



Sounds All Around

Submitted by: Becky Van Duker, Science
Griffen Creek Elementary School, Medford, OR

Target Grade: 1st Grade Science

Time Required: 1 hours and 15 minutes

Standards

Next Generation Science Standards (NGSS):

- 1-PS4-1: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
- W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- SL. 1: Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

Lesson Objectives

Students will be able to:

- Write one sentence about past experiences with sound using the provided sentence frame.
- Carry out an investigation with 3 - 5 classmates to determine which household objects make the loudest, longest, and best sounds and share their thinking during discussion.
- Form a hypothesis about what creates sound and share their ideas with a partner.
- Describe the role of vibration in creating sound and sound in creating vibration in two sentences using a provided sentence frame.

Central Focus

During this lesson, students will investigate sound waves. Students will make several observations of different instruments and the sounds they produce. While collaborating together, students will design their own noise making to investigate the effect of matter on sound waves.

Key terms: amplitude, physics, music, vibration, groups, engineering

Background Information

Students will need to understand the following vocabulary:

- Investigation: research and examination leading to discovery.



- Vibration: a quiver or shake that happens more than once.
- Sound: something that can be heard.
- Noise: a sound that is usually loud.
- Music: sounds combined in a beautiful way.

Students should be aware of the scientific process and the following steps: observation, question, hypothesis, experiment, analysis, and conclusion. The scientific process is cyclic and should always allow for further research.



Materials

- *Loud Sounds* worksheet
- 1 Set of vocabulary cards
- 2 Half empty containers of oatmeal per group
- 2 Empty boxes per group
- 2 Word blocks per group
- Markers
- Empty containers
- Empty plastic bottles
- Rubber bands
- *Making Sound* worksheet
- 2 Metal spoons per group
- 2 Small empty buckets per group
- 2 Tin pie pans per group
- Anchor chart paper (for teacher)
- Empty toilet paper rolls
- Empty cardboard boxes
- Beans
- Various musical instruments: Maracas, Drums, Guitar, etc.

Instruction

Introduction:

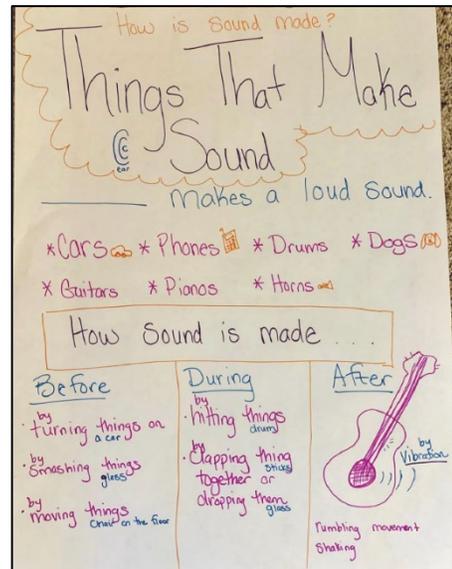
- On the *Loud Sounds* worksheet, have students complete the sentence frame, “ ____ makes a loud sound,” and draw a picture while you play several short clips from different genres of instrumental music.
- Possible links:
 - Instrumental Glam Rock: https://www.youtube.com/watch?v=JFhq8uW6_kE
 - Instrumental Pop: https://www.youtube.com/watch?v=TanVtB8i_dY
 - Instrumental Disco: <https://www.youtube.com/watch?v=jBURBPmabqg>
 - Instrumental Classical: <https://www.youtube.com/watch?v=tKgGarhTq-c>
 - Instrumental Folk: <https://www.youtube.com/watch?v=EBGW2LEG898>
 - Instrumental Celtic: <https://www.youtube.com/watch?v=1ZlFu21Aj4Y>
- Call all students to discuss what they wrote and drew.
- Explain that even though different genres of music sound different, and different instruments make different noises, all sound is made in the same way.
- Explain to students that scientists study the world in many different ways to answer questions. One way is to experiment and investigate which is what you will be doing today.
- Explain that all investigations begin with a question.



- Pose to the students the essential question: How is sound made?

Explanation:

- Title an anchor chart *Things That Make Sound*.
 - Ask students to list some things that make sound and write the examples on the top of the anchor chart.
- Direct the conversation to instruments.
 - Show students 3 instruments and ask which one they think will make the loudest sound and why.
 - Provide students with the sentence frame “_____ will make the loudest sound because _____.”
- Show some examples of instruments making sound.
 - Examples: Maracas, Drum, Guitar, etc.
- Strum the guitar. Ask students to think about what causes the sound they are hearing.
- In the middle of the anchor chart add another title: *How Sound is Made*
 - Divide the bottom of the anchor chart into 3 sections: before, during, and after.
 - Record student ideas about the causes of the sounds they are hearing on the anchor chart in the ‘before’ section.
- Introduce students to the vocabulary words and pictures that will help them be “better” scientists as they learn about sound using the provided vocabulary cards.



