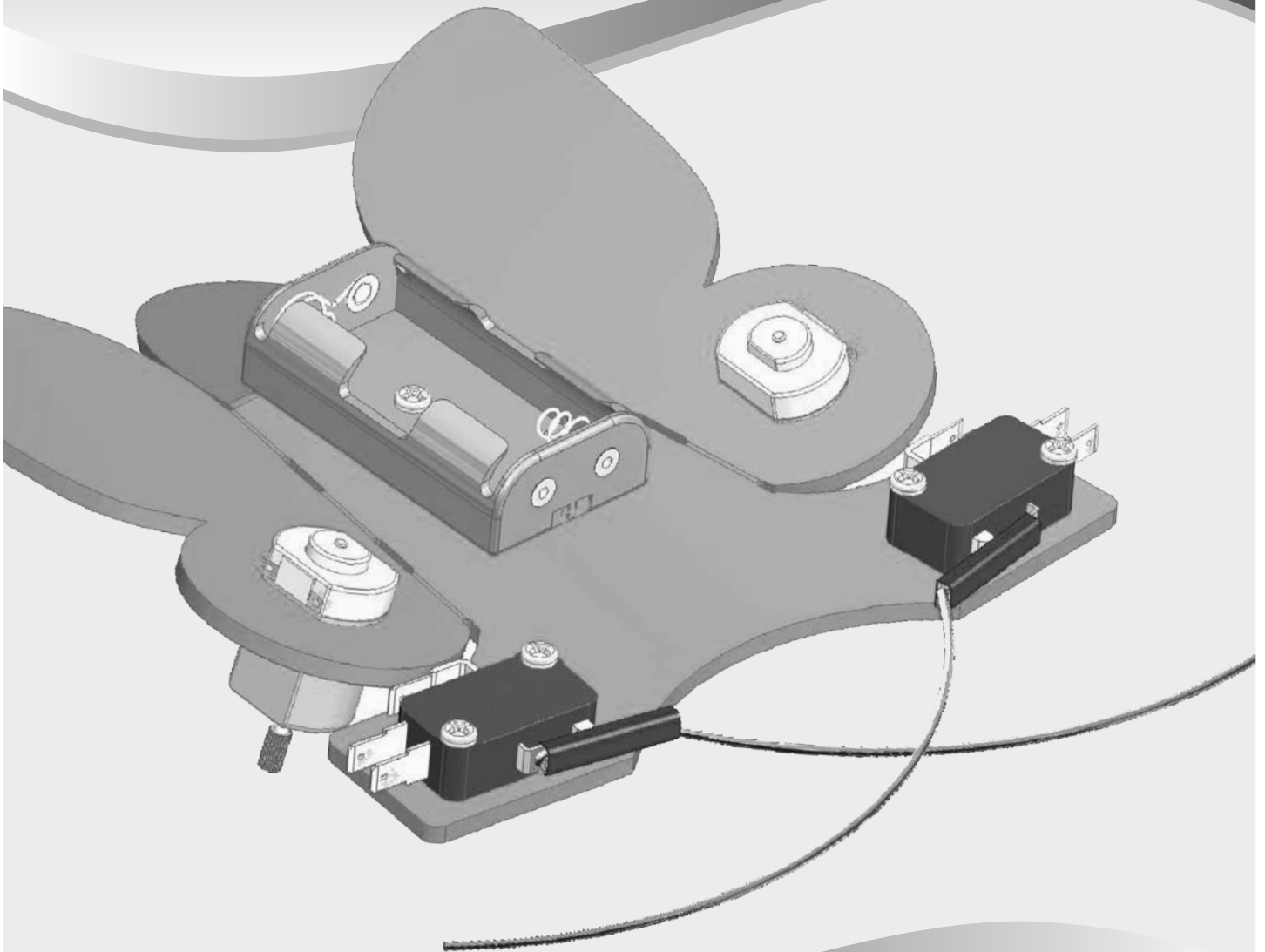


"CATCH THE BUG"

BODY BUILD

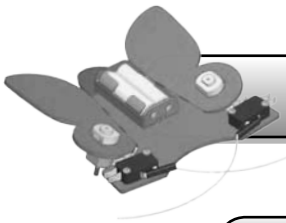
Process
#1



WHERE ARE WE?

