

## First Grade Lesson Plan - Good Vibrations

**Suggested time:** 45 minutes

### Lesson Snapshot:

In this lesson, students will explore the disciplinary core ideas: vibrating matter can make sound and sound can make matter vibrate.

Through planning and investigating, students will produce evidence to answer the question, "Can you make something move by using only sound?" Additionally, students will apply their knowledge of vibration to create a sound system.

The crosscutting concept of cause and effect is embedded into this lesson as students conduct investigations focused on sounds and vibrations.

### Background Information:

Sound is a form of energy and travels as sound waves. Sounds can be created and heard when these sound waves travel through matter in the form of vibrations. Humans and animals can hear sound through their sense of hearing, which is made possible by ears. When vibrating air molecules (sound waves) reach the ear, the eardrum vibrates, producing sound. Instruments and voices produce vibrations that make sounds. Sounds also make objects vibrate. Depending on the strength and force of the vibrations, these vibrations can make other things (matter) move. For example, loud sounds can be so strong that their vibrations can cause a glass to break.

**Fun Fact:** Did you know, sound does not exist in space?!

### Science, Technology & Engineering, and Environment Literacy & Sustainability (STEELS) Standard(s):

3.2.1.A: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

3.5.K-2.S: Apply design concepts, principles, and processes through play and exploration.

3.5.K-2.DD: Collaborate effectively as a member of a team.

### Connections to Other Standard(s):

CC.1.5.1.A: Participate in collaborative conversations with peers and adults in small and larger groups.

CC.1.5.1.C: Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

### Objective(s):

Students will plan and conduct investigations to provide evidence that vibrating matter can make sound and that sound can make matter vibrate.

### Materials:

- *Ada Twist, Scientist* by Andrea Betty
- Sound vibration journal (at the end of this file)
- Small cup, bowl, or food storage container
- Cling wrap
- Sprinkles
- Rubber bands
- Trays (1 per group)

- Tin cans
- Boxes of various sizes
- Cups
- Spoons
- Straws
- String
- Empty paper towel rolls
- Construction paper
- Instruments that produce vibrations (examples: drums and cymbals)

### **Advanced Preparation:**

Prepare one tray per group with the following materials: small cup, bowl, or food storage container, cling wrap, sprinkles, and rubber band.

Collect a variety of materials for students to create a sound system (examples: paper towel rolls, cups, straws, strings, and rubber bands).

### **Suggested Implementation:**

#### **Part 1: Shared Read Aloud**

Read *Ada Twist, Scientist* by Andrea Beaty.

#### **Class Discussion Questions:**

“What do scientists do?” (Highlight: the character in the story is curious and asks a lot of questions focusing on “Why?”)

“What are some different topics scientists may investigate?” (sound waves, light and reflections, chemical reactions)

Discuss student responses, guiding students to understand that scientists ask questions and conduct investigations to produce evidence. (Highlight: the character in the story created investigations based on her senses such as smell. Our senses are a key feature that help us to become better scientists.)

Introduce that today’s lesson will focus on exploring sound.

#### **Part 2: Investigation**

Introduce the investigation, posing the question: “Can you make something move by using only sound?”

#### **Provide each group with the following materials:**

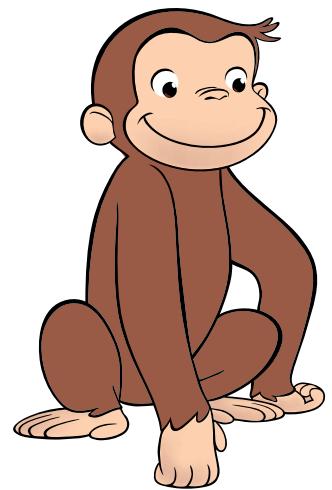
- Small cup, bowl, or food storage container
- Cling wrap
- Sprinkles
- Rubber band
- Tray to help with mess and/or sprinkles

Allow students an opportunity to use the materials to create movement using only sound.

#### **Whole-class discussion focused on potential ideas/solutions, guiding students to:**

- Take a piece of cling wrap and put it over top of the bowl.
- Wrap the rubber band around the bowl and the cling wrap, so it creates a good seal.
- Dump sprinkles on top of the cling wrap.
- Hum and/or making noise near the bowl.

Discuss that vibrations are responsible for making the sprinkles move.



## Part 3: Design

### Class Discussion Question:

"Are all sounds the same?"

Show students different examples of instruments that produce vibrations.

Discuss why each instrument makes a different sound.

