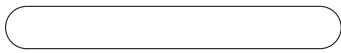


LIGHT-UP ROD PUPPET

<http://dwig.lmc.gatech.edu/projects/prototypingpuppets/>

Georgia Tech
Digital World Image Group
An NSF AISL Funded Project

Materials & Tools:



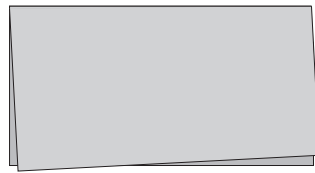
large craft stick



copper tape



clear tape



construction paper



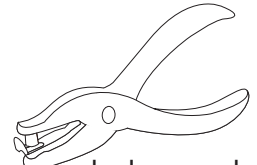
LED



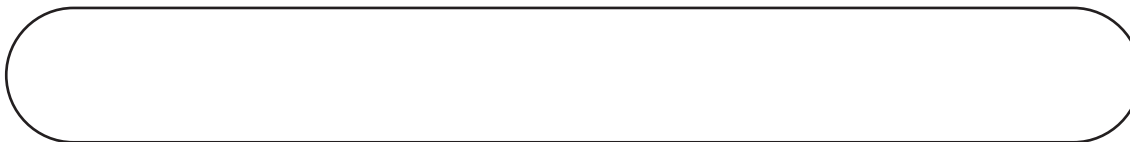
battery



scissors



hole puncher



actual size of large craft stick

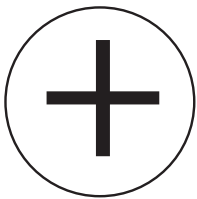


actual thickness of copper tape

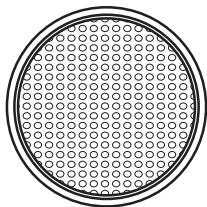
Understanding Polarity

There is a **POSITIVE** and **NEGATIVE** side on both the battery and LED. Positive must connect to positive, and negative to negative for the electricity to flow. This is called **polarity**.

BATTERY



Positive Side



Negative Side

Look at both sides of the **battery** to familiarize yourself with each. The flat side with a + sign is **positive**, and the bumpy side is **negative**.

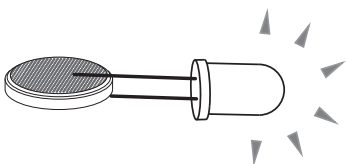
LED



Negative lead

Positive lead

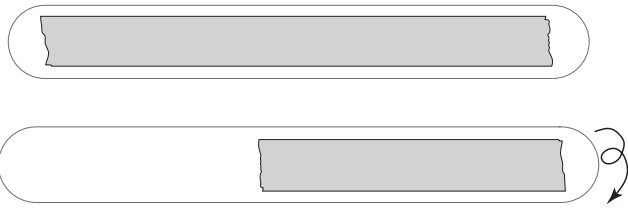
On the LED, the wires that come out are called **leads**. The longer lead is **positive**, and the shorter lead is **negative**.



Connect the **LED** to the **battery**, to *illuminate* it. Not working? Check your polarity, and try the other way.

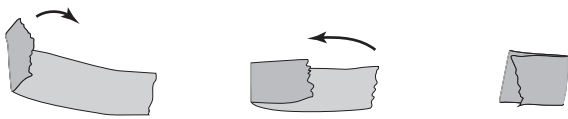
Instructions:

Step 1: Attach a strip of **copper tape** on to one side of the **craft stick**.



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** over **copper tape**.



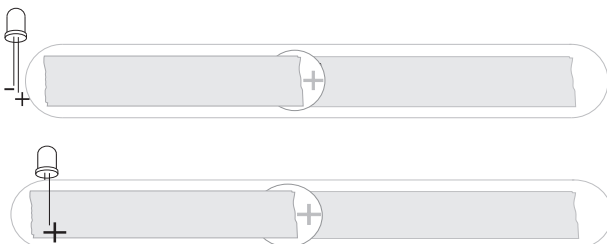
Step 3: Attach **battery** on top of **copper tape** with **positive** side facing up.



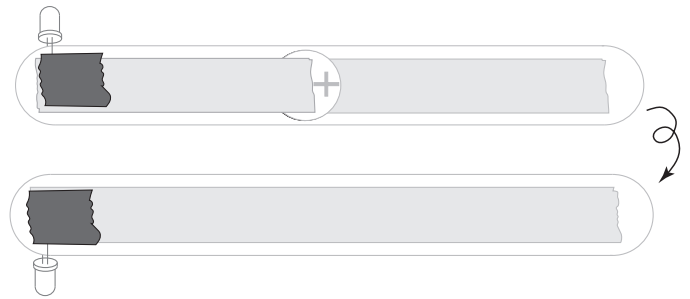
Step 4: Attach another piece of **copper tape** over middle of **battery**, extending to end of **craft stick**.



Step 5: Place **LED** over **popsicle stick**, with **negative lead** connecting to **negative battery** side, and **positive lead** to **positive battery**.

