

What is Sound?

An At-Home STEM Lesson Plan Crafted by BGCHarlem STEM Specialist Chaelee Dalton



Credit: [Newsweek](#)

Happy National Music Month! This month, we will learn about the science behind sound and music, while literacy will explore the emotional impact of sound and music.

This week, we will focus on learning what sound is scientifically and how sound is created! Next week, we will explore thinking about sound as a wave and the different qualities waves have!

Then, we will apply our understanding of sound to learn more about music, to finally end the month creating musical instruments out of household materials.

If your child cannot read, read the text out loud to them. Ask them the questions and have them respond and/ or solve on a separate sheet of paper. If your child can read, simply give them the second page of this handout and have them read the text out loud or in their head.

Materials: Blank paper, pen or pencil, internet access/YouTube

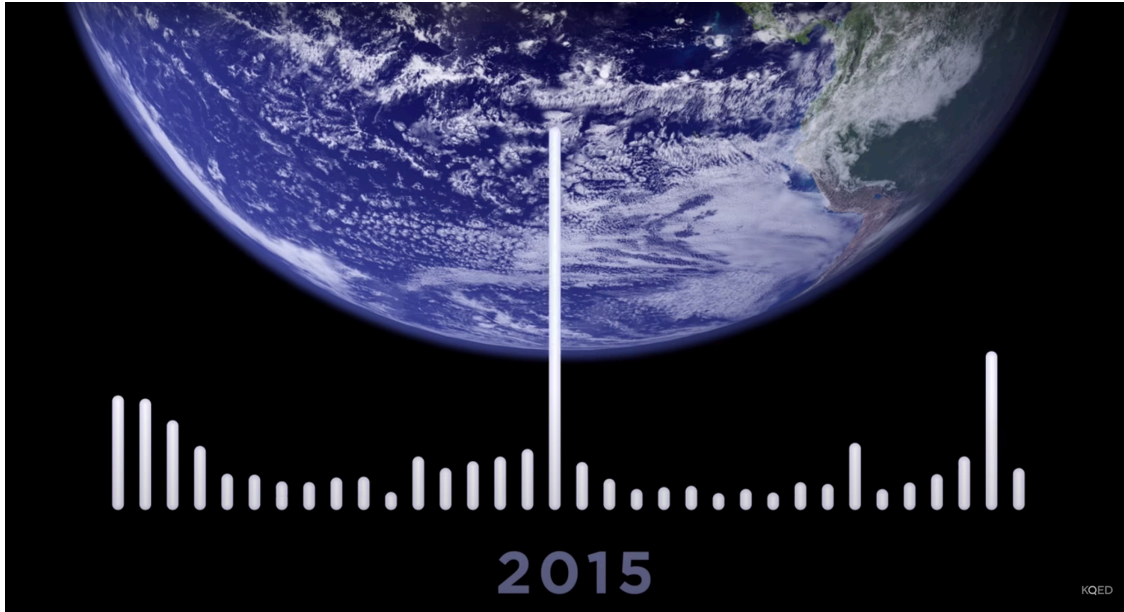
Addresses NGS Standards:

[3-PS2-2](#)

[4-PS4-1](#)

[4-PS3-2](#)

What is Sound?



Begin by watching and listening to [this video](#), which represents climate data through sound.

As you watch, notice and write on a separate piece of paper or below:

What different types of sounds do you hear/observe?

I hear _____.

What change in sound(s) do you notice over time?

I notice that _____ changes over time.

The background **tone** of this video represents **carbon dioxide emissions** each year and the **plucked strings** represent **temperature averages** each year.

What message do you think this video is trying to send?

I think the message this video is trying to send is _____.

Sound can be used to represent other things and to convey emotion. This will be explored in literacy lessons this month. But what is sound? And how is sound created?

Write your hypotheses below or on a separate piece of paper:

I think sound is _____.

Sound is created by _____.

Activity: Cover a bowl as tightly as possible with plastic wrap. Then, on top of the plastic wrap, put a few grains of rice, sprinkles, or other, small and light items.

Bring your lips very close to the edge of the bowl and hum. Did the sprinkles move?

If they didn't, try humming louder. Or, try varying the pitch (how high or low) your hum is.



Experiment with using [tone generators](#) or even playing music on your phone in front of the sprinkles!

What did you observe? What causes the sprinkles to move?

One thing I observed is _____.

I think the sprinkles were moved by _____.

Your sound creates vibrations in the air, which also vibrate the plastic wrap. It's hard to see the plastic wrap's vibration. You can see those vibrations better by watching the sprinkles!

Now, go to this [website](#) and explore different sound waves by pressing keys on the piano keyboard below. The dots represent tiny air particles which are moved by sound, just like the sprinkles! After you experiment with the keyboard, answer these questions.

When you look at all of the dots while playing a piano key, what happens to the dots' motion?

When I play a piano key, the dots overall _____.

When you look at a single dot while playing a piano key, what happens to the dot's motion?

When I play a piano key, a single dot _____.

What happens when you change piano keys? What happens to the dots when you play a piano key of a higher tone (more to the right)?

When I play a piano key of a higher tone, the dots _____
than when I play a piano key of a lower tone.



Next week we will explore more about how these air particles' *vibrations* and these sprinkles *vibrations* are a result of sound **waves** moving through the air!