- 1) **Body Build**- The mechanical part of the bug is constructed.
- 2) **Electronics Lab**- Bug Experiments teach the fundamentals of electronics.
- 3) **Final Wiring**- Permanent wires are soldered on to "bring the Bug to life."

You are
here. ←



BODY BUILD

TOOLS NEEDED



Crimper/Stripper



Safety Glasses



Wire Stripper (optional)



Pliers



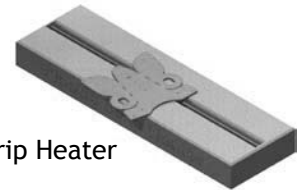
Soldering Pencil and Lead-Free Solder



#1 Phillips Screwdriver

Find the perfect tools and lead-free solder at teachergeek.com

The bug body needs to be heated for bending. Many heat sources will work for this:



Strip Heater

or

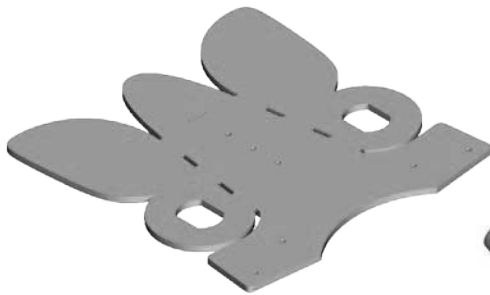


Blow Dryer / Heat Gun



Hot Water (run hot water over bug)

BUG PARTS (PARTS TO BUILD 1 BUG)



1- Bug Body



2- Snap Action Switches



2- Motors



1- Spade Connector



4- Long Screws



1- Battery Pack



1/2" (~14mm)-Tire Material



2- Short Screws

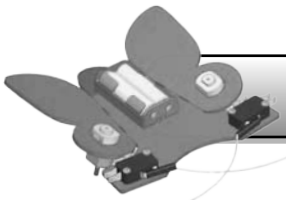


2" (~50mm)-Blue Tubing



18"- (45cm) Twisted Wire

2- Steel Feeler Wires



BODY BUILD



Your Bug Body is made of recycled polypropylene plastic.
See how it was injection molded in the teachergeek.com forum.



A. BEND THE BODY

The Bug Body must be heated for bending. Here are some options:



Adult Supervision Required.
Be Careful of Burns.



Strip Heater



Blow Dryer

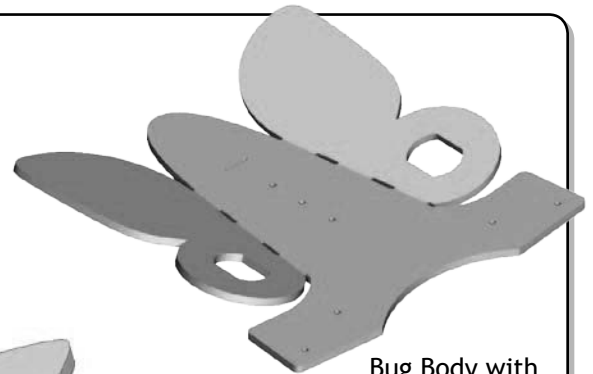
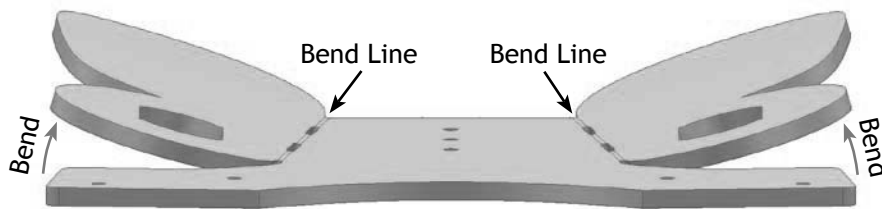


Hot Water (run hot water over bug)

BEND THE WINGS UP

Bend one wing at a time:

