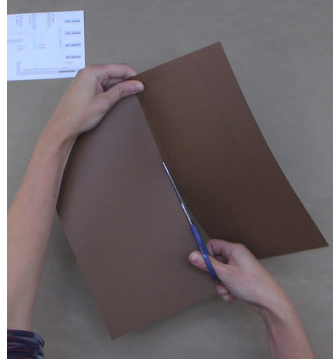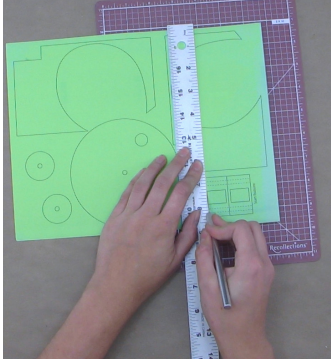# DJ Paper Circuit

1. Make some cuts.

Cut the templates out wherever you see the scissors icon. » Use the ruler and X-acto knife to cut straight lines and the scissors for everything else. » The templates have some duplicate items, so you will have extra pieces when you're finished. For example, the circuit template comes with 2 copies, but you only need 1. » Now fold the 12"x12" cardstock in half horizontally and cut along the fold.
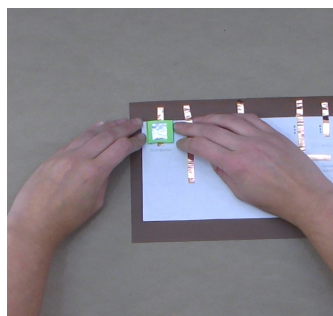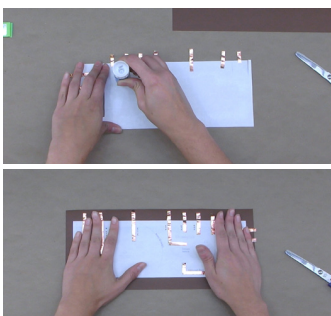
2. Make the start button.

Fold the dotted lines on the start button that you cut out from the template so that the start button can stand on its own. » Cut a small piece of foil. » Glue it under the button so that it covers the hole that was cut from the center. » Put the start button off to the side for now.
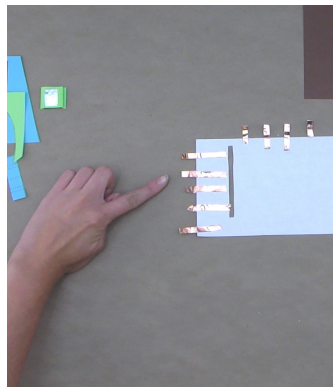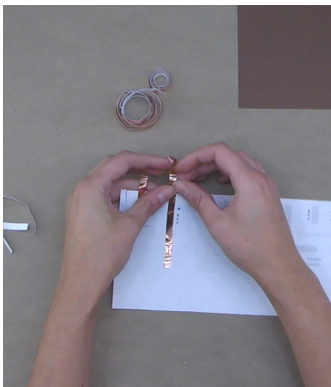
3. Tape the circuit template.

Place copper tape on the template along the dark grey rectangles. Be sure to extend the copper tape about an inch from the edge of the template and fold the extended portion in half so that they create copper tape tabs. » The tape that goes on the four volume placeholders (the four arrow keys) must extend half an inch over the edge and around the back of the template, right up to the edge of the volume slider slot that you cut out.

4. Glue the template down.

Glue the circuit template to the 12"x6" cardstock that you cut earlier. Be sure to leave about half an inch without any glue around the slits that you cut around the start button and around the slot that you cut out for the volume slider. » Add some glue to the bottom of the tabs that support the start button and slide the tabs under the slits so that the button stands above the copper tape.

