**Introduction**

This puppet is very similar to the light up rod puppet. The main difference is that it uses a mini motor instead of an LED.

A motor has a spinning shaft when plugged in. Things can be attached to this shaft that will also spin.

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**Purchasing**

Mini motors can be purchased and found on a variety of sites- ask Michael for this.

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**Troubleshooting**

If you are having trouble making your puppet work, try following these tips.

**Before starting**, test that your motor works. It should have two wires coming from it that are insulated. The ends of the wires should have a metal wire part exposed. Make sure there is enough of that showing to make contact with the battery. If there is not, you can gently use scissors to take off some of the insulation.

Generally, a motor can spin in different directions depending on which way it is plugged in.

**Step 6**: Make sure there is a secure connection between the motor wire and the copper tape below the leads.

At this step, no noise should be made, because the circuit is not yet complete. To test for a good connection, you can skip ahead to steps 15-17 to complete the circuit.
Motor Rod Puppet
http://dwig.lmc.gatech.edu/projects/prototypingpuppets/

Materials & Tools:
- large craft stick
- copper tape
- construction paper
- mini motor
- battery
- feather
- scissors
- clear tape

Instructions:

Step 1: Attach a strip of copper tape on to one side of the craft stick. Do not pull off the backing of the tape all at once. Peel it away slowly as you stick it down.

Flip craft stick over, and attach copper tape strip halfway across this side.

Step 2: Form loop with copper tape, sticky side facing out.

Attach copper tape loop on middle of craft stick. This must touch the copper tape that is already on craft stick.

Step 3: Attach battery on top of copper tape with positive side facing up.

Step 4: Attach another piece of copper tape over middle of battery, extending towards the end.

Step 5: Place mini motor over craft stick, such that one wire is on each side of the craft stick.

Step 6: Attach copper tape over wires, securing motor in place. Make sure the metal part of the wire is touching the copper tape.
**Step 7:** Trace your puppet design on to construction paper.

Note: ensure that design *matches folded edge* of construction paper so that a part of the puppet contains the fold. Also make sure there is a cut out part for motor to stick through.

**Step 8:** Cut out design.

**Step 9:** Unfold your cutout.

**Step 10:** Place craft stick on top of cutout. Attach strip of clear tape over cutout and craft stick.
Step 12: Form another clear tape loop and place over craft stick. Fold cutout over to line up with other side.

Step 13: Tape feather onto shaft of motor. Note: This step is very tricky and requires much patience and precision.

Step 14: Cut out piece of construction paper to act as your switch. *Actual size*

Step 15: Attach copper tape on to construction paper.

Step 16: Fold construction paper in half, vertically.
Step 17: Attach folded paper from step 13 to craft stick. Make sure that copper tape on craft stick makes contact with the copper tape on the construction paper. With clear tape, secure the paper to the stick.

CONGRATULATIONS!
Your puppet is now complete!
To spin, press down paper flap on copper tape.