Investigation:

- Put students into groups of 4 - 6.
- Give each group a box of materials (empty plastic water bottles, wood blocks, metal Silverware, etc.)
- Allow students to explore the materials and “make sound with them.”
- Challenge students to find which object makes the loudest sound and which makes the longest sound.
- Ask students to turn and discuss with a partner what makes the sound happen.
 - Provide them with the sentence frame, “I think sound is made when _____.”





- Challenge each group of students to choose one material that makes the sound they like best.
- Have students bring their favorite sound maker back to the whole group and share the sound.
 - Have students demonstrate and describe the sound and explain why they believe this object made the best sound.
 - Provide students with the sentence frame, “_____ makes the best sound because _____. It makes a _____ sound.”
 - If time allows, have students also talk about which object made the longest and loudest sounds.
 - Record student thinking on a separate anchor chart if time allows.
- Discuss what all of the objects that made the best sound have in common and how they are different.

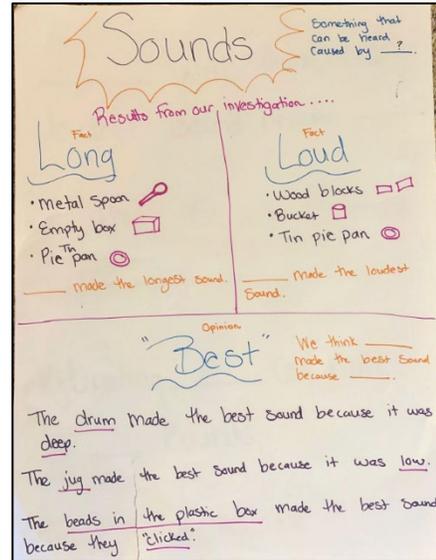
Analysis:

- Ask students to privately think about what makes the sounds they are hearing.
- Record student reasoning in the “during” section of your anchor chart.
 - Host a discussion of ideas.
- Test several student ideas.
 - For example, if a student says hitting the object with your hand make a sound, test this with several objects to make sure. Try hitting a metal spoon with your hand vs. hitting the spoon on the floor or another piece of metal.
- Ask students to think about why it made different sounds when it was hit differently.
- Strum the guitar again and ask students to look closely at the guitar strings.
- Introduce the word vibration to students and talk about how the vibration of the strings makes sound.
- Have students touch the wood of the guitar while you strum the strings, and ask what they feel.
- In the “after section,” draw a picture to show the invisible sound waves caused by the vibrations coming from the strings as well as the vibrations of the wood caused by the sound entering the guitar.



Closure:

- Remind students that as scientists we were conducting an investigation to answer a question.
- Remind them of the essential question, “How is sound made?”
- On the *Making Sound* worksheet, ask students to draw a picture of the object their group chose to present as their favorite sound and show where the vibrations are coming from.
- Have students complete the following sentence frames:
 - “Vibrating _____ can make _____ sounds.”
 - Example: Vibrating plastic can make hollow sounds.
 - “Vibration _____ sound and sound _____ vibration.”
 - Example: Vibration causes sound and sound causes vibration.
- Model the drawing and the use of the sentence frames before having students return to their table to complete their drawing and writing.



Extension:

- Providing students with various scraps and supplies, ask them to create their own instrument.
- Challenge them to create the instrument with the longest lasting sound or the loudest sound and discuss how vibrations contribute to length and volume of sound.

Differentiation

ELL:

- Translate all vocabulary.
- Translate sentence frames.
- Use the SIOP methods already built into the lesson including providing sentence frames, hands on active engagement, partner turn and talk, and group work.
- Use gradual release of responsibility practices already included in the lesson.

Students with special needs:

- Provide learners with the opportunity to draw a picture and label the picture instead of write a sentence.
- Allow students to demonstrate their understanding verbally, instead writing a response.
- Partner students up with a peer who can mentor and guide them throughout the lesson.



- Chunk the lesson into several smaller lessons.

Assessment

Formative assessment:

- The teacher may use all worksheets to assess student understanding and mastery of the subject.

Summative assessment:

- The teacher may use observations of students discourse and participation during the large group, small group, and partner work to assess students understanding throughout the lesson.

SENTENCE FRAMES

“_____ makes a loud sound.”

“_____ will make the loudest sound because _____.”

“I think sound is made when _____.”