Supplies

The 3 attached templates printed on colorful paper

1 sheet of 12"x12" colorful cardstock

1 roll of copper tape

1 paper straw

1 pipecleaner

1 paperclip

2 brass fasteners (1/4")

Aluminum foil

Empty soda can

1 MaKey MaKey with Mini-B USB cable

12 alligator clip wires

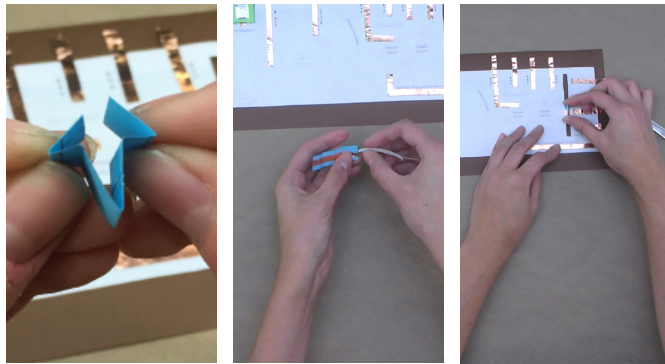6 jumper wires

X-acto knife

Scissors

Ruler

Gluestick

Cutting mat or cardboard

# DJ Paper Circuit, continued

5. Make the Volume slider.
Fold the volume slider piece that you cut out along the dotted lines so that you create a shape that has two small tabs and one tall tab. » Wrap copper tape along the center of this shape so that it secures the two smaller tabs together to close the shape and to create the bottom of the slider. » Tuck the two smaller tabs into the volume slider opening on the circuit template so that the long tab is sticking out. » Practice sliding it.
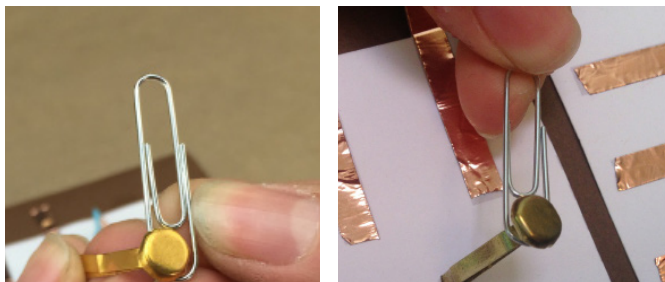
6. Make the Toggle Switch
Slide the brass fastener into the paperclip so that it is wedged between the two bends that are closest together. » Press the brass fastener into the circuit template where it says "Hole" above the word "Toggle." » Flatten your fastener on the back of the DJ set.
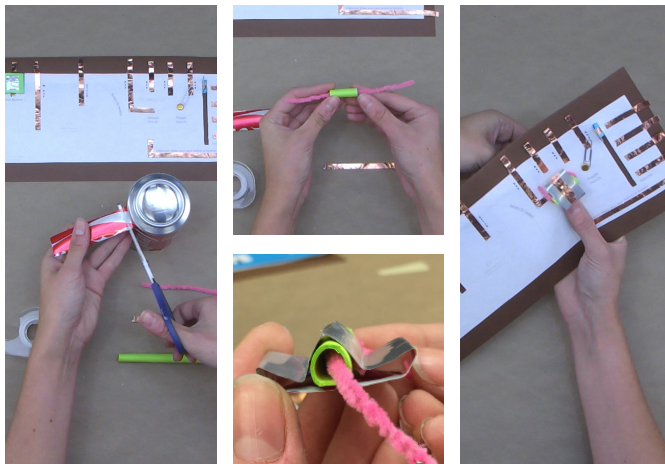
7. Make the Seesaw Switch.
Cut a 1"x3" strip of aluminum from the empty can and wrap copper tape lengthwise along its center. » Cut the paper straw so that it is 1" long and run the pipe cleaner through the middle. » Bend both ends of the aluminum strip so that they meet at the center of the strip. Next tuck the straw and pipe cleaner underneath the ends and press the alumnium around the straw so it creates a hat-like shape (see picture.) » Push the pipe cleaner ends through the two holes on either side of the rectangle that says "Balancer". Test to see if the switch rocks back and forth!
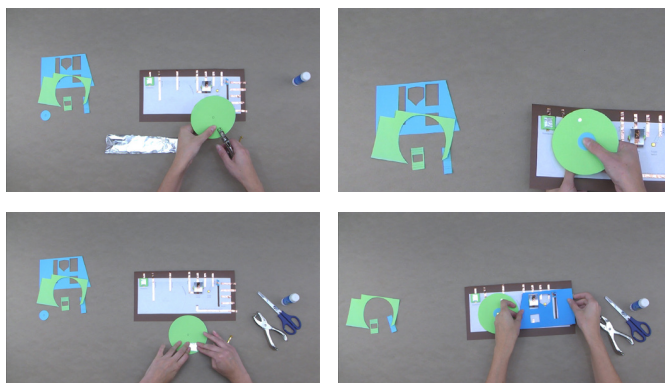
8. Make the Rotary DJ Switch.
Punch or cut a hole on the edge of the large circle that you cut from the template. » Tape a piece of aluminum foil that is large enough to cover the hole to the back of the circle. » Center the smaller circle that you cut out over the large circle and fasten the two to the circuit template using the brass fastener. » Mount the two circuit template covers over their respective locations on the circuit template (see picture on left).

