### Building the Anode and Cathode Containers

* Compression fitting, 1/2-inch (in.) (3); available at hardware stores. The compression fitting has three parts: the two endcaps that screw on and off, and the tube.
* Sandpaper, medium-grit (1 sheet)
* Permanent marker
* Ruler
* Lab notebook
* Straight-sided plastic (acrylic) storage containers, about 3 ½ in. x 3 ½ in. x 6 5/16 in. (6). These can be purchased at stores like Target or Wal-Mart. You can also find them at [www.tapplastics.com](http://www.tapplastics.com/).
  + The size of the plastic containers is not extremely important to the project. You just need to make sure to fill up whatever containers you use with the sludge sample to ensure an anaerobic environment.
* Safety goggles
* ~~Drill or drill press with 3/4-in. spade drill bit, 2-millimeter (mm) drill bit, in addition to other diameters~~
* Adhesive, like acrylic cement or DevCon Plastic Welder; available at your local plastics store, such as TAP Plastics [www.tapplastics.com](http://www.tapplastics.com/). Use an adhesive that will bond plastics.
* Paper towel

### Making the Electrodes

* Carbon cloth, 20 cm X 20 cm. Carbon cloth can be ordered from [Fuel Cell Earth](https://www.fuelcellearth.com/fuel-cell-products/carbon-cloth-plain/). Make sure to order the plain cloth and not the wet proofed cloth.
* Scissors
* Wire strippers
* Nickel epoxy or other conductive epoxy
* Copper wire, 12-gauge (12 pieces, 18 in. each); available at hardware stores or electrical supply stores
* Digital multimeter, available from [Jameco Electronics](http://www.avantlink.com/click.php?tt=cl&mi=10609&pw=182414&ctc=Energy_p026&url=http%3a%2f%2fwww.jameco.com%2fwebapp%2fwcs%2fstores%2fservlet%2fProduct_10001_10001_2131127_-1)
* Electrical tape

### Making the Salt Bridge

* Petri dish
* Plastic wrap
* Aluminum foil
* Measuring cup
* Tap water
* Pot
* Glass rod
* Spoon
* Stove
* Digital kitchen scale, such as the [Fast Weigh MS-500-BLK Digital Pocket Scale, 500 by 0.1 G](http://www.amazon.com/gp/product/B000P1NYE8/ref=as_li_ss_tl?ie=UTF8&tag=sciencebuddie-20&linkCode=as2&camp=217145&creative=399369&creativeASIN=B000P1NYE8), available from Amazon.com
* Agar, 30 g; available at science supply stores
* Table salt, 6 g and 1/2 tbsp.
* Plastic baggie, 1-qt.
* Refrigerator

### Obtaining the Benthic Mud Samples

* PVC pipe, 3-in. diameter, 3-ft. length
* Rope, nylon, 50 ft.
* Buckets (2)
* Plastic wrap
* Plastic jug with lid (2), 1 gallon, empty and clean
* Hammer
* Access to a second-order (or lower) stream; see the last paragraph of the Introduction for more details.

### Assembling the Fuel Cell

* Measuring cup
* Large bowl
* Spoon
* Aquarium air pump with tubing (3); available at pet supply stores. Choose the smallest aquarium pumps that you can find. The anode and cathode are not large and so can be aerated effectively with a 10 gallon, or less, pump.
* Gloves
* Safety goggles
* Mud sample

### Testing the Fuel Cell

* Alligator clip cables (4); available in [2-packs](http://www.avantlink.com/click.php?tt=cl&mi=10609&pw=182414&ctc=Energy_p026&url=https%3a%2f%2fwww.jameco.com%2fwebapp%2fwcs%2fstores%2fservlet%2fProduct_10001_10001_2185483_-1) or [10-packs](http://www.avantlink.com/click.php?tt=cl&mi=10609&pw=182414&ctc=Energy_p026&url=https%3a%2f%2fwww.jameco.com%2fwebapp%2fwcs%2fstores%2fservlet%2fProduct_10001_10001_10444_-1) from Jameco Electronics
* Resistors, 220-ohm (3); available from [Jameco Electronics](http://www.avantlink.com/click.php?tt=cl&mi=10609&pw=182414&ctc=Energy_p026&url=https%3a%2f%2fwww.jameco.com%2fwebapp%2fwcs%2fstores%2fservlet%2fProduct_10001_10001_690700_-1) (must be ordered in multiples of 10)