

## CONDUCTANCE CHECKER

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This circuit lets you test stuff all around your house to see if it conducts electricity. Electricians use a similar circuit to test for broken wires and other electrical problems. Let's build it so you can test for yourself what around your house conducts electricity.

**Stick a long yellow wire in spring #20, and let it just hang there.**

**Stick another long yellow wire in spring #4 and leave the other end for later.**

**Connect #4 to #26**

**Connect #19 to #33**

**Connect #33 to #36**

**Connect #27 to #37**

**Connect #37 to #39**

**Connect #3 to #35**

**Connect #35 to #38**

**And the last connection is #28 to #34**

**WARNING: Do NOT check electrical outlets, light sockets, or anything else that is plugged into the wall! The amount of electricity in these things is very, very dangerous.**

Hook up the battery. Then touch the ends of the dangling yellow wires together. Did the Great Piezo beep? If not double check your connections. If it worked, you're really doing a great job! Now try the wires on something you think might conduct electricity. Piezo will beep if it's a conductor. Start with something you're sure of, like a spoon. Try other things such as a lemon, a pop sickle stick, or a banana.

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**Here's how the circuit works:**

Can a spoon conduct electricity? How about a banana? Let's think about it in terms of an Electronic Pinball Game to see what happens.

When you hook up a spoon, electrons get a push from the battery, bounce from the transformer to the capacitor, and through the spoon. Since a spoon is a good conductor, lots of electrons flow back to the transformer, and through the piezo making a high pitched BEEP.

When you hook up a banana, electrons get a push from the battery, bounce from the transformer to the capacitor, and through the banana. Since a banana is a poor conductor, fewer electrons flow back to the transformer, and the sound is lower.

Test things in your house to see if they are conductors or not. After you test the spoon and the banana try popsicle sticks, bread, cheese, lemons, pop cans, paper. The possibilities are endless.