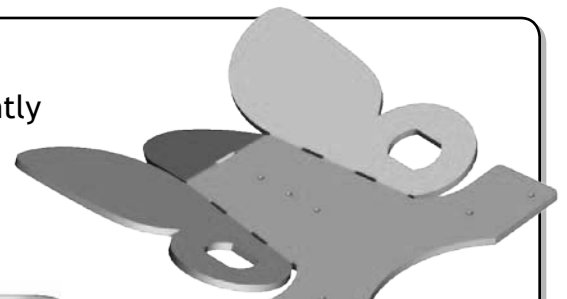
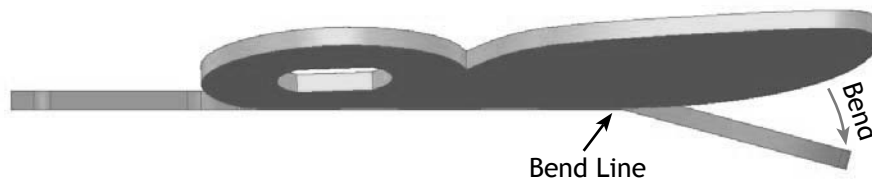
1. Apply heat to the wing's bend line until it becomes slightly more flexible (don't wait for it to melt or droop).
2. Bend the wing upwards (about 15 degrees).
3. Hold the wing in the bent position until it cools.



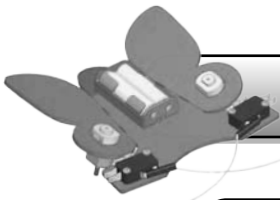
Bug Body with Bent Wings

BEND THE TAIL DOWN

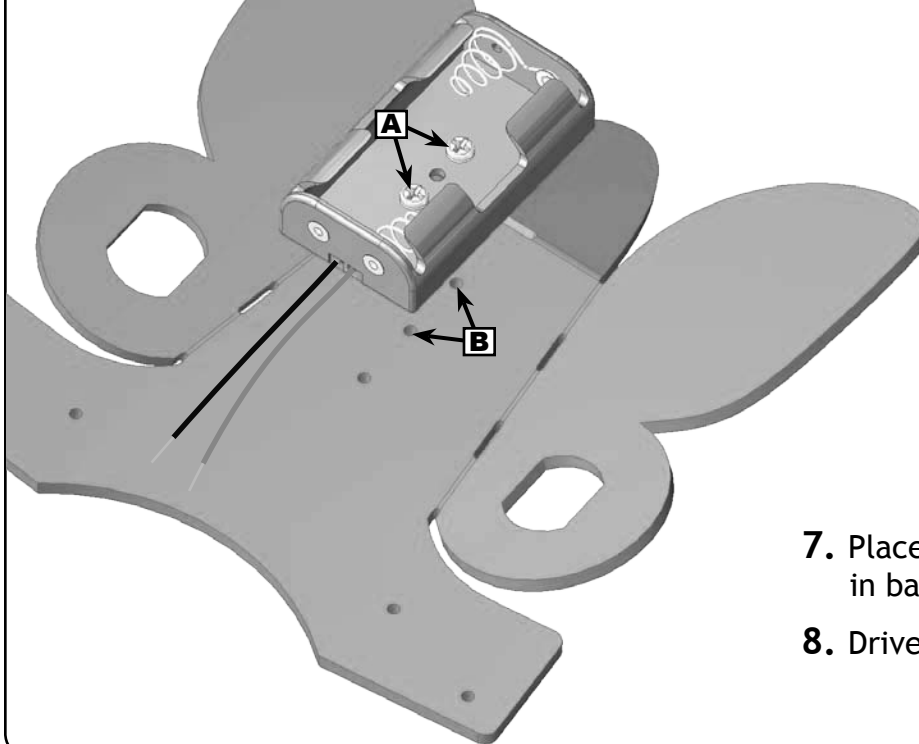
4. Apply heat to the tail's bend line until it becomes slightly more flexible (don't wait for it to melt or droop).
5. Bend the tail downwards (about 15 degrees).
6. Hold the tail in the bent position until it cools.



Bug Body with Bent Wings and Bent Tail



B. ATTACH THE BATTERY HOLDER



WHAT IS NEEDED?


