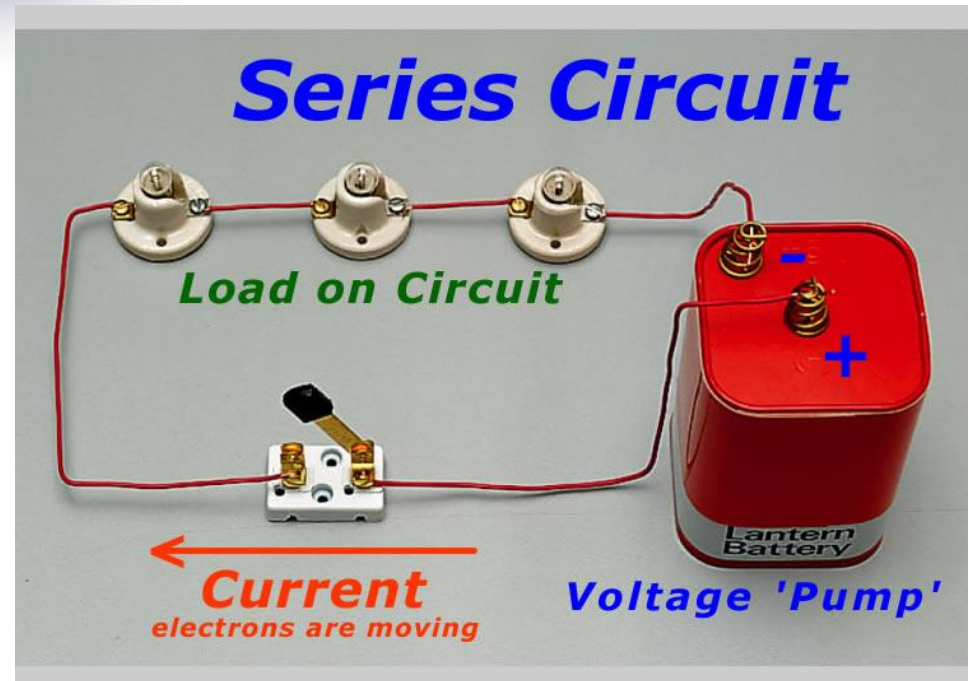


Squishy Circuits – Big Fun for Little Superheroes!

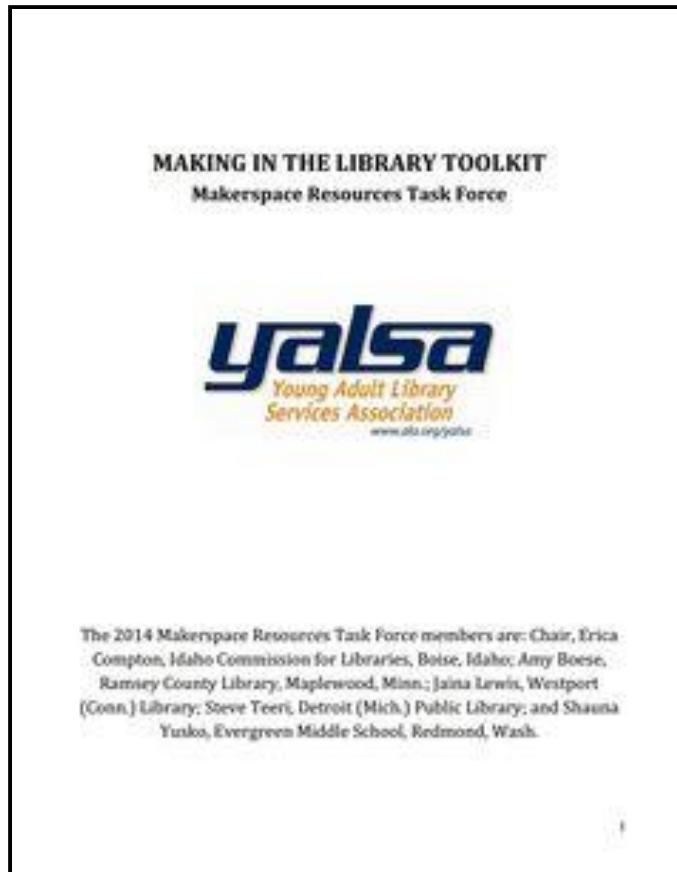




Which tools would you be comfortable using to teach children about simple electricity?



Why do I have to teach kids about electricity anyway?

