions of Content *(SMK)*	**Common Student misconception:** Loudness and sound pitch are the same c **Correct Science Concept:** Loudness refers to the perception of the quantity Pitch refers to the lowness or the highness of the sound which is determin frequency of the noise **Common Student misconception:**You can see and hear and see a distant eve same moment. **Correct Science Concept:**The speed of light travels faster than the speed of s therefore you will see the event occur before you hear it. **Common Student Misconception:**Sound moves faster through air(air is thin **Correct science Concept:** Sound waves travel faster in water than in air beca the particle configuration. The particles in water are closer to each other comp the particles in air. Since sound travels with one particle bumping into anothe causing it to vibrate, sound waves travel faster in water. **Common Student Misconception:**The pitch of a siren on a firetruck is chang the driver as the vehicle passes by. **Correct Science Concept:** The pitch of the siren of a Fire truck appears to ch the truck passes us due to the Doppler effect. Of course, to an observer on the

	the pitch does not change at all. Since the speed of sound in air is essentially f perceived pitch of a tone is related to the wavelength of the sound. **Common Student misconception:** Hitting an object harder changes the pitc **Correct science Concept:** The sound may have a greater intensity, yet the pit sound will not change.

Stage 2 - ASSESSMENT EVIDENCE ***(Evidence of Assessment that guides instruction)***	
Description of Assessment Prior to Lesson	
Pre- Assessments (Misconception Interview)	Sound comes from the heart and from your teeth Sound cannot travel solid objects
Description of Assessment Tasks/Tools to be Used for this Lesson Standard 1.b Essential Element 1.b.2	
Performance task(s) (EDC) to demonstrate understanding	Make and use a kazoo to discover how vibrations create sound waves that travel through the air. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. Changing a variable, making a prediction and then testing out
Criteria to assess understanding	
Other Evidence (quizzes, tests, homework, journals, observations, student self-assessment)	"Draw two pictures to go with each of the five senses" worksheet - There are pictures of an ear, mouth, hand, nose and eye - Students need to draw their own 2 pictures that make sounds that correspond with one of the five senses or are made from that sense

Stage 3 - Learning Plan

LESSON DELIVERY - INSTRUCTIONAL STRATEGIES & TIME FRAME	
Material and Resources Standard 2.a and 2.d Ential Element 2.1.3 and 2.d	Toilet paper tubes with small precut holes - Waxed paper (cut into 4x4 squares) - Aluminum foil (cut into 4x4 squares) - Plastic wrap (cut into 4x4 squares) - Rubber bands
Identify Technology or Media to be used	Video: https://www.youtube.com/watch?v=pF0elA6mzmg This video was found on the NSTA website.
Resources and/or Feedback from Colleagues, Families and Community Engaged to Enhance Learning	https://www.youtube.com/watch?v=pF0elA6mzmg Dear Family, Our class is starting to learn about sound and light. My teacher said we're going to be exploring and experimenting with a lot of fun stuff. We get to be scientists! These are the main ideas of our unit. - Sounds are made when something vibrates - Sounds can be loud or soft and high or low - We use sound and light to communicate - A shadow is made when something blocks the light. These are a few of our new vocabulary words. -Pitch - - Vibration - Communication- Here are a few fun ways you can help me at home. - We can put out different sized cooking pans and use spoons to tap on them to hear different sounds. - We can use a few of the same size drinking glasses and fill them with different amounts of water. Then we lightly tap on them and listen to the different sounds they make. - Read books about sound and vibrations at home with friends and family!
Role of Support Personnel during lesson	Videotaping the lesson Back-up support
Classroom Management, Classroom Routines, Transitions and Layout Considerations Needed for This Lesson Standard 2.b, 2.f and SEI d Essential Element 1.a.4, 2.b.1, and 2.a.3	Holes need to be poked in the toilet paper rolls before the students begin the activity or extra adult support is needed because scissors are being used. The aluminum foil, waxed paper and plastic wrap are already cut into 4x4 squares. I will lay the materials out on the table and the students will be able to decide, which materials they would like to use to make their kazoo.
DIFFERENTIATED INSTRUCTION	