2 Short Screws



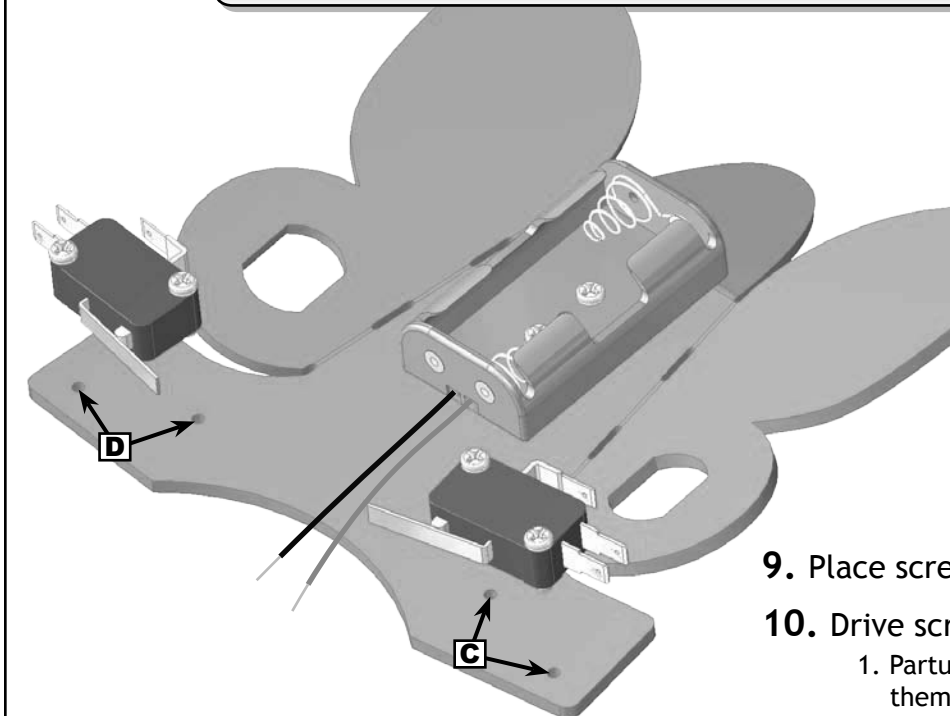
1 Battery Holder



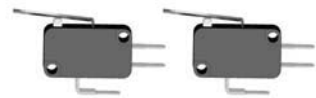
#1 Phillips
Screwdriver

7. Place screws into holes **A** in battery holder.
8. Drive screws into holes **B**.

C. ATTACH THE SWITCHES



WHAT IS NEEDED?



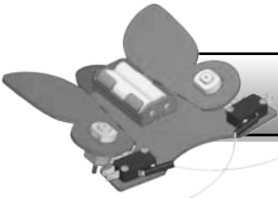
2 Switches


4 Long Screws



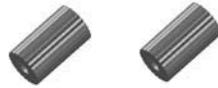
#1 Phillips
Screwdriver

9. Place screws into switches (as shown).
10. Drive screws into holes **C** and **D**.
 1. Partly drive in all screws (leaving them loose)
 2. Tighten all screws



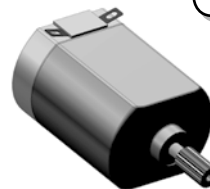
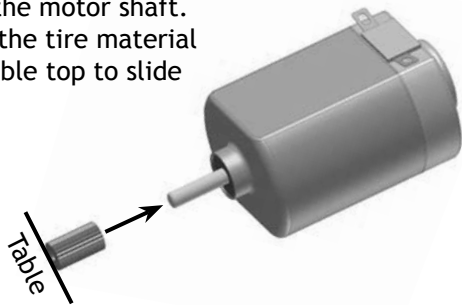
D. PUT THE "TIRES" ON

11. Cut two 1/4" (7mm) sections of tire material. Make sure cuts are straight.

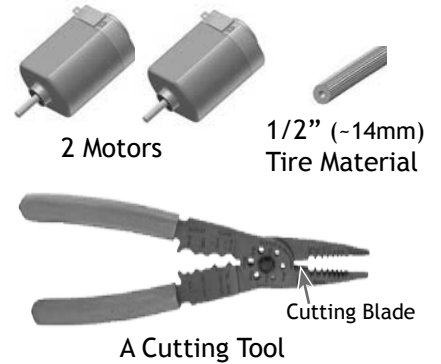


12. Place one section of tire material onto each motor shaft

Get the tire material started on the motor shaft. Then press the tire material against a table top to slide it further.

