GENERATIONGENIUS
ALWAYS QUESTION. ALWAYS WONDER.

LESSON PLAN

INTRODUCTION TO SOUND
GRADES K-2

SUMMARY

Students will make a simple kazoo to explore how sound is caused by vibrations. Duration: 45 minutes.

NEXT GENERATION SCIENCE STANDARDS CORRELATION

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Science & Engineering Practices	Connections to Classroom Activity
Planning and Carrying Out Investigations **Constructing Explanations** Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena (1-PS4- 2)	• Students will make a simple kazoo. They will then try making different sounds with it and infer how the sound is being made by vibrations.
Disciplinary Core Ideas	**Connections to Classroom Activity**
PS4.A: Wave Properties Sound can make matter vibrate and vibrating matter can make sound. (1-PS4-1)	• Students will conclude that their kazoo makes sound because of the vibrating wax paper.
Crosscutting Concepts	**Connections to Classroom Activity**
Cause and Effect	• Students will discover that sound causes vibrations.

ENGAGE

Play a familiar song with a kazoo or similar instrument and see if the students can guess which song you are playing. Ask them, “How do you think this kazoo works?” and listen to their ideas. If you do not have a kazoo, one can be made from the instructions below. Next tell them that today they will be making a similar instrument and we will investigate how it works.

MATERIALS

- Cardboard / Paper towel tube
- Wax paper
- Rubber bands
- Decorations (marker, tissue paper, paint etc.)
- Sharp object for poking holes (teacher only)
- Kazoo

DIY Activity

- Large glass bowl
- Piece of clear plastic wrap
- Large rubber band
- Handful of candy sprinkles (salt or rice may also be used)
- Powerful speaker
- Music player

EXPLORE

Show students the materials and model how to cut a wax paper circle about 1 inch larger than the diameter of the paper tube. (You can also pre-cut the wax paper if you prefer.) Next, show students how to attach the wax paper to the end of the paper tube using a rubber band. Stress that the wax paper needs to be tight across the opening in order for the kazoo to work.

Once students have assembled the kazoo, they need to ask you to come over to poke some holes in their tube. (You can also do this ahead of time if you wish.) 3 or 4 holes about an inch apart should be fine. They don’t need to be very big; try inserting the point of scissors and twisting it around a little. If there is time, you can let students decorate their paper tubes with markers, stickers or tissue paper.

Now it’s time for them to try out their paper tube kazoo. Instruct students to experiment with the tube by putting their mouth into the open end of the tube and talking into it. Saying things like, “Da doo da doo”. They can also try covering some holes to see if the sound changes.

EXPLAIN

Ask students for their ideas on how the kazoo works. Once students have shared their ideas watch the Generation Genius video as a group. Facilitate a conversation using the Discussion Questions.

Be sure to discuss how the sound occurs because the sound waves from their vocal cords travels into the tube and causes the wax paper to vibrate.

ELABORATE

WATCH THE GENERATION GENIUS INTRODUCTION TO SOUND VIDEO AS A GROUP

Return to the real kazoo used in the engagement. Point out that a paper like substance is inside the kazoo that is similar to the wax paper. When you hum into the kazoo the sound waves from your vocal cords causes the material in the kazoo to vibrate.

EVALUATE

Students can play the online Kahoot! quiz game located below the video which provides downloadable scores at the end of the quiz game. Alternatively, you can use the paper quiz or the exit ticket questions. All these resources are located below the video in the Assessment section.

EXTENSION

For younger students, a great book that reinforces the concept of sound is *Sounds All Around* by Wendy Pfeffer. You can extend this lesson for more advanced students by demonstrating, or letting students demonstrate how pitch changes when some of the holes of real instruments are covered. Pitch is affected by the volume of air that is vibrating. Simple recorders or flutes are a great way to extend this activity to real instruments.