A Kid’s Guide to The Great Animal Orchestra
BERNIE KRAUSE & UNITED VISUAL ARTISTS
Get ready to hear something very special: *The Great Animal Orchestra*. This isn’t an ordinary orchestra with violins and trumpets. This orchestra is made up of the many different sounds made by animals in the natural world.

Most people enjoy nature by looking. But Bernie Krause prefers listening. For most of his life, he has been recording the sound of jungles and deserts, mountains and marshes, oceans and ice shelves. His recordings are full of the sound of life—singing ants, swishing grass, growling jaguars, grunting gorillas.

Wherever you go, you can learn amazing things about a place just by listening. The activities in this guide can help make you an expert listener, too.

---

**Want to See a Sound?**

Everyone knows you can’t see sound. Or can you?

Inside *The Great Animal Orchestra*, you can listen to amazing soundscapes. A soundscape is like a landscape for your ears. It’s everything you can hear in a particular place.

But you can also see these amazing soundscapes. Those colorful patterns flowing across the wall are what’s called a *spectrogram*. A spectrogram is a way of picturing sound over time:

Want to try making your own sound pictures? Find the exhibit called Sound Spectrogram. Just talk or sing into the microphone and watch. If you can, try whistling into the microphone. Then whistle a higher or lower note. See the difference?
Sound Exhibit Scavenger Hunt
Don’t miss these other kid-favorite sound exhibits. They’re all part of The Great Animal Orchestra exhibition. Can you find them all?

Out-Quiet Yourself
Whether they’re hunting or being hunted, lots of animals survive by moving quietly. How quiet can you be?

**Tip:** Watch the nearby Foxwalking video for quiet walking pro tips.

Pitch Switch
Here you can change the sound of your own voice—squeaky high like a mouse or deep like a lion.

**Tip:** Grab a friend; this one is extra fun with two people.

No-Peek Pong
Ever played a video game with your eyes closed? Here you can. Let your ears guide you to 1970s gaming glory. No fair peeking!

Having two ears is super helpful for figuring out where sounds are coming from. (More on that later.)

*Pong* is one of the first video games ever invented. It blew minds back in the 1970s. Gaming has come a long way, huh?

Listening Vessels
You and a friend can talk to each other from really, really far away with the help of these giant sound reflectors.

**Tip:** Sit up straight, and talk normally.

In the wild, baboons use a similar trick. To be heard far and wide, they bounce the sound of their calls off of tall, curved cliffs.
A Duck Goes “Rap?”
It does in Denmark. Different languages have different ways of describing animal sounds. Can you match these sounds with the animals that make them? It’s not easy!

1. **boo boo** (Armenian)  
2. **sum** (German)  
3. **chick chirik** (Bulgarian)  
4. **guo guo** (Chinese)  
5. **cocorico** (French)  
6. **meh** (Japanese)  
7. **awoo** (Filipino)  
8. **hvese** (Norwegian)  
9. **glu glu** (Turkish)  
10. **i-i-i** (Spanish)  
11. **nyihaha** (Hungarian)

Answers on page 15.
Where in the World?
The soundscapes in *The Great Animal Orchestra* were recorded all over the world. Can you match each animal to the location where it was recorded?

1. Yukon Delta
   Arctic tundra in Alaska

2. Crescent Meadow
   Mountain forest in California

3. Algonquin Park
   Forest in Canada

4. Oceans
   Pacific Ocean

5. KM41 Amazon
   Tropical rainforest in Brazil

6. Dzanga-Sangha
   Swamp in Central African Republic

7. Mungwezi Ranch
   Desert savanna in Zimbabwe

Eastern wolf
Raven
Humpback whale
Jaguar
Arctic fox
Elephant
Baboon

Answers on page 15.
Take a Soundscape Safari

Soundscapes are everywhere. In fact, you’re in one right now. Close your eyes and listen carefully. What do you hear?

Grab a pencil and go outside. Sit somewhere and just listen. Write down every single thing you hear. Can you guess what’s making each sound?

Home Activity: Find That Sound

Having two ears gives you special powers. With them, you can “see” with your eyes closed!

What’s That?

Bernie Krause invented three new words to describe the sounds around us:

Geophony (say “gee-AH-funny”) is sounds made by the earth—wind and rain, waves and waterfalls, thunder and landslides.

Biophony (say “bye-AH-funny”) is sounds made by wild animals.

Anthropophony (say “an-thruh-PAH-funny”) is sounds made by people, including their machines and vehicles, their pets and livestock, and all their gadgets.

Which category does each sound on your list belong to?