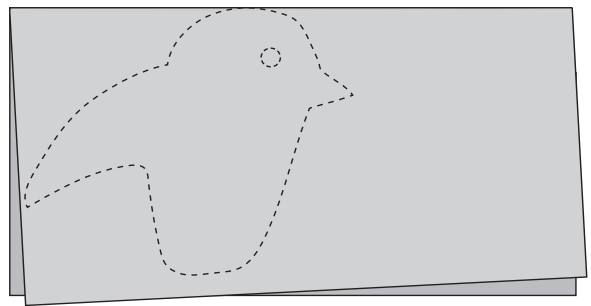


Step 6: Attach another piece of **copper tape** over each **lead** on both sides of the **craft stick**, to secure the **LED**.

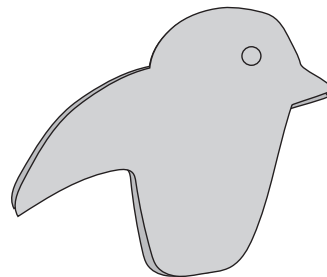


Step 7: Trace your puppet design on to **construction paper**.

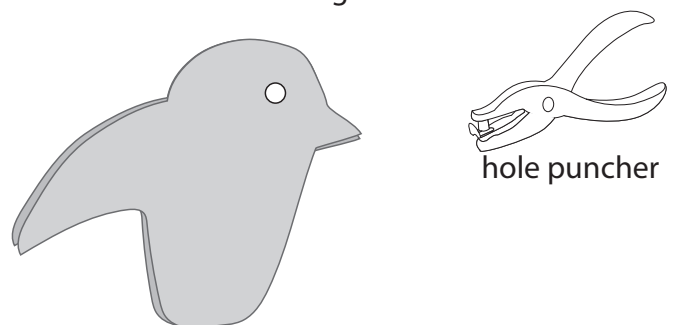
Note: ensure that design matches **folded edge** of **construction paper** so that a part of the puppet contains the fold.



Step 8: Cut out design.



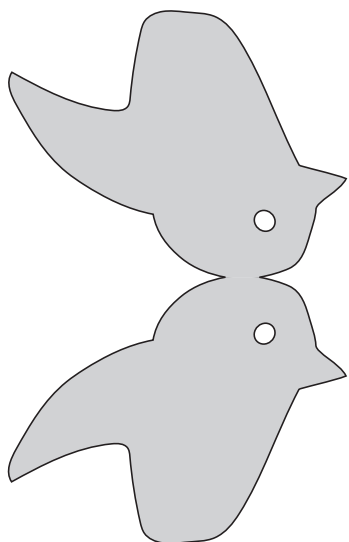
Step 9: Using **hole puncher**, punch a hole where you want the **LED** to shine through.



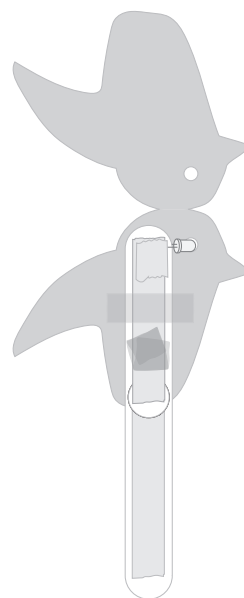
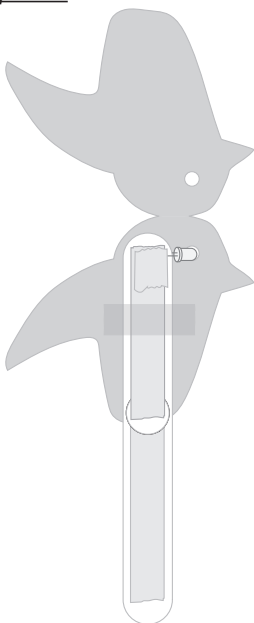
hole puncher

Great work!
You are more than halfway finished!

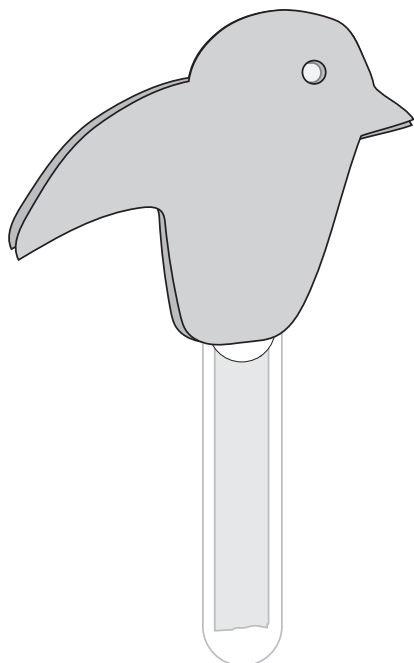
Step 10: Unfold your cutout.



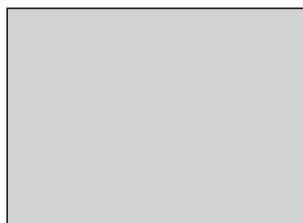
Step 11: Place **craft stick** on top of **cutout**, lining up **LED** with hole. Attach strip of **clear tape** over **cutout** and **craft stick**. Form another **clear tape** loop and place over **craft stick**.



