



Pre-Visit/Post-Visit Guide

Dangerous!

Lesson Name: Sounds

Summary of Lesson:

Students will work as engineers on a mission to establish a new base on Mars. The team detects a dangerous vibration in the rover which could jeopardize the vehicle and crew. Using sound meters and oscilloscopes through a specialized computer program, student teams will locate the source and properties of the sound, including pitch and volume. Then they will work as a team to decrease the vibration. Will they find the threatening sound in time?

South Carolina Science Standards: 4.P.4B.2; 4.S.1.A.6, 4.S.1.B.1

Pre-Visit Resources

- **Teacher/Chaperone Expectations:** Please help us by letting us know of any special accommodations for your children prior to the lesson. Your assistance with classroom management and distribution of supplies will also be greatly appreciated.
- **Instructions for Teachers:** Students will work in groups of three. If you could have the students split into groups of three, it would help students get into the lesson quicker upon arrival to the lab. If your class size is not a multiple of three, one or two groups of two will work.
- **Key Vocabulary:** sound energy, vibrations, pitch, frequency, volume, amplitude
- **Key Questions Addressed in Lesson:** What is sound? What are vibrations? What is pitch? What is volume? How can you use volume to locate a sound source? How can you decrease the volume of a sound?
- **Content Preview Video:** Science Kids Show - What is Sound?
<https://www.youtube.com/watch?v=3-xKZKxXuu0>

Post-Visit Resources

- **Writing Prompt:** Imagine you are blind and can only hear. Use what you know about sound to describe how you could use volume and pitch to help you get around and avoid obstacles.
- **Possible Lesson Link:** This is a lesson from PBS with many hands-on activities that help students connect the concepts of sound and vibration.
https://scetv.pbslearningmedia.org/resource/phy03.sci.phys.howmove.ip_sound/sound-vibrations/#.WPjOqmnyvIU
- **Video Link:** Dr. Binocs Show episode about sound, pitch, and volume.
<https://www.youtube.com/watch?v=gdGyvGPZ1G0>