Conductive dough

1 cup Water
1 1/2 cups Flour
1/4 cup Salt
3 Tbsp. Cream of Tartar*
1 Tbsp. Vegetable Oil
Food Coloring (optional)
*9 Tbsp. of Lemon Juice may be Substituted

Combine 1 cup of flour and the rest of the ingredients in a medium sized pot. Cook on medium heat, stirring constantly, until dough forms a clump in the center of the pot. Place ball of dough onto a lightly floured surface. Allow to cool, then kneed in enough flour to reach desired consistency.

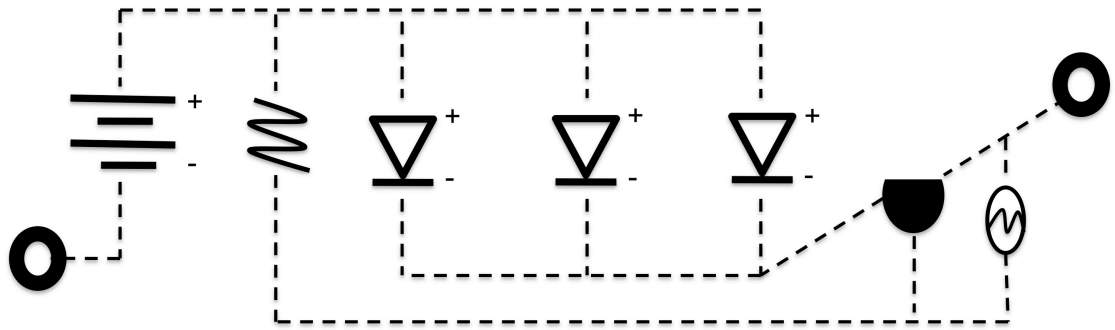
Insulating dough

1 1/2 cup Flour
1/2 cup Sugar
3 Tbsp. Vegetable Oil
1/2 cup Deionized (or Distilled) Water

Mix 1 cup of flour, sugar, and vegetable oil in a medium sized bowl. Add a small amount of water (~1 Tbsp.), and stir. Repeat adding small amounts of water and stirring until the dough has a sticky texture. Kneed additional flour into the dough until it reaches the desired consistency.

Both types of dough can be stored in an airtight container or plastic bag for several weeks. If some of the water condenses on the surface of the container during storage, just kneed it back into the dough. These recipes were developed by the Playful Learning Lab at the University of St. Thomas. For more information, including step-by-step photos and project ideas, visit http://courseweb.stthomas.edu/apthomas/SquishyCircuits/.

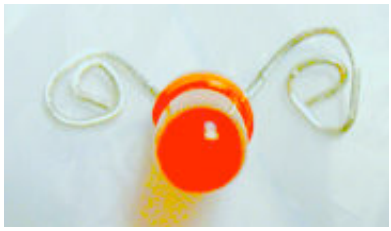
Bracelet Circuit



Bracelet Instructions

Step 1: Make a diagram of what you would like your bracelet to look like and how the conductive threads will be arranged. Remember that the thread for different parts of the circuit can't cross or touch each other. Decide whether the stitching that connects the circuit should be a visible part of the design and whether different components will be on the outside or inside surface.

Step 2: Ready components. You will be forming the wires on the bottom of the electrical components into loops that can be sewn through. Two ways of doing this are A) sticking the wires through the felt and then curling them and B) curling the wires first and then mounting the component. Be extra careful prepping the components where direction is important (LEDs and transistor). For example, make the longer LED wire connection into a larger circle so you can easily see which direction it should go (must be connected to positive side of battery).



Step 3: Lay out circuit, and tack down components. It's a lot easier to get all of the components where you want them and then sew in the connections between them. Use normal thread to attach components to the felt. Don't use a lot of loops of thread, because the thread will block the electrical connection between the metal of the wire and the conductive thread.

Step 4: Double check that your components are where they need to be to make the proper connections between them without crossing over any parts of the circuit. Sew in the connections with conductive thread. Make sure that all of the loose threads are cut close to the knots to prevent short circuits.

Step 5: Try it out! If the bracelet doesn't work the way you were planning, double check that all of your connections are correct and that you have no short circuits. For advanced troubleshooting, email a photograph to Katie at kmm388@cornell.edu.

For more fun project ideas, google e-textile tutorials and "soft circuit" tutorials. This bracelet is only the beginning of the things that you can make!