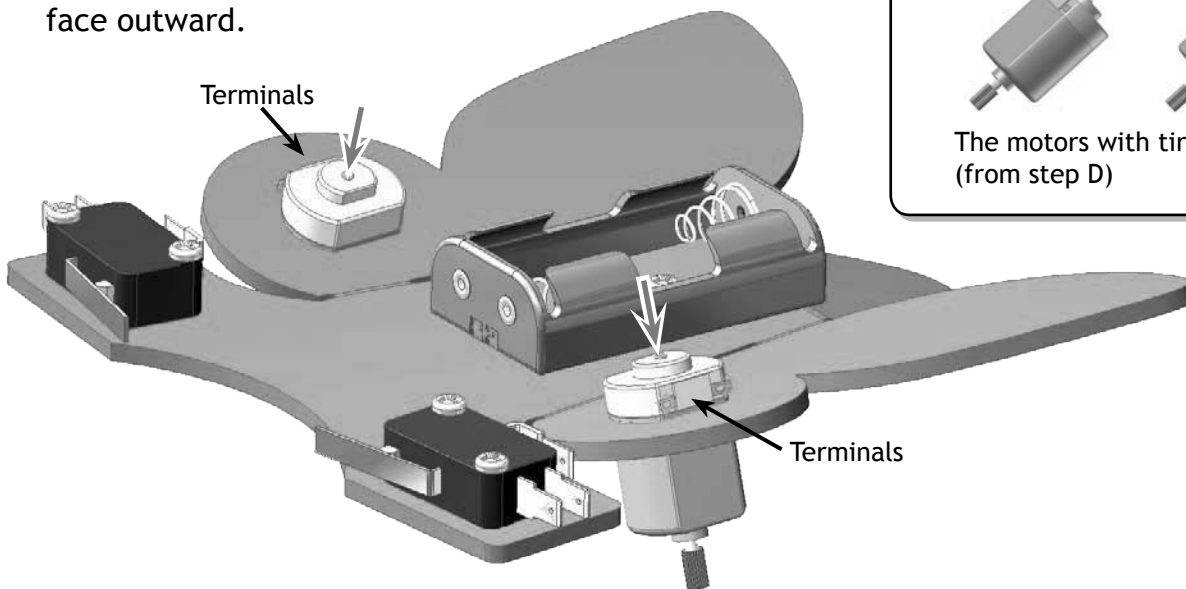
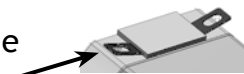


WHAT IS NEEDED?

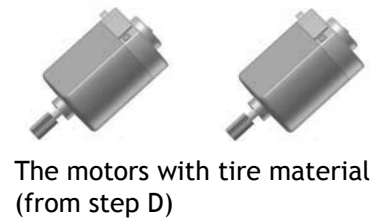


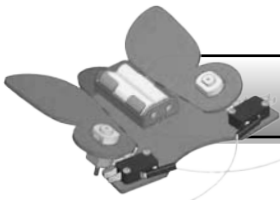
E. ATTACH THE MOTORS

13. Push the motors down into the bug body so the copper terminals face outward.



WHAT IS NEEDED?



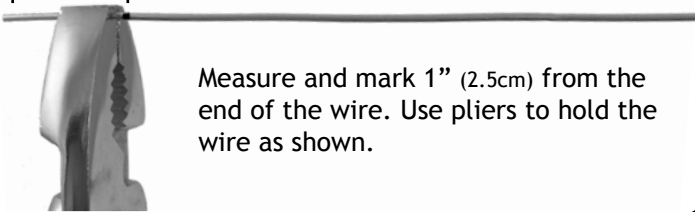


F. BEND THE FEELERS

14. Create 2 feelers using this process:

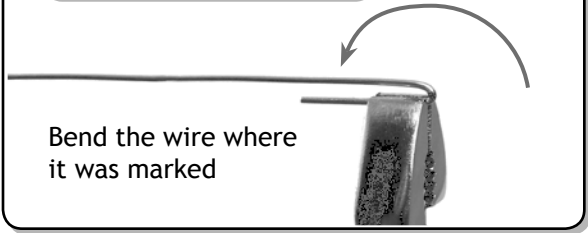
1. MEASURE, MARK, HOLD

1"
(2.5cm)



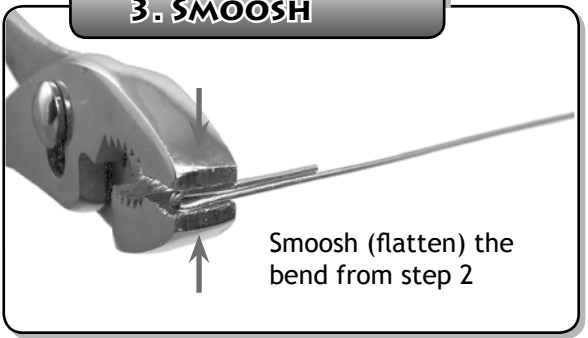
Measure and mark 1" (2.5cm) from the end of the wire. Use pliers to hold the wire as shown.