Maker Camp

DJ Paper Circuit, continued
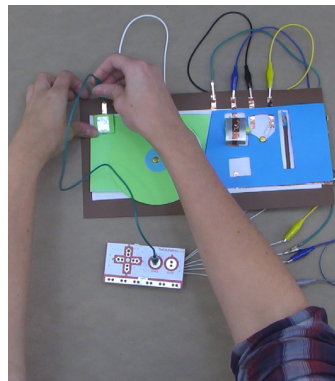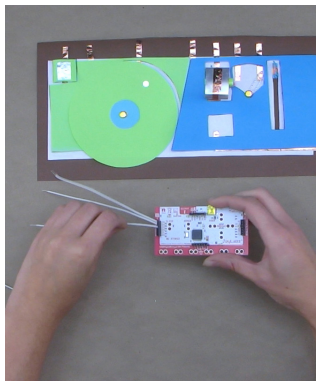
9. Wire up the MaKey Makey.
Add the jumper wires to the WASDFG pins on the back of the MaKey Makey. » Clip one end of the alligator clip wires onto the ends of the jumper wires and the other end to the corresponding copper wire tabs that you made according to the layout printed on the circuit template. » Next, attach alligator clip wires directly onto the face of the MaKey Makey and connect them to their corresponding copper tabs (directional arrows, space, and click.)
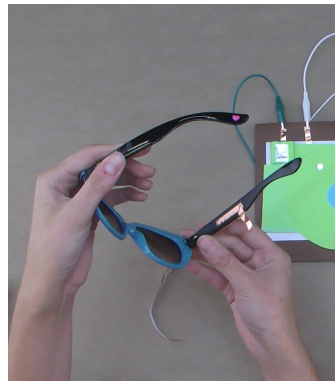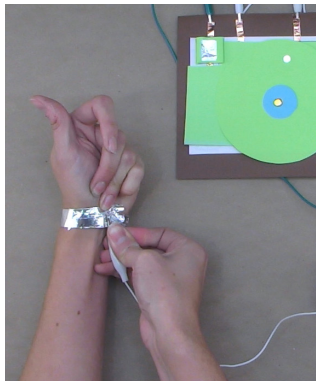
10. Connect the Earth bar.
There are two options for this step: 1) a bracelet or 2) sunglasses. » For the bracelet: measure and cut a 1" wide strip of foil so that it fits around your wrist. Clamp the ends of the foil together with an alligator clip and attach the other end of the wire to the earth pins. » For the sunglasses: place copper tape along the inside of the frames and add a copper wire tab. Attach one end of the alligator clip wire to the tab and the other to the earth pins.
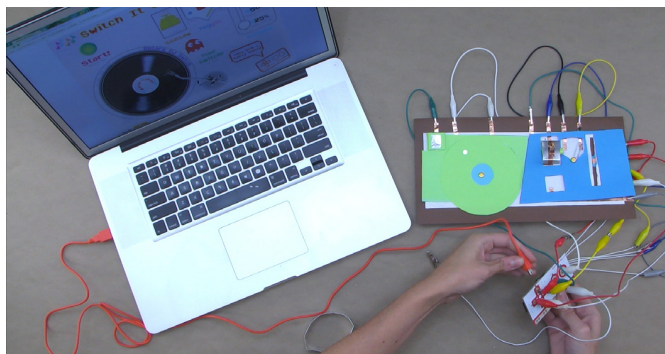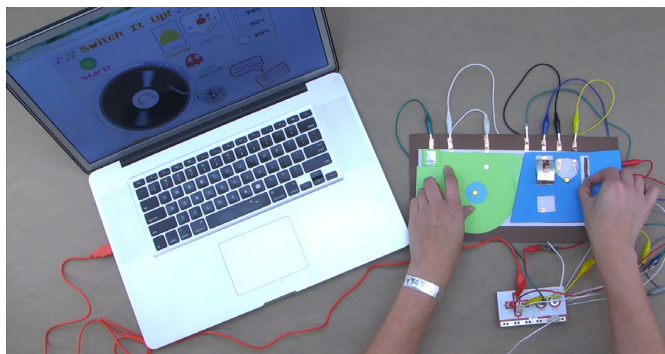
11. Finish it up.
Open the DJ Paper Circuit sketch on your laptop at the following address:

https://scratch.mit.edu/projects/21177232/

It should be called called "Switch It Up! v6.0" You can make it fullscreen by clicking the blue rectangle with the four arrows right above the music notes. » Now connect the MaKey Makey to your laptop with the Mini-B USB cable.

12. Test your DJ set!
See what sounds you can make with all the different toggles and switches that you made! Try to make some cool beats!

Start Button

Start Button

Space Bar

W Key

W Key

Click

Click

Make a hole and
insert Fastener

Make a hole and
insert Fastener

Hole

Hole

Rotary DJ Switch

D Key

D Key

F Key

F Key

Balancer

Balancer

Hole
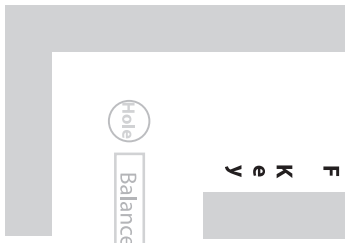
Hole

A Key

A Key

Seesaw
Switch

Seesaw
Switch

Toggle
Switch

Toggle
Switch

Hole

Hole

S Key

S Key

(Optional) Make your own Switch or Button!

(Optional) Make your own Switch or Button!

(Optional Switch)   G Key

(Optional Switch)   G Key

Cut out
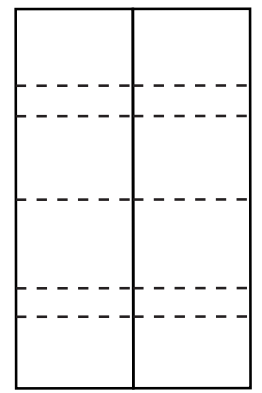
Cut out

Volume

Volume

100%	Up Arrow Key
75%	Left Arrow Key
50%	Right Arrow Key
25%	Down Arrow Key

100%	Up Arrow Key
75%	Left Arrow Key
50%	Right Arrow Key
25%	Down Arrow Key
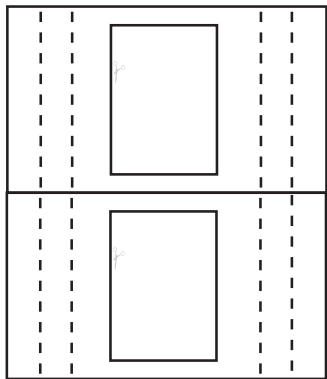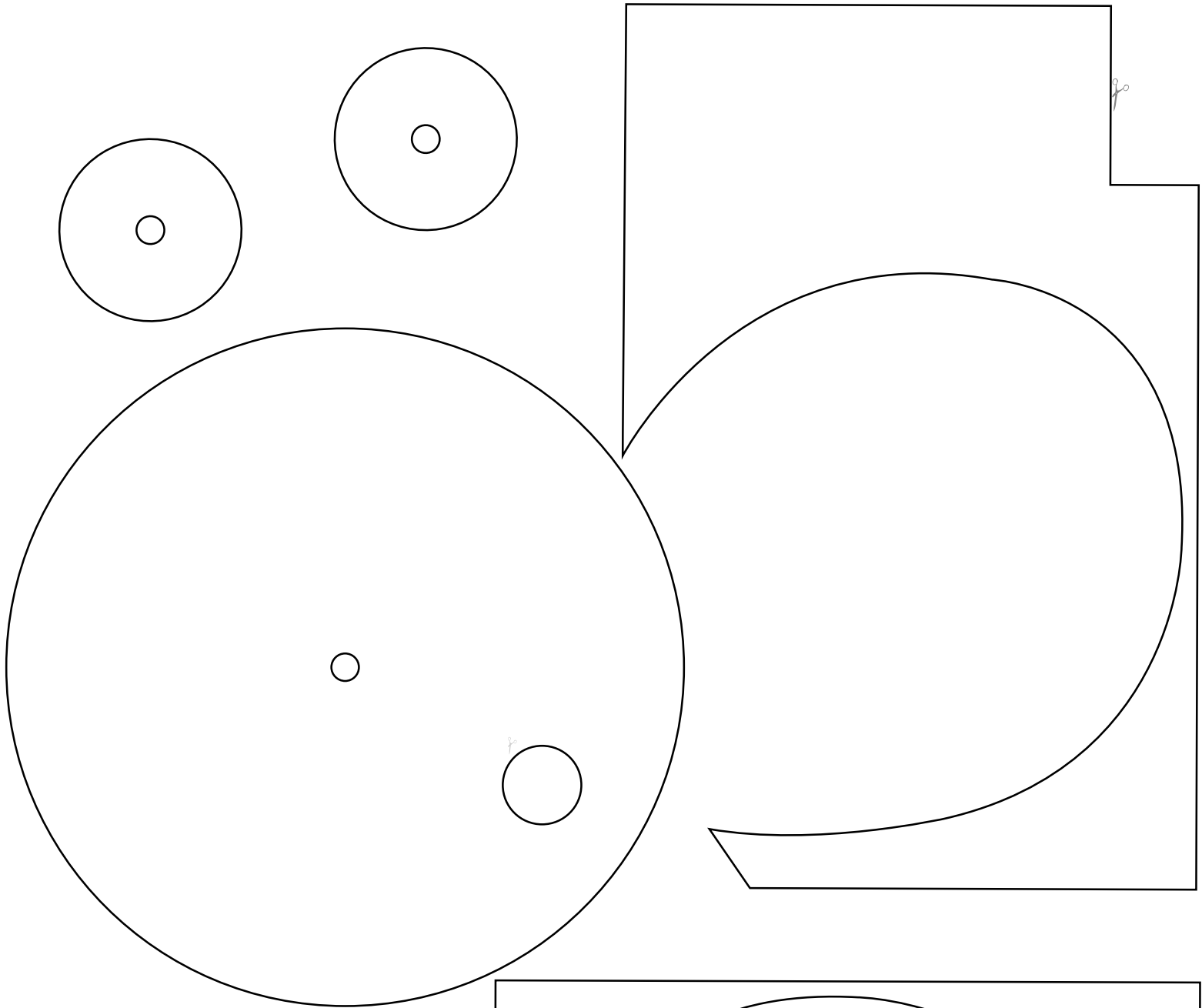
Start Buttons

Tabs for Volume