

Cup Phone Exploration

WHAT YOU'LL NEED:



2 DISPOSABLE CUPS
consider having pairs of multiple different types of disposable cups, like paper cups, plastic cups of varying sizes, etc.



A PUSHPIN
or something else to poke holes

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MORE THAN ONE TYPE OF STRING
yarn, fishing line, twine, etc.

Just like with Alexander Graham Bell's early telephone, the cup phone uses vibrations to help with communication. When you talk into one of the cups, the sound waves from your voice make vibrations on the bottom of the cup. The vibrations travel along the string, just like the vibrations traveled along the wire in Bell's phone. When the vibrations reach the other cup, they turn back into sound waves and your friend can hear what you said.

DIRECTIONS:

1. You will be making cup phones. Use the pushpin to poke holes in the bottom of the cups and tie them together with a piece of string. Try making several different phone designs by changing:
 - The type of cup used (but use the same type of cup on an individual phone)
 - The type of string
 - The length of string
2. Hold one cup and have a friend hold the other cup. Take turns talking into one cup while the other person listens into the other. Try whispering so that you know you are hearing their voice come through the phone.
 - Which phone has the clearest sound?
 - Does the length of string affect how well your telephone works?
 - What helps the telephone work better – if the string is pulled tight, barely straight, or with lots of slack?

EXTENSION ACTIVITIES:

- Think about what happened when you let the string droop in between the cups. Was it easier or harder to hear your friend's voice? Why do you think that is the case? If the vibrations need to travel along the string to turn back into sound waves, why did the drooping string make it harder to hear your friend's voice?

We want to see your at home lab experiments!

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Thanks for exploring with us!