Constructing

Working in pairs, the students construct a phone from paper cups and then they test its operation.

Sounds set the cup into vibrations; the bottom of the cup vibrates and transmits the vibrations to the string, and then the string transmits these vibrations to the second cup, the bottom of which works as a speaker diaphragm. These vibrations make up a sound that reaches the ear. The string has to be well stretched in order to be able to vibrate and transmit the sounds.

Talk

Show your students the photo of an old telephone exchange and tell them about the way phone calls used to be transferred in the past.

At the turn of the 20th century, every phone had its unique number, but it was not equipped with a rotary dial. If phone users wanted to call someone, they had to connect to the telephone exchange first and give their number – only then did the operator plug the telephone cable into an appropriate socket in order to make the conversation possible. At the time, people were only able to make phone calls within the area of the city they lived in. It was only in later years that telephone exchanges have become automated and phones have begun to be equipped with rotary dials, which made it possible to dial a given phone number on one's own.

Video/ Slide show

Watch a video about the way a phone works.

A telephone set consists of

- a receiver,
- a rotary dial or a numeric keyboard,
- an electroacoustic transducer (a ringer),
- a telephone cable with a plug at its end.

One of the main elements of an analog phone is the **receiver**, which is equipped with a **microphone** and a **speaker**. The task of the microphone installed in the receiver is to convert human speech or other sound waves into an electric signal which is then transmitted to the other interlocutor on telephone cables. The other interlocutor hears the voice through the speaker installed in their receiver. The speaker converts the electric signal back into a sound wave (working in a similar way to that of a microphone, but in reverse), which then reaches the ear. Every analog phone has to be connected to a telephone network with a plug.

Cell phones are also equipped with speakers and microphones. Instead of a cable, they have a built-in antenna which emits radio waves. These radio waves are used to transmit the audio signal.