



Long Activity
Ages 3–5
30 minutes

SoundWAVES! See + Hear Sound

Description

Ride a (sound) wave by building your own paper cup telephone and “seeing” the power of sound!

Number of participants

For any number of participants, depending on supplies available

Space considerations

An indoor or outdoor space with tables to allow participants to cut, colour and move around. Please note that the “seeing sound” portion may be impacted by wind if done outdoors.

Competencies

- Fine motor skills
- Listening and comprehension
- Observation

Materials

For the paper cup telephones:

- Two paper cups (per person)
- Pushpin or thumbtack
- String
- Scissors
- Two paper clips (per person)
- Colouring supplies (optional)
- Bell (optional)

For the “seeing sound” component:

- A large bowl
- Cling wrap

- A large rubber band
- Ground/instant coffee or sugar/salt

Preparation

To create the paper cup telephones:

- Create sets so each participant has two cups and two paper clips
- Have pushpins, scissors, string and colouring supplies available at the tables for sharing

To show sound:

- Place cling wrap across the entire opening of the bowl
- Wrap the large rubber band around the bowl and cling wrap to make a taut surface for the ground coffee/sugar/salt to be sprinkled onto later

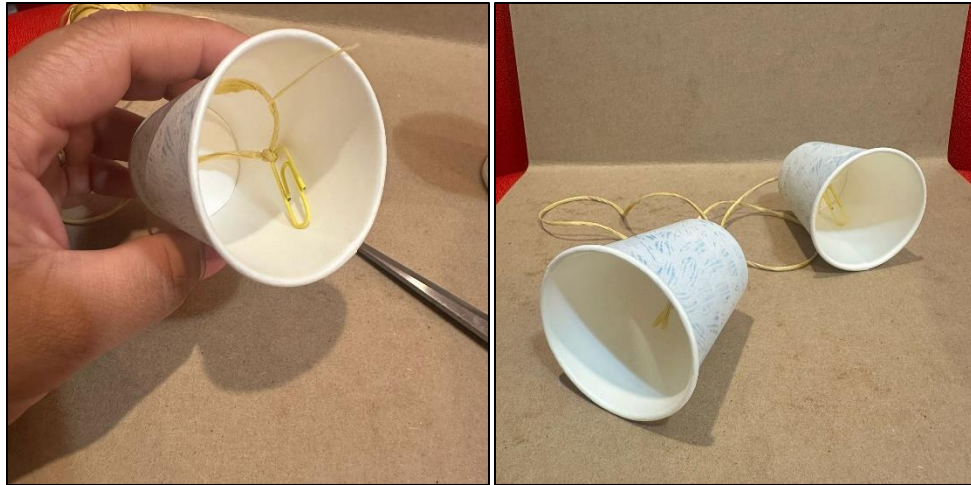


Implementation

- Participants should set both cups so the bottoms are facing up.
- Have them use the pushpins to carefully poke a hole through the centre of each cup's bottom, wiggling to widen the hole slightly if needed. This is best done with staff supervision or a parent/caregiver helper. **Be sure to collect the pins when this portion is complete.**



- Have caregivers assist with cutting a piece of string around eight inches long. It can be a bit shorter or longer, but avoid making it too long or the sound won't carry very well.
- Have participants guide one end of the string through one of the holes, tying it to a paper clip so it doesn't slip back out.
- Repeat with the other cup.



- The participant should take one cup, while their parent/caregiver holds the other cup. They should slowly move away until the string feels taut between them.
- Have participants and parents/caregivers take turns speaking into their cups and holding them to their ears to listen.
- As they explore, talk about how sound works:
 - Sound works by moving in waves—sound waves! It begins with something vibrating, like a bell ringing. The vibration moves the air around it, back and forth, creating sound waves. Imagine when you poke your finger into a pond or a bathtub. Have you noticed ripples from where you moved the water?
 - Sound waves can be powerful! They carry energy, the same way we can see ocean waves crashing against the shore.
 - When the vibrations created by our voice go into the paper cup, the sound waves hit the thin bottom of the cup and continue to vibrate all the way across the string until they get to the other cup.
- For added value:
 - Have participants speak one or two words into their cups and have their parents write down what they hear. Have them share what they heard and how accurately they were able to understand each other.

- Encourage participants to colour or decorate their paper cup telephones.

Now that the participants have a sense of how sound works through vibrations, have them “see” it in action too!

- Encourage participants to gather around the bowl (covered in cling wrap) and have a volunteer sprinkle some of the coffee/salt/sugar into the centre of the wrap’s surface.
- Have another volunteer gently bring their face close to the bowl, so their mouth is about parallel with the cling wrap surface, and begin to hum or sing loudly. Alternately, you can use something else to make a sound close to the bowl, like a bell. Watch what happens!



- Explain that the sound vibrations we experienced with the paper cup telephones are hard at work here too! In fact, the power of the vibrations can actually move the physical items on the cling wrap surface.

Accessibility considerations

- Use a microphone when speaking
- Shorten this activity by focusing on only one section and allowing participants more time to play and observe
- Offer the instructions for the paper cup telephone as a passive or take-home activity
- Alert parents and caregivers ahead of the “seeing sound” portion that there may be sudden loud sounds associated with it

Book suggestions

- *The Noisy Puddle* by Linda Booth Sweeney and Miki Sato

- *Over in the Mangroves* by Jyoti Rajan Gopal and Dikshaa Pawaskar
- *Ra! Ta! Ma! Cue!* by Howie Shia
- *What Fish Are Saying: Strange Sounds in the Ocean* by Kirsten Pendreigh and Katie Melrose

Download links

- SoundWAVES! – Activity PDF
- SoundWAVES – Paper Cup Telephone Instructions

Images



SoundWAVES!

Paper Cup Telephone Instructions

Let's make paper cup telephones to explore sound!

Get your materials together: two paper cups, string, a pushpin/thumbtack, scissors and two paper clips



Set both cups so the bottoms are facing up.



Use the pushpin to carefully poke a hole through the centre of each cup's bottom. Wiggle it a little if needed to make sure the hole is large enough to eventually weave the string through.



Cut a piece of string around eight inches long. Guide one end of the string through one of the holes, tying it to a paper clip so it doesn't slip back out. Repeat with the other cup.



Take one cup, while a friend holds the other cup. Slowly move away until the string feels taut between you. Take turns speaking into your cups and holding them to your ears to listen.

Enjoy!