

Radio vs. Rectangles

General Requirements

software: [Zoom](#) (for meetings) BUTT ([Broadcast Using This Tool](#)), DAW of your choice ([Ableton](#), [Reaper](#), [waveform free](#) etc)

hardware: your computer (with a working microphone + camera), smartphone (with USB cable).

Additional Materials and Tools

A crystal radio kit will be delivered to each participant. However, since we are not able to gather in person, there are a few additional materials and tools you are going to have to collect yourself and have ready for the workshop.

You will also need to prepare a simple antenna and ground in advance, see notes + photos below. Hopefully you have some of these items already on hand.

Mandatory Additional Materials and Tools

- commercially made **AM** radio for testing (eg. ['beach' radio](#); [clock radio](#); ['boombox' with radio](#))
- an empty toilet paper tube or similar (this is for winding the radio coil on; it can be any non metallic cylinder eg. beer bottle, oatmeal tube, etc.)
- a mounting board at least 5mm thick; you need to be able to push a tack into it (anything reasonably rigid about the size of half an A4 sheet; cardboard, wood, thick styrofoam etc.)
- something sticky (hot melt glue, sticky tack, double-sided tape etc.) this is to glue your coil to the board
- four AA batteries
- line level audio source to transmit! the connector from the transmitter is a [mini headphone type plug](#) (aka. 3.5mm, 1/8") so this will work in many smartphones, laptops, mp3 players with an audio jack
- materials and/or objects for making an antenna and ground (eg. wire, coathangers, metal garbage can, fire escape; see details below)
- scissors you don't mind cutting thin wire with

Optional (but super helpful) Materials and Tools

- a plastic straw, or a pen tube you can cut; you will put this in your ear
- isopropyl alcohol + wipes or similar if you will put the straw/pen tube in your ear
- phono or mic input: the output from the crystal radio is *very* quiet; if you want to hear it LOUD plug it into an amplifier with a phono.mic input or some kind of pre-amp
- craft knife (Xacto, Olfa)
- wirecutters
- small pliers

Antenna + Ground

For both days (ie. for both the receiver and the transmitter) you will need some kind of antenna and some kind of ground connection. If you want to be able to hear your transmitter on your receiver, you will need 2 antennas, but the ground can be shared. In your kits you have alligator clips to make connections to your antenna and ground objects.

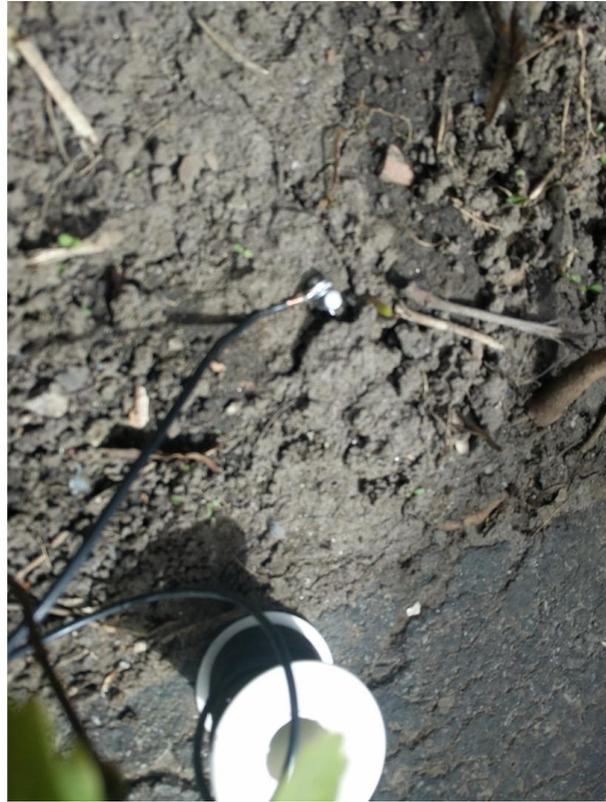
for an antenna: Any long, thin piece of metal ought to work. I generally just string up a long insulated wire (about 25m) around the room, or on my clothesline if it is a nice day. A clothesline itself could work if it is metal and you can clip to the actual metal. A coat-hanger could work, or several coat-hangers connected by magnets etc. You can be creative here, if you are not sure you can ask me, or prepare a variety of things to try.

for a ground: Ideally you would connect to a metal stake driven into the ground. If you can't do this, a big chunk of metal sitting on the ground or floor will work. I often use my garbage can. A fire escape or a metal radiator should work. Or a non-enamelled screw on a fridge or a stove.

EXAMPLE PHOTOS CLOTHESLINE ANTENNA



WIRE SPOOL THROWN OVER CHIMNEY ANTENNA



METAL SPIKE HAMMERED INTO EARTH AS GROUND



WATER RADIATOR WITH PAINT SCRAPED OFF AS GROUND (MAGNET + ALLIGATOR CLIP FOR CONNECTION)