

A 4D™ BOOK

CURIOUS PEARL

SCIENCE GIRL



**CURIOUS PEARL
MASTERS SOUND**

by Eric Braun • Illustrated by Anthony Lewis

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SCIENCE GIRL



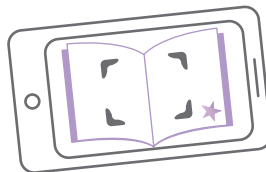
Curious Pearl here!
Do you like science?
I sure do! I have all sorts of fun tools
to help me observe and investigate, but my
favorite tool is my science notebook. That's where
I write down questions and facts that help me
learn more about science. Would you like
to join me on my science adventures?
You're in for a special surprise!

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I was getting ready to practice my recorder when there was a knock on the door. A voice called out, "It's me, Sal!"

Music to my ears! Sal is my good pal. I ran to open the door.

"Hey Sal, how are you?" I asked.

"Not good," he said. "My rabbit is sick. Without him, I can't do my magic show at the talent contest tonight. The prize is a summer pool pass!"



“Maybe I can help you win the prize,” I said.

“Let’s have a snack and think of a plan.”

After we got our snack, I played a few notes on the recorder. Sometimes music helps me think. But it was Sal who got the bright idea.

“Let’s make a band!” he said. “You play the recorder, and I’ll play the . . .”

Sal looked around for something to play. He grabbed a couple of pot lids and banged them together.





I noticed something. “Eureka!” I said.

“Eureka?” Sal said. “I thought you only said that when you make a discovery.”

“Indeed, my pal Sal,” I said. “Look how the music makes those crumbs vibrate.”

“I don’t get it,” Sal said.

“Those jumping crumbs reminded me of something I read in one of my science books. Sound is made of vibrations.” I pulled out my science notebook to write this down.

Sound is made when an object vibrates. The vibrations bump into the air and make it vibrate in waves. The sound waves travel through the air to our ears.



“Can we make our own instrument?” asked Sal.

“If we can make something vibrate, we should be able to make sound,” I told him.

I found a paper towel tube and some wax paper. I wrapped the wax paper around the end of the tube and attached it with a rubber band. I poked a hole along the side of the tube.





Sal put the tube to his mouth and hummed. It made the wax paper vibrate, and that made music.

“Cool!” Sal said. He could cover and uncover the hole to change the sound, and he could hum higher and lower notes.

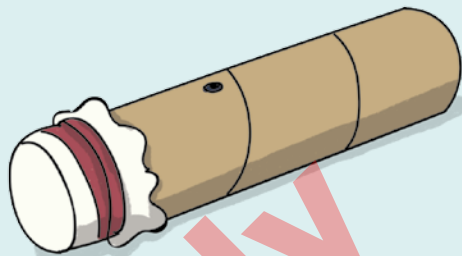
We played our instruments together. They sounded good, but something was missing.

“Let’s call Sabina,” Sal suggested. He called her and invited her to be in our band.

“That sounds awesome,” Sabina said. “Be right over!”



Make Your Own Kazoo



You can build a kazoo just like Sal's and use vibrations to make music.

Here's what you need:

- cardboard tube from paper towels or toilet paper
- 4- x 4-inch (10- x 10-cm) square of wax paper
- rubber band
- something to poke holes (like a pencil)

Steps:

1. Wrap the wax paper over one end of the tube and secure it with the rubber band.
2. Using the pencil, poke a small hole in the side of the tube.
3. Put the open end of the tube to your mouth and hum. Hold your finger over the hole to change the sound.

You can hum higher and lower notes to change the sound your kazoo makes. If you want, you can decorate the tube with crayons or markers.

GLOSSARY

collision—when two things crash together and exchange energy

energy—the property that must be transferred between objects in order to perform work; similar to power

infrasound—sound that is too low for humans to hear

pitch—how high or low a note is; pitch is caused by how rapidly something vibrates

recorder—a musical wind instrument

ultrasound—sound that is too high for humans to hear

vibrate—to shake rapidly

vocal cords—membranes in the throat that vibrate to make sound

READ MORE

Braun, Eric. *Simply Sound: Science Adventures with Jasper the Origami Bat*. Origami Science Adventures. North Mankato, Minn.: Picture Window Books, 2014.

Duke, Shirley. *Waves of Light and Sound*. Let's Explore Science. Vero Beach, Fla.: Rourke Educational Media, 2014.

Johnson, Robin. *The Science of Sound Waves*. Catch a Wave. New York: Crabtree Publishing Company, 2017.

Midthun, Joseph. *Sound*. Building Blocks of Science. Chicago: World Book, Inc., 2012.

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CRITICAL THINKING QUESTIONS

How is sound made?

Some sounds are too high or low-pitched for people to hear.
What is pitch? Hint: Use your glossary for help!

Pearl and her friends made instruments to make sound. Can you think of something you do that makes sound?

BOOKS IN THIS SERIES