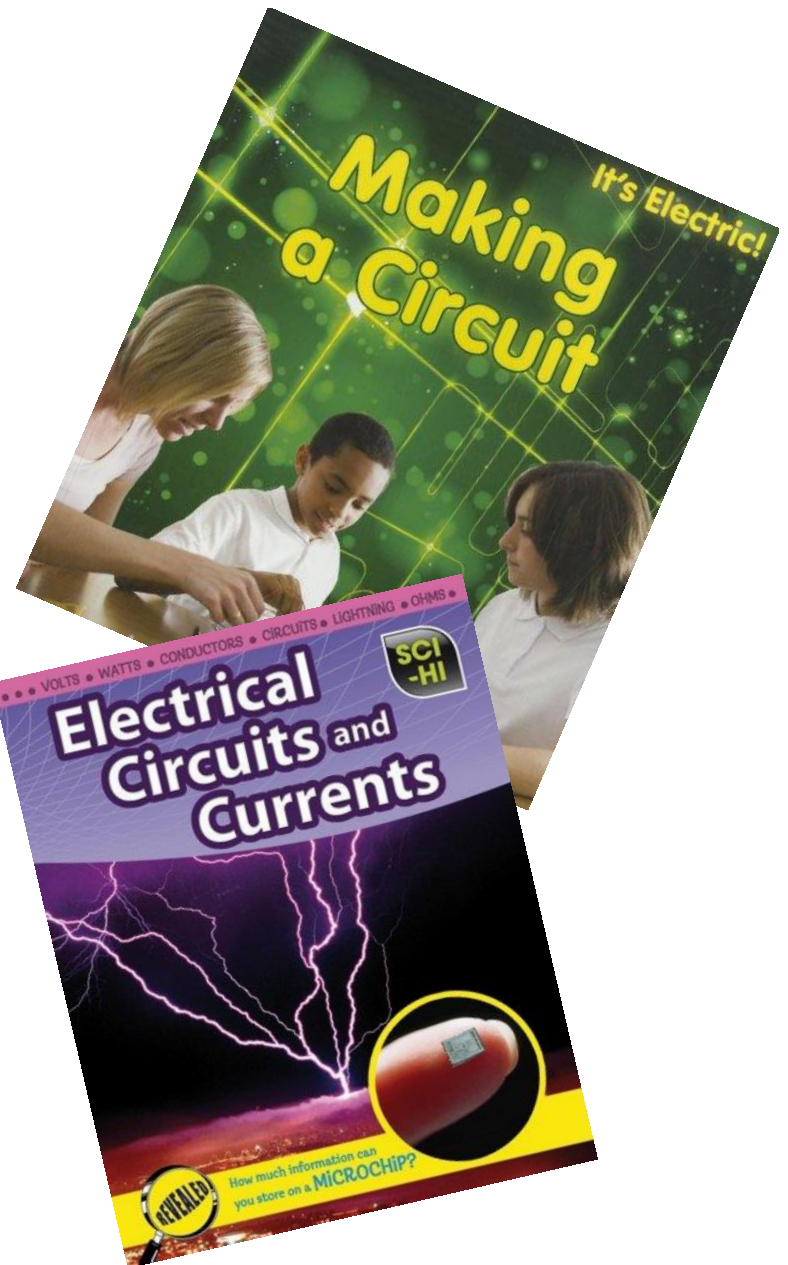


As Vicki Rakowski, Assistant Director of Youth Services, Lisle Library District, and co-creator of www.makeitinyourlibrary.org said in a blog post last fall: “Empowering our communities to use the library to create things is another way to build the library's relevancy. Creating opportunities for library users to make something that didn't exist before strengthens the importance of the old "third space" concept.”

<http://www.ala.org/yalsa/sites/ala.org.yalsa/files/content/MakingintheLibraryToolkit2014.pdf>

Don't remember the difference between conducting and insulating, or a series circuit? The MVLS kit has some simple books so that you can study up before your program. Please include the science content, otherwise you are just presenting "clay play with lights!"

