

# CATCH SOME (RADIO) WAVES

Radios might seem super high-tech. But with about \$10 and one afternoon, you can make one at home.

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## What You'll Need

**\*Magnet wire:** Electronics supply stores sell a set, for about \$4, that comes with 40 feet of 22-gauge, 75 feet of 26-gauge and 200 feet of 30-gauge magnet wire.

**\*1 set of alligator leads** with clips at each end.

**\*1 diode:** Look for IN34A diodes, also called "germanium diodes," at an electronics supply store.

**\*1 glue stick** or anything similar in size—about 1 inch by 1 inch by 6 inches. It can be a piece of wood. It doesn't have to be perfectly round, but using something round is easier for winding.

**\*Electrical tape**

**\*Wire stripping pliers**

**\*Telephone handset** with cord. If you don't have an old phone that you don't use anymore, you'll need to buy a telephone cord, then borrow the handset long enough to make the radio work.

**\*One board** for mounting your radio—2 feet by 2 feet will work. You can make the radio without this, but having a workspace and a place to mount the radio makes it easier to carry around while you're looking for a place to hook the ground wire.

## HOW YOUR RADIO WORKS

Radios have been around for more than 100 years. Your AM creation—also called a crystal radio—will operate the same basic way radios did in the late 1800's.

Sound travels through the air from a transmitter at one location into a receiver at another. Here's how it works:

The words and music are sent into a transmitter at a local radio station. The sounds are converted into electronic impulses. Those impulses are sent in waves up the big antenna you see at the station. From there they go into the air.

Each radio station has a high-frequency "carrier" wave that it uses to send low-fre-

quency "sound" waves. They travel through the air and hit your radio antenna wire. When you touch the antenna to the coil, the impulses are pulled down to the magnetic circuit you created. Your radio tosses away the carrier wave and converts the sound wave back into original form—words and music.