

CRYSTAL RADIO

This circuit will work without batteries. You'll be making a circuit that's the simplest kind of radio - a crystal radio and you'll be able to hear radio stations coming from the piezo transducer. Before we get started, you'll need some tape and cardboard tube, like a toilet paper roll. Let's get this thing going so you can rock out.

Start by connecting #42 to #48

Connect #2 to #22

Connect #22 to #39

Connect #39 to #43

Connect #43 to #50

Next, put a long, yellow wire in spring #50 and let it hang loose for the time being.

Take the long, insulated orange wire and straighten it out. Then hook it into spring #44. Let it hang loose.

Connect #44 to #49

Connect #1 to #21

Connect #21 to #38

And the last connection is #38 to #45

OK. Now, this radio needs to be "grounded" in order to work, so you're going to need to take your workbench into the bathroom or kitchen and tape the loose, yellow wire to a sink faucet. Make sure the end of the wire is touching the faucet. Then you'll need to stretch out the long, orange wire as far as it will go - and try to keep it level! Slowly turn the variable capacitor and listen closely to the piezo until you pick up a radio signal. It may be a faint signal, so place a toilet paper tube over the piezo transducer and listen close. Go ahead and hook it up. Did you hear anything? If not, check to make sure all the wires are in the right place. If you did, neat! You just built your own radio!

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Here's how the circuit works:

The antenna and variable capacitor get to shine in this circuit. The antenna converts radio waves into electrical impulses and the variable capacitor picks one radio station and filters out the rest.

In this project, the radio station transmitter, your crystal radio, and our very own planet earth are all part of the circuit.

Think of the transmitter tower as the positive terminal of the battery, and the ground as the negative terminal of the battery. The transmitter tower sends out radio waves that spread in all directions.

The radio waves travel to the antenna on your radio, which absorbs the radio waves and converts them into electrical impulses. The diode and variable capacitor pick up the electrical impulses from one radio station, and throw away the others.

The electrical impulses then go through the piezo transducer so you can hear the sound. Then the electrical impulses flow into the ground, and back to the transmitter! That was a long circuit!