



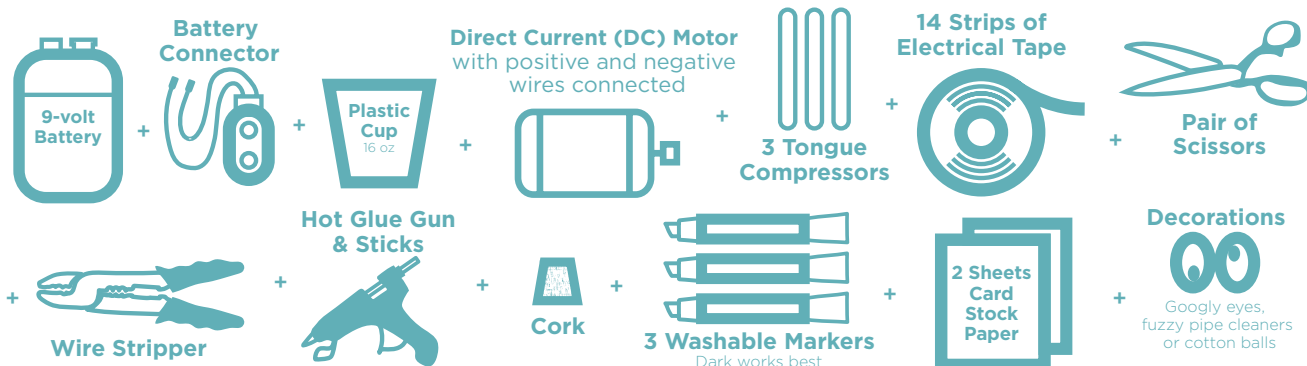
Building an Art Bot



Description

The Art Bot is an activity that allows students to build a robot that can draw by itself. This activity teaches students how a basic electrical circuit is built. **Bonus:** Most of the supplies can be recycled from other materials.

Supplies



Activity Steps

- Use electrical tape and **tape** the 3 tongue compressors to the cork.
- Take the **cork** and gently place the cork on top of the direct current (DC) motor with positive and negative wires connected, using the prong on top of the motor to make a hole on the cork to connect the cork and motor together. Remove the cork and it will be placed back on top of the motor at a later step.
- Cut a hole** on the top of the cup for the wires of your DC motor to fit through.

Use the DC motor to measure and it should sit flush on top of the cup. Do not attach the motor at this time.
- Cut** two 1/2-inch slits on cup's side.
- Tape** the 9-volt battery to the inside of the cup with 2 strips of tape on the opposite side of the two slits on the cup.

Place the battery with positive and negative connectors facing downward on the cup.
- Using the **wire stripper** on the DC motor and the battery connector, crimp each wire to remove the plastic covering, leaving only the copper wires.

- In a triangular shape, **tape** one marker to each side of the cup.

Use two strips of electrical tape per marker. Do not tape on the sides of the cup where you made the slits in Step 4. The markers can fit in front or behind the slits.
- Twist** the DC motor wires and battery connector wires together.

The red wires must twist together from the motor to the battery connector and, depending on the color of your second wire (either black or blue), must be twisted with the appropriate color from the motor to the battery connector.
- Once wires are twisted, **tape** them together with electrical tape.
- Feed the battery connector through the cup gently, with the DC motor sitting on top.
- Test your **connection**.

Make sure you are connecting the positive side to the positive side of the battery and the negative to the negative on the battery. If the motor turns, you've done it! If the motor does not turn, check the wire connections and repeat until the motor turns when connecting the battery connector to the battery.
- Place hot glue on the cup or the motor to glue the motor to the top of the cup.

If you melt the cup, place a strip of electrical tape across the top of the cup and cut another hole through the tape. This will allow you another base to glue the motor onto the cup.

- Decorate** the Art Bot with googly eyes, pipe cleaners for arms and a cotton ball for the nose.
- Place** a sheet of card stock paper under the Art Bot.
- Connect** the battery connector to the battery, matching the positive and negative on the connector and battery. Then, **place** the Art Bot onto the card stock paper.

OPTIONAL STEP: Add more weight to the sides of the cup with magnets to steady its drawing, as well as make it draw in different directions.

Enjoy watching your Art Bot draw by itself. Watch the Video Tutorial at 4-H.org/ArtBot