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Technology Integration Workshop 2022

Unit Title: Sound
Grade Level: 1
Subject Area: Science
Duration/Length/Number of class periods: 5 sessions
Description: The students will develop an understanding of how to observe and manipulate the phenomena of sound.

Established Goals:
The students will explore simple tools to learn that sound comes from vibrating objects.

Minnesota Standards for Physical Science in First Grade:

1P.1.2.1.1 Sound and Vibrating Materials
Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

1P.2.1.1.1 Patterns from Testing with sound and vibration
Identify and describe patterns obtained from testing different materials and determine which materials have the properties that are best suited for producing and/or transmitting sound.

What Enduring Understandings are desired?
Sounds make vibrations.
Vibration is a rapid back and forth motion.
Sound sources can be natural or human-made.
Sounds can make objects vibrate.

What Essential Questions will be considered?
The 2 big phenomena questions will be, What is sound? How can we change the properties of sound?

Students will know / be able to:
Students will focus on the source of sound through listening, discussing, exploring, and building objects that use vibration.

Description *Units must include at least one of each formative, summative, introductory activity and learning activity. Check the appropriate box; one per row.*	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used		ISTE Standards
Cup, rubber band, and tongue depressor activity			X					
Tongue depressor exploration				X				
Seesaw photo and recording of findings					X			**1.1c**
Seesaw and Youtube read aloud						X		**1.1a**
Sounds card activity	X			X		X		**1.1a**
Book fiddle activity				X				
Seesaw posting of book fiddle	X				X			**1.1c**
Drop chamber activity			X					
Performance assessment	X					X		**2.5a**
Tuning fork activity			X					
Science notebook entry about drop chambers	X							
Youtube of a tuning fork in SLOW MOTION						X		**2.5a**
Science notebook entries about outdoors				X				

Seesaw posting of outdoor activity					X			1.1c

Materials, tools and resources:

Day 1:
Materials for the teacher: Chart paper and markers, read aloud book or youtube for the book
Materials for the students: plastic cup, 2 rubber bands, a book, tongue depressor, science notebook, pencil

Day 2:
Materials for the teacher: sound cards/online sounds, word wall (however you set that up in your room or use chart paper), Vibrations and Sound book from FOSS
Materials for the students: cup, 2 rubber bands, tongue depressor, a book, paper clip, science notebook, pencil

Day 3:
Materials for the teacher: performance assessment sheet (one for each student)
Materials for the students: drop chambers, baggies of objects, science notebooks, pencil

Day 4:
Materials for the teacher: marker, access to the word wall and computer, tuning fork
Materials for the students: tuning forks, table-tennis balls tied to a string, cups, water, science notebook, pencil

Day 5:
Materials for the teacher: chart paper, marker, tuning fork, pencil
Materials for the students: science notebooks, pencil

Unit Plan Author: Lisa Lind, WestWood Elementary

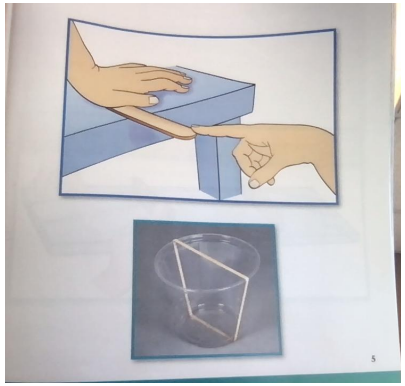
Additional credit given to: FOSS Sound and Light curriculum

***This is the first of 4 investigations in a large unit on sound and light. These lessons are the first week.

Day 1 - Making Sound - Rubber Band Cups and Tongue Depressors

Read aloud: Bunny's Noisy Book by Margaret Wise Brown https://youtu.be/EJWQOnBlR1s

