Can't afford 3D printers or milling machines? Make anything you want with

Resin Casting!

DIFFICULTY: EASY COST: MEDIUM PAYOFF: WAY FUN

This is one of those activities that generates lots of return visits to the library. It's a fairly simple matter to mix the silicone mold material and create the negative space where you'll pour in resin, but the molds do need to set up (can be accelerated with a quick low bake in the oven) and the resin MUST set at least overnight to allow for hardening. However, once a mold is made it can be used over and over again to cast the same object.
You can purchase store-bought silicone mixing materials for mold creation, or you can apparently use silicone caulk (which may or may not be cheaper, but it sure is weird looking!). Resins can be colored or you can add things inside it like glitter, or similar. Makers can use existing objects to cast, or they can carve or create their own objects to cast something totally new.

- I used Castin'Craft EasyCast epoxy resin and Castin'Craft EasyMold silicone putty, both found at Michaels.
- Don't forget: NITRILE gloves (not latex) for use with silicone! Get some at WalMart or drugstores.
- Another epoxy resin with rave reviews is ICE Resin: www.iceresin.com
- Super time consuming & fumigation-worthy is paint on Mold Builder http://eti-usa.com/mold-builder/
- If you're using silicone putty, you don't really need mold release spray unless your mold is dried out.
- http://makezine.com/projects/custom-robot-keychains-with-easy-moldmaking/
- http://www.instructables.com/id/Worlds-easiest-silicone-mold/?ALLSTEPS

Want to teach electronics & circuitry to teens but don't want to deal with solder and other stuff?

LittleBits!

DIFFICULTY: EASY COST: PRICEY PAYOFF: HOURS OF ENDLESS FUN

- Magnetic attachment means circuits for days
- Check out the full line at http://littlebits.cc/
- Color coded pieces with magnetic attachments mean beginning "coders" won't get stuck by their own spelling mistakes or infinite loops: circuits just work!
- a CloudBit unit can be triggered online, via mobile device, or it can work the other way around… get a text or an email whenever someone gives you input!
- Great for prototyping games, creative displays, and true "make not take" engagement
- If the cost is prohibitive, try Snap Circuits instead! http://www.snapcircuits.net/

Do your teens like tie-dying, but they're a little bored with the same old, same old?

Lumi Inkodye!

DIFFICULTY: EASY COST: LOW TO MEDIUM PAYOFF: REALLY COOL STUFF

- Hobby Lobby and Dick Blick carry Inkodye but you can also order online: http://www.inkodye.com/
- The small SnapPacks are great for one or two smaller projects, and for portioning!
  - (Don't pre-portion Inkodye: you'll expose it to light and start the development process!!!)
- Inkofilm inkjet is great for printing photo negatives. Grab a piece of glass to hold it in place while it develops. Print TWO copies of the negative to layer, which will totally block the light on your piece.
- Use regular detergent, not Inkowash if you're on a budget. Hot water is key so get a little kettle ready and a large bucket of water to stop the exposure process. WEAR GLOVES unless you want dyed skin :)
- Natural fabrics take the dye best. 50/50 cotton poly blend shirts will be pastel-y.
- Lumi also sells Cleanline Resist for a batik look.
- Use a prefab negative or print your own at http://app.inkodye.com/ (You can purchase professionally made negatives from them for the cost of a 10-pack of Inkofilm… you make the call!)
- Print on wood, canvas, silk, cotton… whatever strikes your fancy!!! https://snapguide.com/guides/print-a-photo-on-wood-with-inkodye/
- This is a really nice tutorial for beginners: http://www.aswellplacetodwell.com/2012/08/in-love-with-inkodye.html
- Rainy? Intense UV blacklights may work as well.

Other Great Places to Find Projects/Supplies:

- http://www.adafruit.com AdaFruit Industries
- https://www.sparkfun.com/ SparkFun Electronics
- http://www.makershed.com MakerShed from MAKE: magazine