

Make your own phone.

Communication is key in the emergency services today. Telephones, radios, computers and tablets are all used by the services in their day to day jobs, this is a massive change since the days of Police telephone boxes and whistles.

Technology is fantastic, but did you know you can make your own police radios just with paper cups and string?

What will I need?

- Two large paper cups (disposable plastic cups or tins will also work)
- Length of cotton string or fishing line approximately 10 to 30 feet long

Science:

When we talk, our vocal cords make molecules in the air vibrate. (You can feel the vibrations by holding your hand against your throat while you talk.) Those vibrating air molecules make other air molecules around them vibrate, and so on, which is how sound travels through the air.

Inside our ears are tiny sensitive hairs. They pick up the vibrations and transmit that information to our brains, which interpret it as sound. The brain interprets sounds as having different pitches, or tones, based on the frequency, or spacing, of the waves.

But the particles in air are spread out from one another more than particles in a liquid or solid. So sound vibrations tend to peter out before they travel very far. Having a soft connective material, such as cotton string—which has a higher density, or number of molecules in a given amount of space, than air—can help the sound waves move over a greater distance.

Make it:

1. Punch a small hole in centre of the bottom of each cup or tin.
2. Thread one end of string through the bottom of each cup or tin.
3. Tie the loose end of the string in a knot to keep the string from slipping through the bottom of the cup/tin.
4. Pull the string tight holding one cup/tin to an ear with the other person holding the other to their mouth and speak clearly into the bottom of the cup/tin. You should then be able to have a conversation just like a radio or telephone.

