Raven Hill
DISCOVERY CENTER

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Raven Hill Discovery Center, incorporated in 1991, is a 501(c)(3) tax-exempt corporation.

Open year-round on weekends – noon to 4pm Saturdays and 2pm to 4pm Sundays. Between Memorial Day and Labor Day, hours expand to include weekdays from 10am to 4pm. The Center is also open other times, including holidays, by appointment.

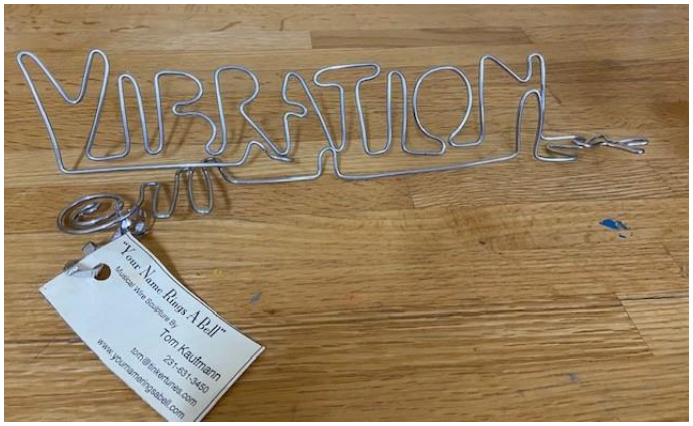
***MISSION:** to provide a place that enhances hands-on and lifelong learning for all ages by connecting science, history and the arts.*

WHERE SCIENCEHISTORYANDART CONNECT

To: Raven Hill friends
From: Cheri
Date: February 10, 2024
Re: Sound, Slinkies and Star Wars?!

You really need to come **hear** our latest donation! Raven Hill Discovery Center was recently gifted a thunder drum. If you have never heard one, you are in for a treat, but the only way to get the full effect is to come check it out in person. Thunder drums or thunder tubes have been used worldwide by Indigenous people in ceremonies for centuries. Traditional thunder drums use membranes made from animal skins (rawhide) stretched over a frame or a tube. Today's thunder drums often use synthetic materials like Mylar or other durable plastics for the drumhead. A metal spring attaches to the membrane. The vibrating spring's sound is amplified by the mylar, creating the "rumble" reminiscent of the sounds of thunder.

Paige is moving the thunder drum to simulate the sound of thunder. You can easily see the gourd drum, and the spring coil. Between the two, on the cut part of the gourd, is a mylar membrane that vibrates to create the thunder sound. Come be your own thunder god soon!



Artist and musician, Tom Kaufmann, uses wire to create unique sound sculptures. He is well known for "Your name rings a bell" wire sculptures. Holding one end and gently hitting the formed wire against your palm will create sound vibrations.

As with any sound, vibrations from the thunder drum transfers energy. These vibrations reach our ears, causing our eardrums to vibrate our ear bones. The brain interprets these vibrations as sound, when the vibrations travel through any matter, including solids, liquids and gases. In fact, because the particles in solids are closer together, there are more particles vibrating making the sound louder.

The compressional waves that transfer vibrations and sound become visual with a slinky. This sound slinky is extra long for demonstration purposes.

A stretched-out slinky can demonstrate compressional sound waves. When you compress a few coils at one end of the slinky and then release it, it creates a "wave" that travels along the coils to the other end. Imagine one end as a mouth speaking and the other end as the ear listening. This visual wave shows how invisible sound waves travel through the air or other materials, with molecules vibrating and transferring energy from one place to another.

Slinkies are one of the iconic children's toys from World War II era. You will see one on display in the Evolving Technology Building and can ask to play with one inside the main building.

Slinkies are fascinating. Engineer Richard James accidentally invented the Slinky. In 1943, he was working with springs to keep sensitive ship equipment steady at sea. After accidentally knocking some samples off a shelf, he watched as they "walked" down instead of falling. During the Vietnam War, soldiers would sometimes use a Slinky as a portable, extendable antenna for their. radios, fastening one end to themselves and tossing. the other end over a tree branch to get a clear signal. Slinkies were also used in the Star Wars movies. Sound designer Ben Burtt twanged and manipulated a small diameter slinky to create the iconic sound of the light sabres, because they quickly realized that it was strange to watch "silent" light sabre fights. "Space phones" are commercially available and it really sounds like you are in a Star Wars movie. Be sure to come and experience some new sounds at Raven Hill soon!

Space phones create wonderfully random sounds and make you think you are part of a Star Wars movie. Ask for a demonstration next time you are at Raven Hill.

Remember, our weekend hours are noon to 4pm on Saturdays and 2pm to 4pm on Sundays or call 231.536.3369 to make an appointment for any other time. Meanwhile, have a good week!

Cheri