

Wonders and Words

Explore some common questions and misconceptions about how phones work.

Q: Will telephones still work if the electricity goes out?

A: Telephones will work because they get their power supply from the phone company, not the electric company. But cordless and cellular phones will only work for a limited time: They both use batteries that need to be recharged from a main unit plugged into the wall. Once the battery runs out of power, the phone will not work until the electricity in the house comes back on.

Q: Can one telephone ring to different numbers?

A: Yes. A phone can be unplugged and moved to another phone line or even to another house, and it will ring if someone dials the phone number for that line.

Q: Will old phones from the 1920s and 1930s work on a modern telephone network?

A: Yes, all that is needed is a working phone line. Even though the phone network has been updated with computers and fiber-optic technology, it still ends in each household with a pair of copper wires. Almost from the time they were first invented, telephones have used copper wires to send and receive sound.

Q: Why do movies and books use phone numbers with an exchange of "555"?

A: The numbers "555" belong to a telephone exchange that does not exist. If a person tries to dial a number with that exchange, the call will not go through. Movies use fake phone numbers so audiences will not be tempted to bother people by dialing real phone numbers they see or hear.

Q: How can the phone be used in emergencies?

A: The numbers "911" will automatically connect the caller to an operator who works with the police, the fire department, and emergency medical services. Emergency workers respond to a 911 call within minutes.

Q: Can people with impaired hearing use the phone?

A: Yes, with special types of phones. Some phones are amplified so the caller's voice comes through louder in the earpiece. Another helpful machine is a teletypewriter, or TTY. This has a keyboard and a display screen, so the caller can type a message instead of speaking, and can read the other person's response in the screen.

Glossary

Area exchange: The telephone facility that handles all long-distance calls in that area code

Dial tone: The sound provided by the phone company that lets the caller know the line is working before making a phone call

Entrance bridge: A plastic box, usually located in a home's basement or on an outside wall, that acts as a bridge between a phone and the network of telephone wire in a neighborhood

Diaphragm: A flexible disk inside a telephone earpiece and mouthpiece that bends to sound vibrations

Digital: A code based on switching between two digits, "0" and "1"

Earpiece: The speaker part of the phone used to hear the caller's voice

Hook switch: A telephone's "on and off" switch, usually located on the handset

Infrared: Electromagnetic radiation that is invisible to the human eye

Keypad: Touch-sensitive pad on top of the phone that is electronically connected through wires

Laser: A high intensity beam of light

Local exchange: The telephone facility that sends and receives all calls in a particular region

Mouthpiece: The microphone part of the phone, which the caller speaks into

Optical fibers: Glass or plastic strands that carry light signals

Receiver: The handset part of a telephone containing the earpiece and mouthpiece

Sound wave: A vibration in the air caused by sound

Switchboard: The panel in a local telephone exchange that receives and connects phone calls

Answer to Brain Teasers from Page 17

1. The phones will not ring because you will not have enough power from the 9-volt battery to activate the ringers.
2. You would not hear the dial tone because you are not connected to the phone company's electricity supply.