Learner Factors (What will you do to allow students with different strengths, abilities, learning styles, disabilities, and second language acquisition to access the curriculum?) *Refer to Diverse Learners Resource List below. It is a first step in a progression for first graders to learn how to complete an activity and then design and conduct their own investigation following the same steps while changing a variable. The teacher must be intentional about providing the student discussion time before and after singing the song. Holes need to be poked in the toilet paper rolls before the students begin the activity or extra adult support is needed.	
Differentiation	When creating partners for the kazoo experiment, I will try to pair students with learning difficulties or students who need extra help, with students who are more advanced in the class. This method will help to support or clarify some ideas to the student who needs extra help.
Accommodations	Students with hearing disabilities will still be able to feel the vibrations that the sound will create. Provide written individual instructional guides if needed to insure that students stay focused and on task. Provide clear expectations for Instructional assistants or resource staff to guide students through the lesson.Create kinesthetic practice opportunities for hands on manipulations and performance based assessments.Provide visual aids if needed to accompany the lesson objectives.
Modification	If the ideas about vibrations are not understood after the kazoos are made then we need to take a step back and reflect on what we learned when we made the cup phones.
PROCEDURE	
Motivation and Introduction (Hook)	Today we will make an instrument that anyone can play and get the buzz on sound vibrations. Vibrations create sound waves that travel through the air. Have you ever tossed a pebble or stone into the lake or a pool? Did you notice the waves created by your stone? Sound waves travel through the air kind of like the circle of ripples created by tossing a stone into the water. Bring a bowl with water and a stone to show the waves, it could help everyone, but especially the ESL students.Today we are going to make a Kazoo to investigate vibrations that cause sound wave.
Written/Verbal Learning Objectives Communicated to the Students in Student	- Define the word *vibration* - Show that vibrations make sound - Recognize that vibrations can be changed to alter the pitch of a sound - Determine that sound travels through solids as well as gases (air)

Friendly Language	
Lesson Components/Developmental Activities (Step by Step Plan)	1. Start with the Sound song to the tune of "London Bridge" 2. Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork. (Use speaker and string to demonstrate) 3. Students will be given materials to make their own personal kazoos. Let them explore their own kazoos then come together to come up with the answers about how the kazoos work. 4. Poke a small hole in the toilet paper tube about two inches from one end of the cardboard tube. 5. Cut a square of waxed paper that's an inch or two wider than the end of the tube 6. Wrap the waxed paper tightly over the end of the tube where you made the hole. Hold it in place with the rubber band, making sure you don't cover the whole you made. Trim off any excess waxed paper with scissors. 7. Say "AHHH" into the kazoo, what happens? 8. We will discuss that they observed and why they think that happened. 9. Students will make kazoo. They will choose one variable to change. Then they will make a hypothesis, record their observations and evidence and come to a conclusion. This is going to be used as an assessment so try not to guide students but let them explore and come to their own conclusions. i. **Key idea**: vibrating materials make sound and sound can make materials vibrate. Ask students: Does sound move? Yes • What does sound move? Air • Why is vibration important? Vibration produces sound • What do we talk with? Our Mouths • What do we hear with? Our Ears • What does sound look like? Waves
Cognitive Closure of Lesson/Student Reflection on Lesson	The discussion on what was learned, go through the SWBAT to show what we learned Show a similarities and differences between the two different kazoos they made
Homework or Home Connection	- We can put out different sized cooking pans and use spoons to tap on them to hear different sounds. - We can use a few of the same size drinking glasses and fill them with different amounts of water. Then we lightly tap on them and listen to the different sounds they make.
Transition at the end	Show your family and friends what you learned today! Bring your kazoos

of the lesson	home and see what your family thinks about them. Ask if they feel the vibrations. Show off your new knowledge!

ASSESSMENT of ON-GOING LEARNING	
What evidence do you have that students did or did not meet your objectives?	The students struggled with seeing and hearing the vibrations when they were making noise through the kazoos. I asked them was was happening with the kazoo when they yelled “AHH” through it and they did not think anything was happening. I had prompted them by saying, “could you see or hear the vibrations?” and once again there answer was no. I was shocked at this because to me it was so clear, but I understood that they are just learning this material and so I needed to show them what was actually happening. This ties into the objective about understanding what happens to materials when they vibrate. When first asked the students were not able to distinguish what the importance of vibration is and how sound is produced. By then end of the lesson the students had a better understanding, but there is still room for great improvement.
Based on student performance, what will the next lesson be? How will the concept be taught in the next lesson?	The next lesson will be the engineering design lesson. In the previous lesson the students made cup phones and were able to communicate through them from opposite sides of the room, which showed to them that you can communicate over distance. When they made the kazoos in the second lesson they started to understand why they could communicate with distance between them because of vibrations. SInce they have had two lessons where they make things with instructions I believe that they are ready for a “real life” problem they need to solve using the knowledge that they have gained throughout our time together so far. The students will be given a prompt that states a problem that they need to fix, within the provided guidelines. They will be making guitars by using various materials.