Introduce the investigation, posing the question: "How can you use your knowledge of vibration to create a sound system?"

Students will be challenged to create a sound system that creates vibrations.

Students will draw their design in their sound vibration journal.

Students will identify the necessary materials to create their sound system.

Provide time for students to apply their knowledge of vibrations and sound to create their own musical instrument.

Students will observe the instrument they created and write down notes/observations about it in their sound vibration journal.

## Part 4: Summation

Review/discuss: "What did you observe while investigating?"

Review/discuss: "Why do sounds sound different?" (Sound waves can go slow or fast which alters the sound. A low-density material like air can make sound waves move slower. High density materials will allow sound waves to move faster.)

Review/discuss: "Why did the sprinkles 'dance'?"

Review/discuss students' observation notes from their journals.

### Extension Activities:

- Explore sound using bubbles. Students can use their voice or clapping to move the bubbles floating through the air.
- Create telephone cups to investigate how sound waves travel. [Telephone Cups | Camp TV | PBS LearningMedia](#) (video short: :52 seconds; activity guide)
- Explore *The Magic School Bus* and take a virtual field trip with Ms. Frizzle, to learn more about soundwaves and how they work! [The Magic School Bus - Inside the Haunted House - Ep. 9](#) (video full episode 26:00 minutes)

### PBS Resources and Links:

[Spoon Sounds Lesson Plan | PINKALICIOUS & PETERRIFIC® | PBS LearningMedia](#) (lesson plan)

[Sound Vibrations | PBS LearningMedia](#) (lesson plan, videos, handouts)

[Making Sounds | Hero Elementary™ | PBS LearningMedia](#) (video full episode 11:02 minutes)

### Connections to Other Standard(s):

CC.1.4.K-1.W: With guidance and support, recall information from experiences or gather information from provided sources to answer a question.

### Resources/Acknowledgments:

[STEELS Standards](#)

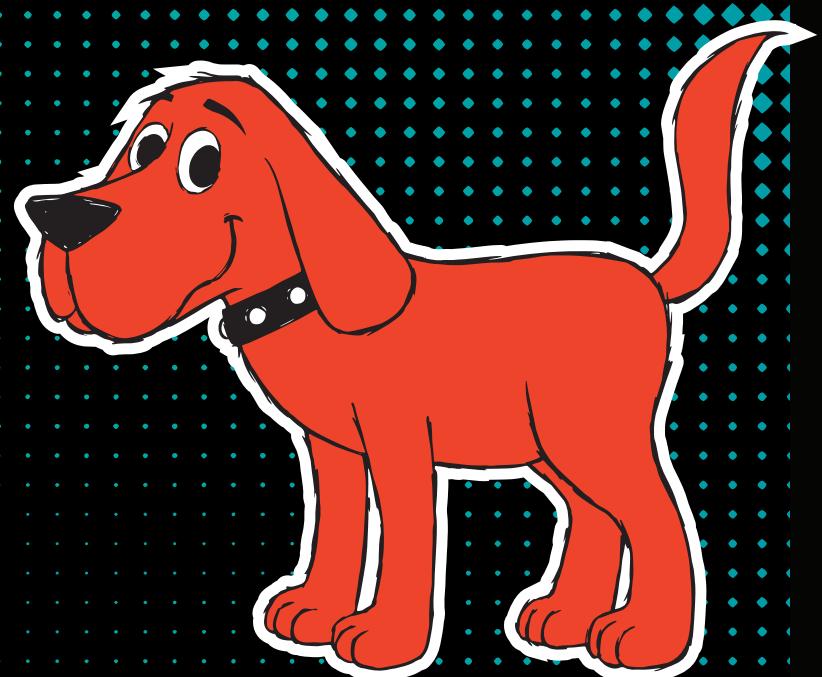
[Sound and Vibrations 2: Make Sprinkles Dance](#)

[The Holler- Sounds](#)

[Kiddle Encyclopedia- Sound Facts for Kids](#)

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# SOUND VIBRATION JOURNAL



**EXPLORE**  
*in the classroom*

witf

PBS  
KIDS

**Big Waves:**



**Small Waves:**



High Pitch:



Low Pitch:



THIS NOTEBOOK  
BELONGS TO

NAME:

TEACHER:

Become a scientist and use this journal to write down your observations of sound waves! Discover why sound waves are big and small, and why they sound different.

Draw a picture and describe your sound machines, and include your dancing sprinkles!

# SOUND VIBRATIONS VOCABULARY

**Sound waves:**



