

Play Resource Presents Science from Scrap

Telephone Investigation

You will need:

- Plastic bottles
- Plastic tubing
- Tape
- Plastic pot
- String
- Wool



How to use these resources for enquiry in Science/Maths

In this investigation pupils will explore what things sound can travel along. They will change the length of the string or plastic tubing in the two types of telephones. Pupils will compare how sound travels when the string or plastic tubing is loosened in the two models.

Instructions

Plastic Bottle Telephone

- Cut the base off 2 plastic bottles.
- Take one of the bottles and attach the nozzle to the end of the plastic tubing. Repeat at the other end of the tubing.
- Secure nozzles to the plastic tubing with tape.
- One person talks into the bottle top while the other puts it to their ear and listens.

Plastic Pot Telephone

- Make 2 holes in the base of each pot approximately 2mm across.
- Thread the string through one hole into the pot and out through the second hole and knot.
- Using the other end of the string repeat previous point with the second pot.
- Test the telephones where each pair can be 8 metres apart without interfering with other groups. (String should be taut)
- Compare the performance of each phone.

Background Knowledge

Sound waves are created when sounds make vibrations. In this activity, the speaker's voice vibrates the air inside the cup, which is then transferred to the bottom of the cup. As the bottom of the cup vibrates, it transmits the vibrations into the taut string. The sound waves travel along the string and vibrate the bottom of the receiving cup. The cup transmits the sound waves into the air around the ear. It is the air which is vibrating in the plastic tubing.

Key Questions

- How do the sound waves travel in the plastic bottle telephone?
- Why do we not hear the sound when the string is loose?
- Does the same thing happen with the plastic bottle telephone when the tubing is loose?
- Which telephone produces the best sound over the longest distance?
- Which telephone would you use for sound to travel around a corner?