

## Build Your Own Speaker

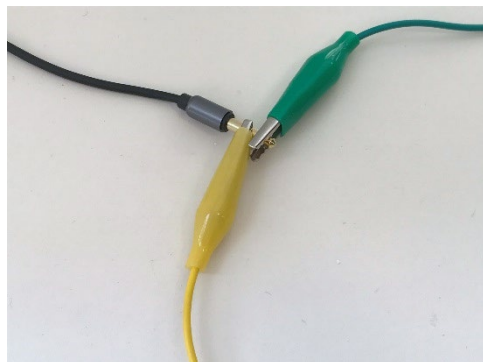
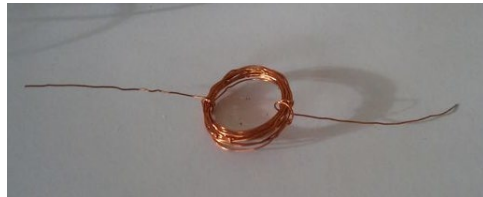
Now's your chance to build a speaker that turns electric currents into sound – using just some wire, a magnet, and a cup!

### Required Materials:

- Copper wire (24-gauge or thinner)
- A paper or styrofoam cup (or both to test the difference between materials)
- A 1/8" mono phone plug (you can cut off an old pair of headphones you don't use)
- Two alligator-clip leads
- Scotch or masking tape
- Really strong magnets (the donut-shaped kind work well)
- A working audio device with a headphone plug

### Basic Instructions

1. Wrap the copper wire into a circular coil. Make sure you have several inches of unwrapped wire left over on each end.
2. Attach the coil to the base of the cup.
3. Using alligator clips, connect the two ends of the wire to the auxiliary cord.



4. Plug the auxiliary cord into a music source.
5. Place magnets in the center of the coil.
6. Hold the cup up to your ear – can you hear the music?



### ***Things to Consider***

A lot of factors could affect the output of your speaker. Some of them are:

1. How many times did you coil the wire?
2. How big is the coil?
3. How thick is the copper wire?
4. What type of cup did you use as your speaker?
5. How many magnets are you using?

Experiment with your materials to see how it changes the sound!

**Notes:**

Visit <http://www.nitscheng.com/about-us/educational-offerings/introduce-a-girl-to-engineering-day> for additional resources and similar event information!