

Sound Engineer: Understanding Sound

NGSS Standard: 1-PS4-1



Adventure Description:

In this adventure, you will think like a sound engineer and explore how vibrations create sound.



Activity

Teacher Prep: Students will need a few materials (a piece of string, feather, soup can, and tissue box) to do this activity. We have included [Handout: Parent Letter](#) that you can send home to ask parents to bring in materials. Print out the parent letter and fill in the return date so parents know when to bring in supplies.

Step 1: Background Information on Sounds and Vibrations (5 minutes)

- Show [Video: Understanding Sound](#).
- Explain to students that all sounds are caused by vibrations. Remind them that a vibration is when something moves back and forth quickly.
- Have students put their hand on their throat and say something. Ask if they feel that vibration. Have them keep their hand on their throat and ask if it vibrates at all when they aren't talking. What feels different when they speak loudly? Softly? Squeaky voice? Deep voice? Explain that all sounds are created by different types of vibrations.

Step 2: Helping the Band and Testing Materials (10 minutes)

- Tell students that a band is looking for new instruments to use to play music. They want a sound engineer to help them decide which materials can be used to create instruments that will create a loud, strong vibration.
- Explain to students that they will first decide what materials are best to build an instrument. Then, they will build their own instruments!

Please contact Allison Bischoff, Director of Customer Service, at allison@rozzylearningcompany.com or 314-272-2560 with questions.



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ADVENTURES

- First, drop a piece of paper on the floor. Discuss how it barely made a sound. This means there wasn't a strong vibration.
- Next, drop a book on the ground. Explain that this sound is much louder. That means, there was a strong vibration created.
- Next, place students into pairs. Provide each pair with the following materials: feathers, a piece of string, soup can, and a metal spoon
- Provide each pair with [Handout: Testing Materials](#). Have them drop each material on the ground and decide whether or not they think it makes a strong vibration when it hits the floor. Show students how they will circle the "thumbs up" on the handout if the item made a strong vibration and a "thumbs down" if it didn't.

Step 3: Create an Instrument (10-15 minutes)

Note: This activity can be done on a different day if you are running short on time!

- Explain to each pair that they will now create an instrument for the band. Students can choose one of the four items they teste
- Provide pairs with art supplies to create their instrument (pipe cleaners, paper, egg cartons, rubber bands).
- As students are working, encourage them to drop their instrument on the ground to test it. That way, they can hear if it makes a loud sound and can decide if they want to change something.
- Teacher note: Students might not know what to change after they drop their instrument. That is ok- this activity will expose them to the idea that sound engineers test their designs and come up with new ideas as they work.
- When pairs are finished working, have them show their instrument to the class. Then, have the class listen to the sounds that each instrument makes.

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SCIENCE CAREER ADVENTURES Sound Engineer: Understanding Sound

Materials List

Provided online:

- Video: Understanding Sound
- Handout: Testing Materials
- Handout: Parent Letter (optional)

Not provided (each pair of students needs):

- Feather
- Piece of string
- Soup can or another metal container
- Metal spoon
- Tissue box
- Rubber bands
- Art supplies and building materials (pipe cleaners, paper, egg cartons, rubber bands)

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