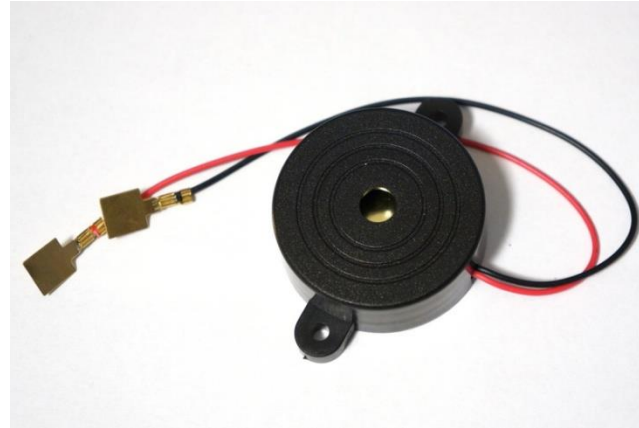
This is an excellent assignment for your teen volunteers too. Have them come in a day ahead and train them to be the Squishy Circuits experts. During the program, make sure they are engaging with the children and parents, and giving the science information. Model for them once or twice if necessary – this is where teens benefit from volunteer work!



So, what is a squishy circuit? Is this educationally sound and scientifically based?

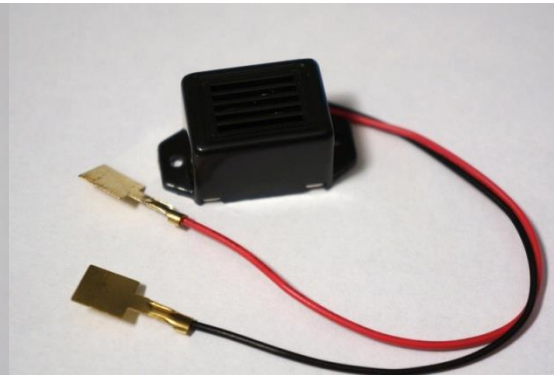
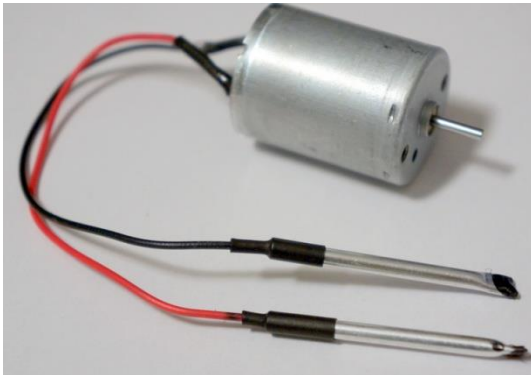
https://www.ted.com/talks/annmarie_thomas_squishy_circuits?language=en

What is in a Squishy Circuit Kit?



Included: Battery pack with leads, motor, two different buzzers and lots of LEDs.

Not included: 4 AA batteries, and the dough.



Here's a peek at the dough recipes. I've had teen volunteers mix up the insulating dough for me, since I don't like to get stuff stuck on my hands and nails. I made the conductive dough at home, since you need to cook it briefly on the stove. Notes: it did not ruin my non-stick pot, and both keep in the refrigerator for a couple of weeks.

Conductive Dough

Materials:

1 cup Water

1 1/2 cups Flour

(A gluten free version of this dough can be made by replacing the flour with gluten-free flour.)

1/4 cup Salt

3 Tbsp. Cream of Tartar*

1 Tbsp. Vegetable Oil

Food Coloring (optional)

***9Tbsp. of Lemon Juice may be Substituted**

Insulating Dough

Materials:

1 1/2 cup Flour

1/2 cup Sugar

3 Tbsp. Vegetable Oil

1/2 cup Deionized (or Distilled) Water

(Regular tap water can be used, but the resistance of the dough will be lower.)

Add enough flour so that the dough is not sticky, otherwise the two kinds get muddled together and can't be separated between projects.

Tips learned over time:

The battery packs are fragile, cover clips may break, but the packs will still work with no cover. Putting the batteries in the packs should be an adult job, not for teens so the packs hold up longer. Remove batteries when not in use.

Clean all leads, parts, and LED “legs” after your program with a damp paper towel, then a dry one before putting supplies back in the box. (Great job for teens.)