Play It Again

If you have access to a device that can record, try making your own soundscape recordings. Play them back to a friend and see if they can guess when and where you made the recording.

What you need:
- A set of keys or a rattle

1. Find a friend and have them close their eyes.
2. Standing about 3 feet away, hold the keys to the left or right and shake them. Have your friend point in the direction of the sound.
3. Take turns: Have your friend shake the keys while you close your eyes and point to them.

Surprised? Most people are pretty good at locating the keys with their eyes closed. The secret to “seeing” with your ears is time. A sound coming from your right side reaches your right ear slightly before it reaches your left ear, and it’s also slightly louder. These clues help your brain decide which side the sound is coming from.

Challenge: Try again, but this time, change the height of the keys, too.

The funny curves and folds in your outer ears have different effects on sounds coming from different heights.

These differences help you decide whether the sound is high or low.

The differences are small, though, so height is harder to judge than right and left.
Home Activity: Sound Cups
Test your listening skills—and your memory—with this sound matching game.

What you need:
- 24 paper or plastic (not clear) drinking cups
- Six different kinds of small objects to put inside the cups, such as paper clips, rice, pennies, dried beans, marbles, etc.
- Tape
- A permanent marker

1. Put equal amounts of the same type of objects in two cups. Put another cup on top of each cup and seal them both with tape.
2. Use the marker to label them on the bottom with the same number or letter.
3. Repeat steps 1 and 2 for the remaining objects, so that you have six pairs of matching sound cups.
4. It’s time to play! Find a friend (or a few friends). Place all the cups (label side down) on a table and mix them around.
5. Each player chooses two cups to lift and shake one at a time, keeping the bottom of the cups facing down so the label doesn’t show.

If the player declares it a match, flip the cups to check. If they’re right, they keep the cups and win a point.

If they’re wrong, the cups go back on the table and that player loses a point.

Keep playing until all the cups are matched.

The player with the most points at the end wins.
Home Activity: Secret Sounds
Test your listening skills—and your memory—with this sound matching game.

What you need:
- A metal clothes hanger (unpainted works best)
- String
- Scissors

1. Cut two lengths of string, each about as long as your arm.
2. Tie one end of each string to a different side of the metal hanger.
3. Wind the free end of one string around your index finger a few times. Wind the other string around the index finger on your other hand. Let the hanger swing freely from your two fingers.
4. Place your index fingers (with hanger attached) gently on the small flap of skin just in front of your ears, closing off the ear canal.
5. Swing the hanger so that it bangs lightly against something hard, such as the edge of a desk or a wall.

Wow! Do you hear that? You should hear something like church bells or chimes—chimes that only you can hear. Most of the sounds we hear are vibrations transmitted through the air. But sound vibrations actually travel much better through solids.

In solids, tightly packed molecules are more likely to bump into each other and pass the vibration along. When you bump the hanger, vibrations in the hanger travel easily through the string to your fingers, and pass directly to your inner ear.

Tip: You can also try this with a metal cooling rack or metal salad tongs or other kitchen items.

Elephants have their own secret communication system. Their low-pitched calls can travel dozens of miles through the ground. They “hear” these messages through their feet, which are extra-sensitive to vibration.


The Great Animal Orchestra, a collaboration between Bernie Krause and United Visual Artists, was commissioned in 2016 by the Fondation Cartier pour l’art contemporain and is now part of its permanent collection.

Photo credits are clockwise from top left of each page.

2: Vincent Tricon; belzar / Adobe Stock; alfotokunst / Adobe Stock; Giedrius Stakauskas / Alamy Stock; Tim Fitzharris/ Minden Pictures; antrey / depositphotos
4: Sander Meertins/ Adobe Stock; Nejron Photo / Adobe Stock
5: INTERFOTO / Alamy Stock; Esmeralda / Adobe Stock
6: Brent / Adobe Stock; Elijah / Adobe Stock; Steve Byland / Adobe Stock; tomreichner / Adobe Stock; nskyr2 / Adobe Stock
7: guentermanaus / Adobe Stock; colorburst / Adobe Stock; Linas T / Adobe Stock; Bill Coster / Minden Pictures; JohanSwanepoel / Adobe Stock; schankz / Adobe Stock
8: Stephen Canino / Adobe Stock; ondrejprosicky / Adobe Stock
9: Esmeralda / Adobe Stock; Samuel Blanc / Biosphoto; ANDREY GUDKOV / Alamy Stock; Giedrius Stakauskas / Alamy Stock; Todd Winner / Adobe Stock
11: Sly / Adobe Stock
15: ANDREY GUDKOV / Alamy Stock