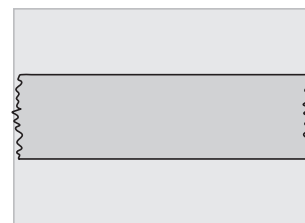
Step 12: Fold **cutout** over to line up with other side.



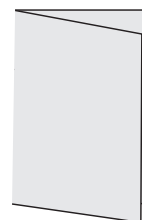
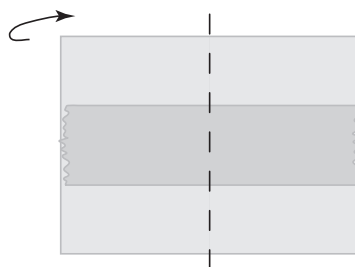
Step 13: Cut out piece of **construction paper** to act as your switch.
Actual size



Step 14: Attach **copper tape** on to **construction paper**.

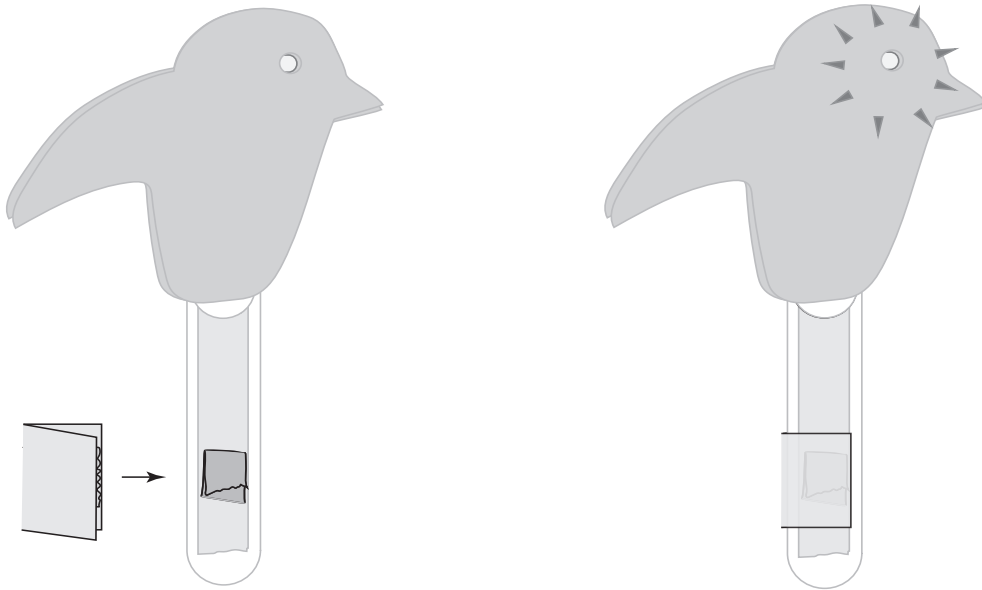


Step 15: Fold **construction paper** in half, vertically.



Step 16: Form another **copper tape** loop, same as step 2, and place on **copper tape** on **craft stick**.

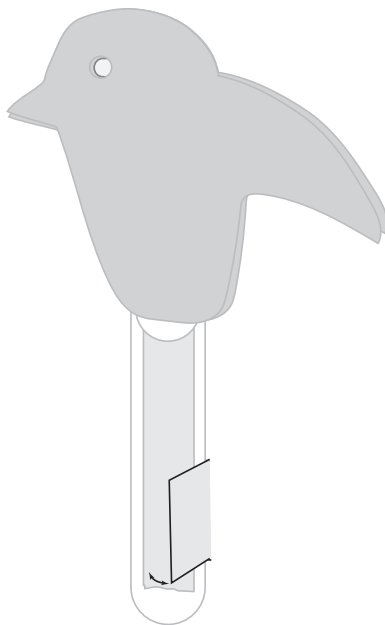
Attach **folded paper** from step 13 to **copper tape loop**. Make sure that **copper tape** on **craft stick** makes contact with the **copper tape** on the **construction paper**.



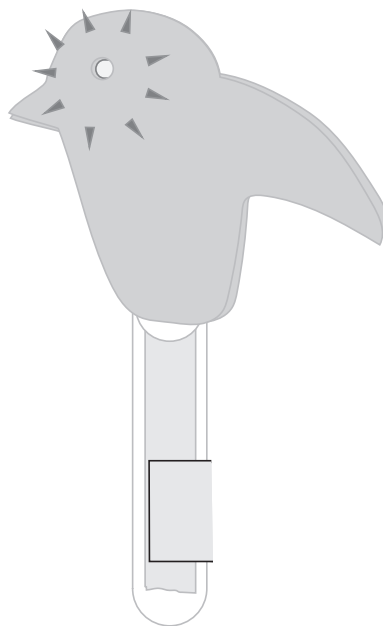
CONGRATULATIONS!

Your puppet is now complete!

To light up, press down **paper flap** on **copper tape**.



OFF



ON

How does your puppet move?
Does it walk, fly, swim?

How would it eat from your
hand?

How would it dance?

What causes it to light up?

What is your puppet's name?