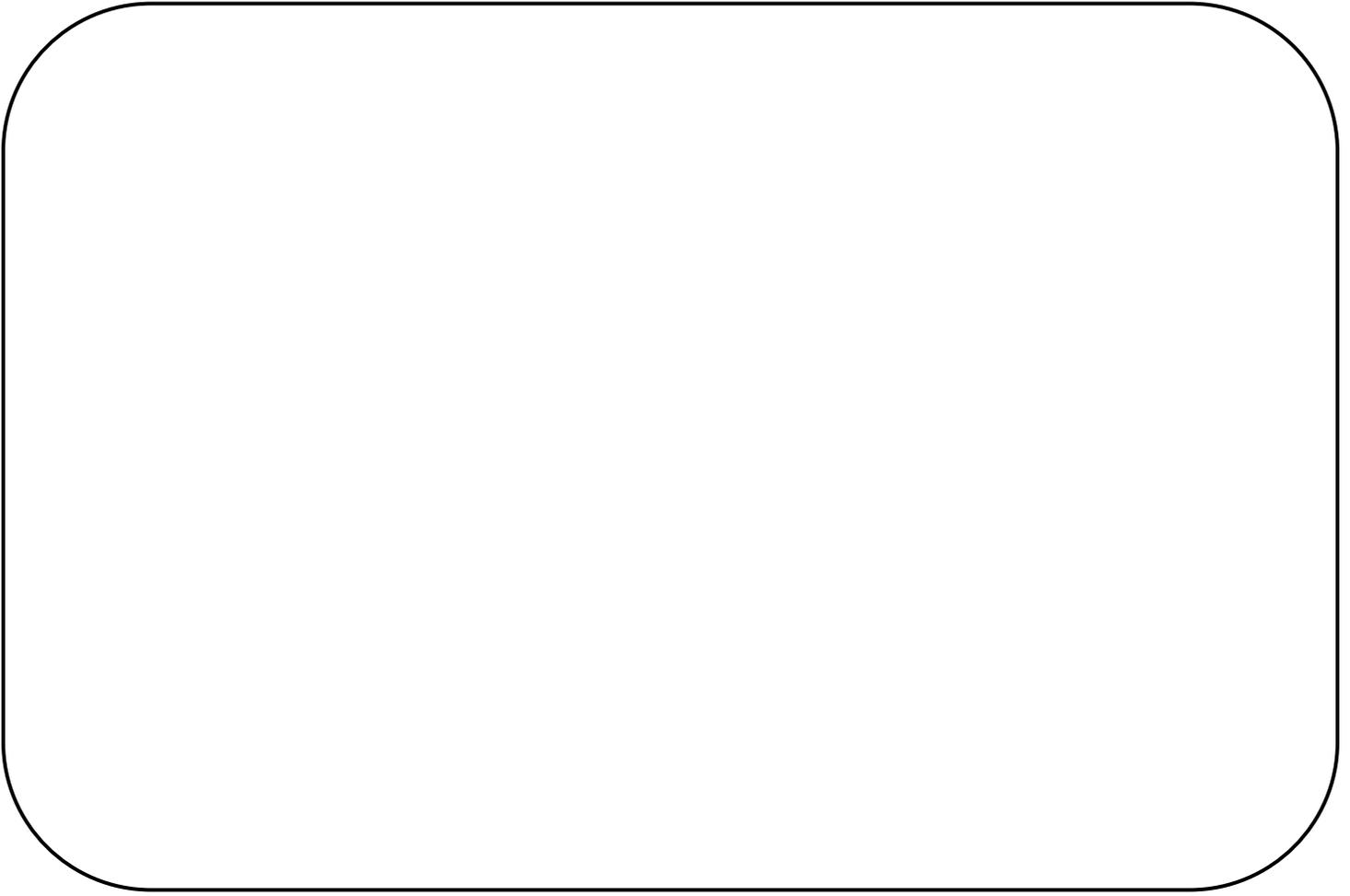
“_____ makes the best sound because _____. It makes a _____ sound.”

“Vibrating _____ can make _____ sounds.”

“Vibration _____ sound and sound _____ vibration.”

Name: _____ Date: _____

LOUD SOUNDS



"_____ makes a loud sound."

Name: _____ Date: _____

MAKING SOUND



"Vibrating _____ can make _____ sounds."

'Vibration _____ sound and sound _____ vibration.'

Investigation:

research and examination
leading to discovery.



Vibration:

a quiver or shake that
happens more than
once.



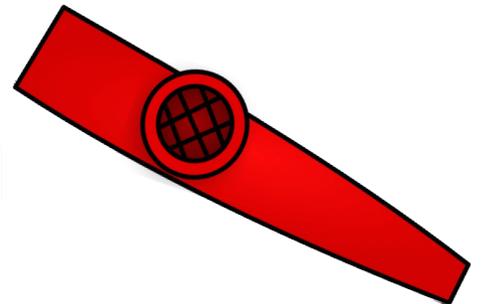
Sound:

Something that can be
heard.



Noise:

A sound that is usually loud
and unpleasant.



Music:

Sounds combined in a beautiful way.



Clipart Credits

Purchased by author for small distribution and commercial use