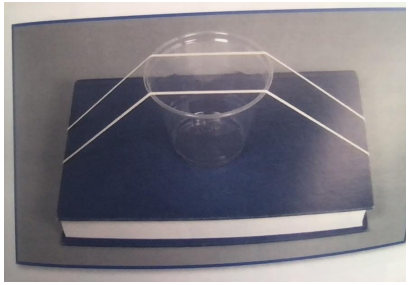
1. Read or view the read aloud. Ask students to write in their notebook the answer to the question: What is sound? Have the students add an illustration. Tell the students they will review their answer at the end of the unit.
2. Gather students. Chart animals, machines, and objects that make sound. Ask students for answers.
3. Students will investigate with a cup and a rubber band. Can they make a sound with the objects? Next, pass out tongue depressors, have them explore what happens if the depressor is put in the cup. They should focus on the source of the sound and notice that it is vibrating. ***See photos below.
4. Call attention to the class and have partners discuss what they are noticing is happening. Bring the discussion to the whole group.
5. Have students ONLY use the tongue depressor to make sound. Can they do it? (Using the heel of the hand, students make a diving board off the side of the table and then pluck it.) Partners share and then share with the whole class their findings.
6. In their notebooks, students write What causes sound? at the top of a page. Students use their own words to answer. ***Vibration causes sound.
7. Use Seesaw to photograph notebooks and cup/rubber band creation. Students record what they learned and upload it to their Seesaw journal.



Day 2 - Making Sound - Book Fiddle

1. Gather students. Have them close their eyes. Clap. Ask them what they heard. How did they know what it was? Tell them they will be learning more about sounds. Pass out sound cards from FOSS or make your own. Pictures of animals, machines, musical instruments, or other random items. Students study the card. They turn to a partner and share what sound that object would make.
2. Next, play the online activity sound cards. This plays sounds for the students to guess what they are hearing. If you do not use FOSS, you could google sounds to play for the students.
3. Ask and write on the board the focus question: What causes sound?

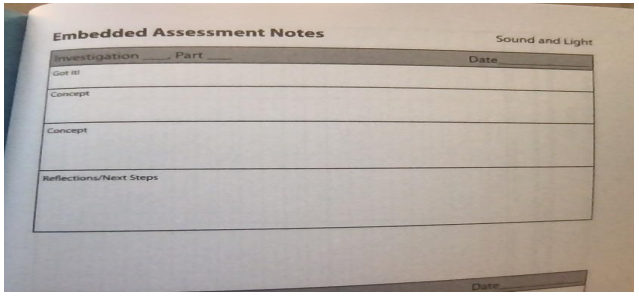
4. Pass out the cups, rubber bands, and tongue depressors from yesterday. Ask students to make sounds. When everyone "looks like" they have it, ask the students to explain what they are doing. Start a word wall. Ideas that the students may come up with are pluck, spring, bouncing, stretching, wiggling, buzzing, shake, tickling, vibration
5. Have a discussion asking: What did it look like when you plucked the rubber band? How did the stick sound when you plucked the rubber band? How did the rubber band feel when you plucked it?
6. Students get out their science notebooks. They write the vocabulary word vibration. Ask for ideas on what they think it means. After hearing ideas, guide the students that the motion they saw, heard, and felt was a back and forth motion. Have them add the definition to vibration = fast back and forth motion.
7. Read the book Vibrations and Sound supplied by FOSS. Discuss the book, go over comprehension, show the diagram and tell its purpose. Go over the glossary.
8. Introduce a book fiddle. ***See photo below. Students set up their own. After they are all set up, students who finish right away can help others, ask: How can you get the book fiddle to make a sound? (pluck) What will the rubber band be doing while it is making sound? (vibrate), How could I get it to stop making sound? (stop the vibration)
9. Get out science notebooks and a pencil. Draw a book fiddle and explain how it works. Encourage students to use the new vocabulary words from the word wall.
10. Students video tape on Seesaw their notebook and demonstrate their book fiddle while explaining what is happening. Teacher goes back to look over the posts as an informal assessment. (Teacher looks for something saying that sound is made by vibrations.)

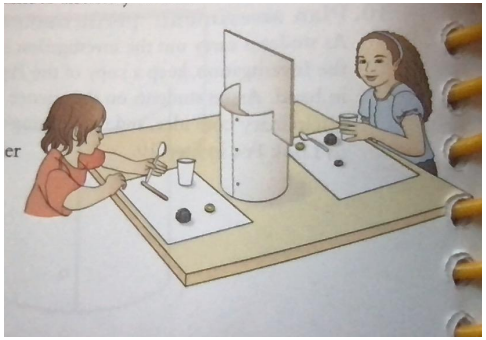


Day 3 - Hearing Sounds - Drop Chambers

1. Have students close their eyes and listen carefully. Tell them they need their EARS to HEAR. Teacher drops a coin on a table and students guess what they hear.
2. Tell students that sounds have properties. One of them is what sound they make when they hit a surface. Ask students to mimic sounds of a ball hitting the ground, a ball hitting a bat, a chair falling, or even a book hitting the ground.
3. Play drop chamber with a partner. The students drop objects that are hidden and their partner has to guess what is being dropped. They can drop each object more than once until their partner guesses correctly. After a set amount of time, when most participants are finished, the teacher can ask, What kinds of sounds are easy to identify? Why?

