

String telephone

Materials

- Plastic cups
- String, about 1 metre long
- Metal skewer, scissors or other tool to make a hole in the bottom of each cup



Instructions

1. You need to make a small hole in the base of each of the plastic cups, just big enough to pass the string through. A hand drill is easiest, but it can be done very carefully using a metal skewer or scissors.
2. Thread one end of the string through the hole in one of the cups. Tie a knot in the end of the string so that it will sit inside the cup and stop the string coming out of the hole.
3. Thread the other end of the string up through the base of the second cup. Tie a knot that will sit inside the cup and stop the string coming out of the hole.
4. Ask a friend to hold one cup to their ear while you pull the other cup away to make the string tight. Talk into your cup and your friend should hear your voice coming out of their cup.



What happens?

The sound of your voice is made by your vocal chords vibrating back and forth. This creates a sound wave that travels through the air to reach the ears of anyone close enough to hear you. When you speak directly into your cup, the sound waves of your voice cause the cup to vibrate. The cup makes the string vibrate and these vibrations travel along the string to the other cup, making your friend's cup vibrate and they can hear the sound of your voice.

Why does it matter?

Sound waves travel more easily and more quickly through solid objects, such as string, than they do through gases, such as air. Your voice sounds loud and clear when listened to through the string telephone because more of the sound energy

reaches your friend's ear than it does when the sound of your voice travels through air.

When designing sound insulation, designers and engineers try to limit the sound waves travelling through solid objects such as walls and floors by using materials that absorb sound waves, such as foam rubber.

Related activities

Make a 4-way telephone by tying two string telephones together in the middle.