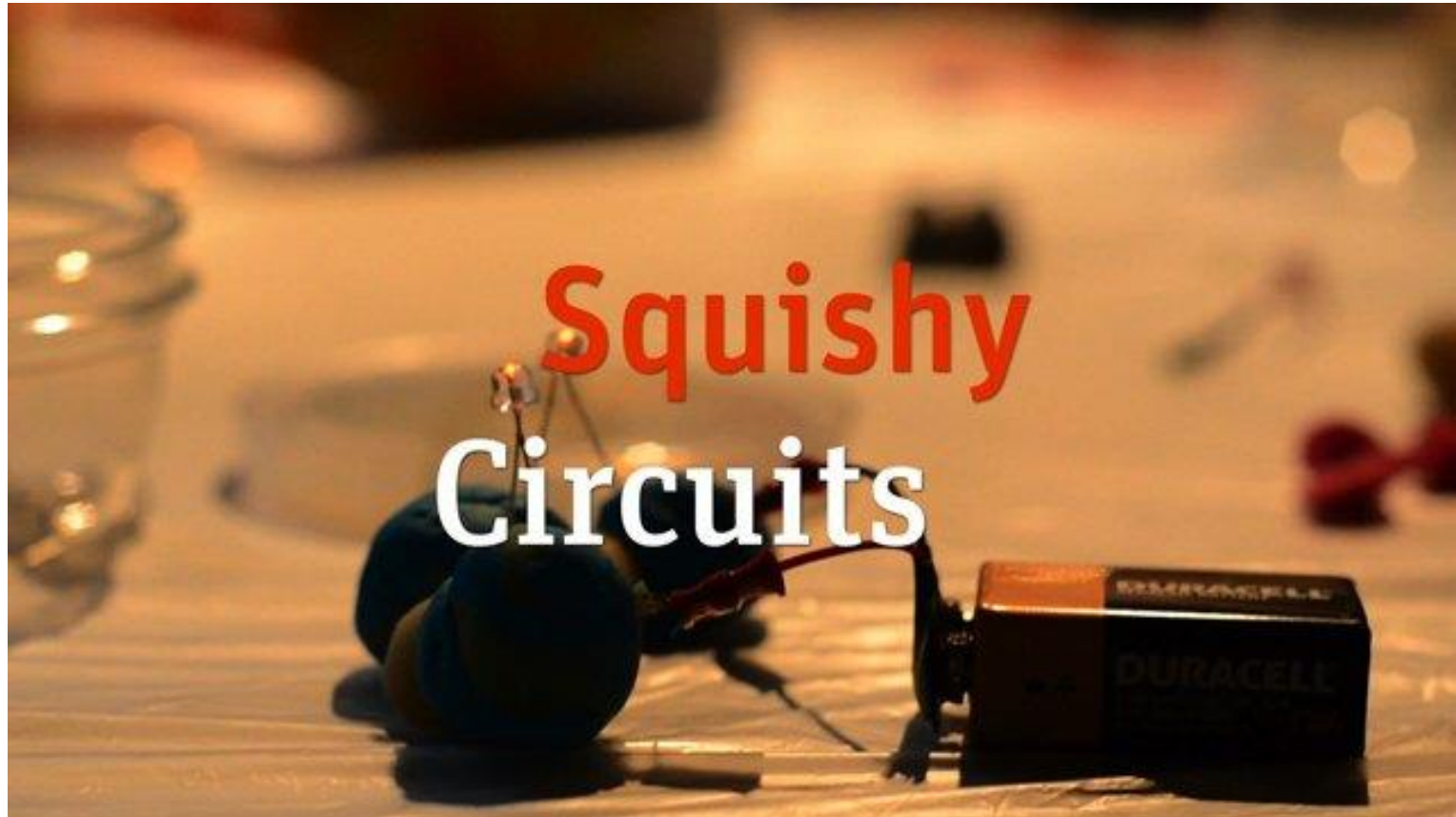
The first time that the kits are used, the LEDs will all get scrambled, don’t fret over it!

Some LED “legs” will break off after a few uses, try not to sweat it. LEDs are cheap.

Motors are a BIG battery drain. If a model stops working, the batteries are probably dead. Also, if you leave it running for a while, the heat from the leads will start to cook your dough!

If you make a great model and leave it together over one or two nights, you’ll see an effect on motors and leads, salt works fast!

Do kids enjoy using Squishy Circuits? Are they successful?



<http://tinkering.exploratorium.edu/squishy-circuits>



One program that we held at Voorheesville Public Library last summer was “The Science Station.” We used the Squishy Circuit kits, the Makey Makey kits, demoed a 3D Printer, and had some low-tech science experiments too.

This was a **family** program held at **night** so parents could see that we were expanding into STEM activities for the summer, and beyond. There were a lot of boys and dads present. Most parents complimented this new direction.





Here you can see the Teen Expert offering a little instruction, then letting the child tinker around on her complex flower creation. Now our experimenter has 3 power packs lighting up her petals.