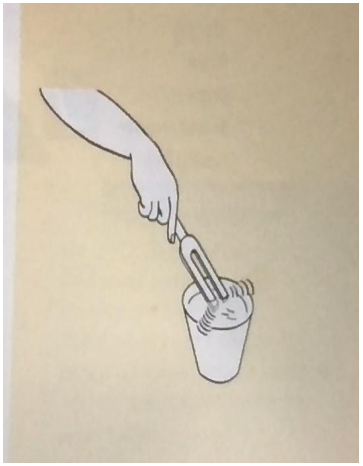
4. Do a performance assessment using the note template shown below. Have one template per student and it could be used for several activities. The template could be made in google forms for a quick picture of the whole class.
5. Students journal what they have learned in their science notebooks. Illustrations need to be added. Encourage students to label.

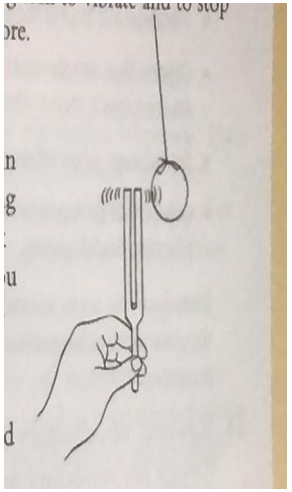




Day 4 - Hearing Sounds - Table-Tennis Balls and Tuning Forks with Water

1. Ask students to pair-share what they learned yesterday about drop chambers. Add the word properties to the word wall.
2. Demonstrate using a tuning fork. Ask the students, How do I get it to make a sound? What do you think the tuning fork will be doing while it is making a sound? How do you think I could get it to stop making a sound?
3. Demo the fork, up close, for several students at a time to see. Ask, Can you see the tuning fork vibrate when it is making sound? Ask the whole class, How could we confirm that the tuning fork is vibrating? Let students explore.
4. Next, have each set of students get a glass of water to explore with the tuning fork.
5. Show the youtube video: Tuning Fork in SLOW MOTION, it's 1:01 minutes long https://youtu.be/lxsM9Jv0OD8 Have students pair share what is going on in the video.
6. Distribute table-tennis balls on a string to each pair of students. Demonstrate how to hold the string so the ball is motionless. Ask, What will happen if we bring the vibrating tuning fork to the ball? Let students explore.
7. In science notebooks, have students draw a line vertically through their page. On one side they answer the question, What caused the water droplets to fly out of the cup? On the other side they answer the question, What caused the table-tennis ball to bounce away? (Both sides should write about how the tuning fork tines vibrate and push the water or the ball away.)
8. Call students together for a wrap-up. Review that vibration is a back and forth motion, that all objects vibrate to make sound, sound stops when vibrating stops, and objects can vibrate in many ways with examples of hitting, plucking, and dropping.





Day 5 - Outdoor Sounds

1. Gather the students. Ask students what they have learned so far about sound. They should say sound is made by vibrations and that once vibration stops-sound stops. Do a tuning fork demo. Next, do a blind challenge. Have students close their eyes. Drop a pencil on the desk and then hide it. Call on students to guess what object they heard. Once a pencil is guessed, ask How did you know it was a pencil if your eyes were shut?
2. Demonstrate listening. Have students sit quietly for 1 minute. Tell partners what they heard. Next, tell the students they will be going outside to hear as many different sounds as they can. They will bring their science notebooks and list the items heard. Their goal will be three sounds.
3. Students will go SILENTLY around the school yard. Silently as to not overpower sounds. Go for 10 minutes and remind the students to list what they hear.
4. Come back inside. Chart sounds that were heard outside. Have a discussion asking: What did you observe with your ears? What did you hear? What is the source of the sound? Did you hear any animals? Did you hear a vehicle? Did you see it? Was that a loud or soft sound? What was vibrating? What information did you get from the sounds you heard?
5. Students go back to their desks and finish these two sentence starters: Outdoors I heard _____. The sounds told me that _____.
6. Students take a photo of their science notebook on Seesaw to share with families.