REFLECTION ON YOUR PERFORMANCE:	
How/why did the lesson vary from your plan?	The biggest thing that was different from my lesson was that I skipped over the speaker activity and a tuning fork. I planned on bringing my personal portable speaker from school because it shows the actual vibrations being produced by the sound, but I forgot it. We had told the students the previous week that we would be doing this activity, so when we saw them that was the first thing they asked about, but I played it off as if I had planned not to do it. I also wanted to use a tuning fork during this time so they could use the elastic bands in a way that they had not yet seen, but I decided to skip that as well. Other than that my lesson stayed close to what I had originally planned out with few minor differences. I had planned out some questions to ask the students at the beginning of the lesson, but the students did not seem to have a great understanding of the material, so after they made their kazoos I asked them the same questions. That I asked at the beginning and they were able to answer them with more confidence, but there was still some information

	missing, so we worked our way to the correct answer together. After that, I asked them the same questions again so that the answers and concepts would stick with them.
What was successful or unsuccessful in the lesson? How well did you accomplish the instructional objectives? How do you know this?	Though the process of making the kazoos was not unsuccessful there were still some bumps in the road. One of our students has a hard time focusing on the task that is at hand and she is indecisive on which materials to use, she kept choosing different types of paper to put on the end of the toilet paper roll. This called for more time needed during the making of the kazoos because she kept going back and forth. If I were to teach this lesson again I would either assign students the material or I would tell them that the one thing they pick is the one thing they get to use. I believe I accomplished the instructional objectives really well because the questions I asked were based around the objectives and I continued to enforce these questions throughout the lesson.
What would you do differently if you were to re-teach this lesson?	If I were to re-teach I would have the students work in pairs rather than alone because they had a hard time putting the elastic on the end of the toilet paper roll while holding the paper on the top of it. If they worked together they could support each other during it and hold the materials down. Also, I would make a model kazoo because although I gave each student a worksheet that described how to make it and had a diagram they still had a hard time grasping what the final outcome should look like.
What feedback did you receive from your supervising practitioner and/or college supervisor? How will you use the feedback in your future lesson planning or implementation?	My college supervisor told me that I did a great job. She said that the children were very excited about the activity and she could tell that they were invested in the material. She was very supportive during the lesson. Whenever the students would get out of control or off topic and I couldn't bring their attention back to the activity by myself she was quick to help. Something she said that I could work on in the future is organizing my materials before I teach the lesson to make sure I have everything that is needed. I did not tell her that I was going to skip over the part of the lesson with the speaker and tuning fork, so at the end of the lesson she asked me why I didn't do it and I had told her that I forgot the materials. Although I should have made sure I had everything before I left she told me that it was good that I ended up not doing that part of the lesson because it would have taken time away from the kazoos.

Diverse Learners Resource List
Learner Factors: Differentiation, Modifications, and Accommodations: Learner Factors (What will you do to allow students with different strengths, abilities, learning styles, disabilities, and second language acquisition to access the curriculum?)

- ☐ Adjust Grouping Formats
- ☐ Oral, Pointing, Signed Responses
- ☐ Give Additional Examples
- ☐ Write Homework List
- ☐ Give Daily Progress Report
- ☐ Use of Braille or Large Print
- ☐ Give Student Copy of Directions
- ☐ Provide an Alternate Reading Level for a Reading
- ☐ Extend Time of Selected Work
- ☐ Reread Directions
- ☐ Use Assistive Devices to Respond
- ☐ Post visual picture or schedule
- ☐ Give Verbal Reminders
- ☐ Use of Interpreter
- ☐ Give Verbal Cues to Emphasize Main Ideas
- ☐ Use Page Markers
- ☐ Give More Frequent Breaks
- ☐ Handout Hard Copy of Board Notes
- ☐ Word Processor/Computer
- ☐ Seating Near Advanced Students
- ☐ Use Graphic Organizer
- ☐ Increase the Number of Review Activities
- ☐ Pair Students

Standard 1.a, 1.b, 2.a, 2.b, 2.c, 2.d, 2.f, SEI.a, SEI.b, SEI.c, SEI.d
Essential Elements 1.a.4, 1.b.2, 2.a.3, 2. b.1, 2.d.2