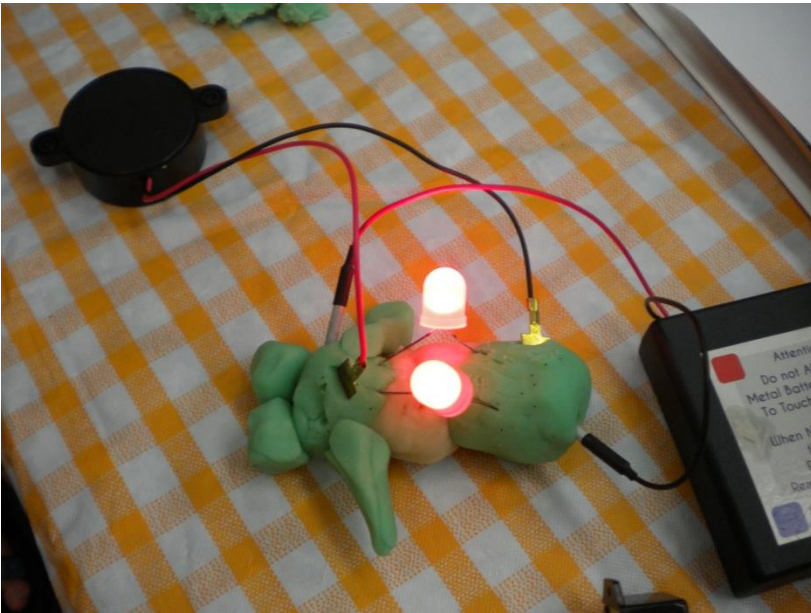
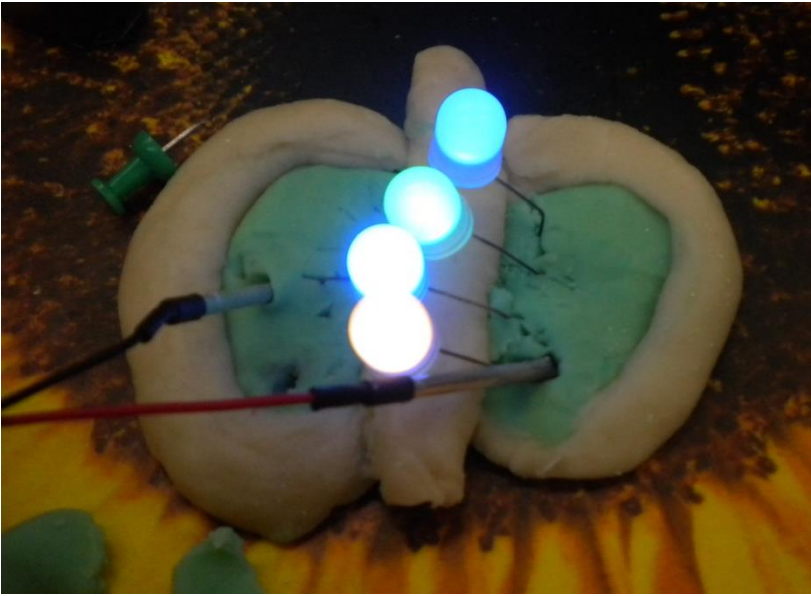
Tween Creativity Lab: Art that Bubbles, Pops and Glows

Squishy Circuit Creatures

Make a creature from conductive and non-conductive clay in such a way that you create a circuit and you'll be able to give it glowing LED eyes and/or movement using a motor. Use your imagination! When you are done, we'll take a picture of your creature, then we'll need to disconnect it so others can build. We'll need those components back for the next scientist to make their critter.



Supplies: Squishy Circuit kits, batteries, two types of clay, place mats, scrap paper, thin markers, scissors, tape, tablecloth, camera



Squishy Circuit Program Ideas

- STEAM Science & Creativity Stations
- Activity to accompany a book discussion with a science theme, such as Benjamin Franklinstein Lives or the Nick & Tesla series.
- Clay Play event for younger audience – offer different stations with a variety of dough types and tactile experiences.
- Challenges for tweens: create the best fantasy creature.
- Interactive table activity if your library has a booth at a community event.
- Share your ideas here.

Prepared by Debbie Sternklar, Voorheesville Public Library
for YS Librarian Training at Mohawk Valley Library System,
Maker Space Work Party: Squishy Circuits on 4/30/15.