2. BEND



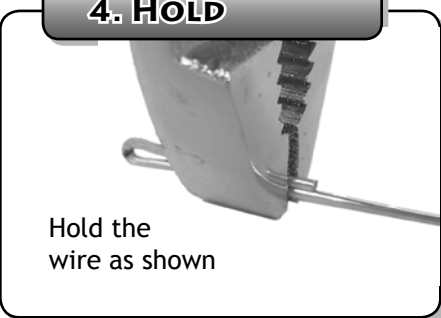
Bend the wire where it was marked

3. SMOOSH



Smoosh (flatten) the bend from step 2

4. HOLD



Hold the wire as shown

WHAT'S NEEDED?



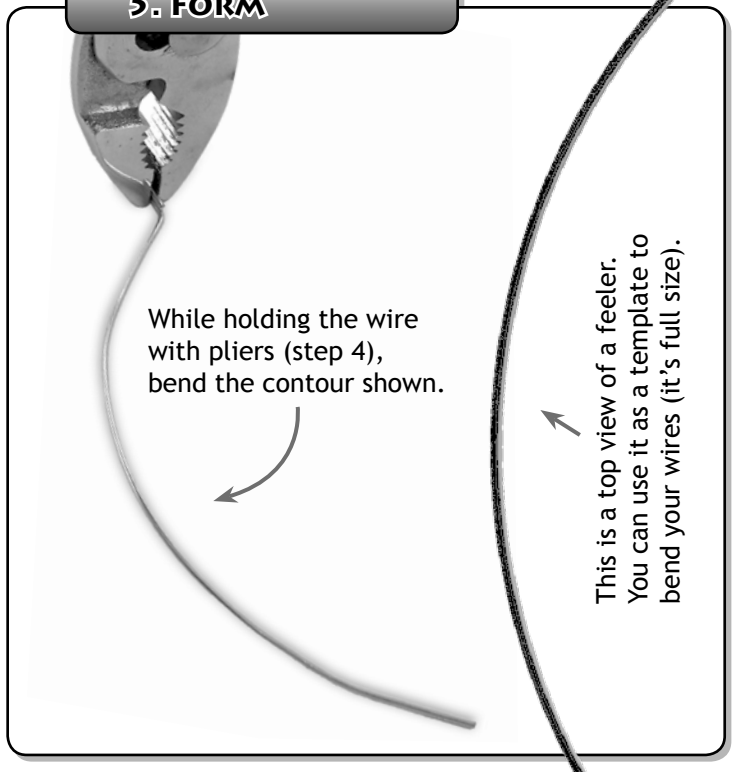
Marker



Pliers

2 Steel Feeler Wires

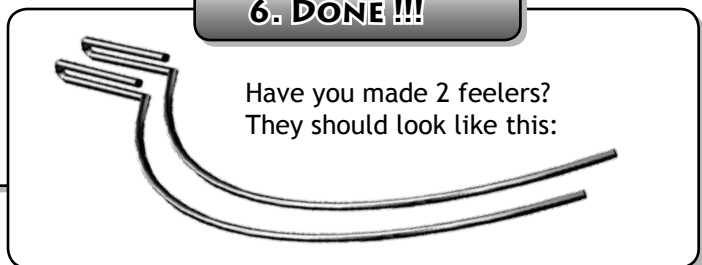
5. FORM



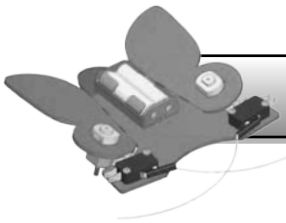
While holding the wire with pliers (step 4), bend the contour shown.

This is a top view of a feeler. You can use it as a template to bend your wires (it's full size).

6. DONE !!!



Have you made 2 feelers? They should look like this:



G. ATTACH THE FEELERS

15. Cut two 1" (2.5cm) sections of blue tubing.

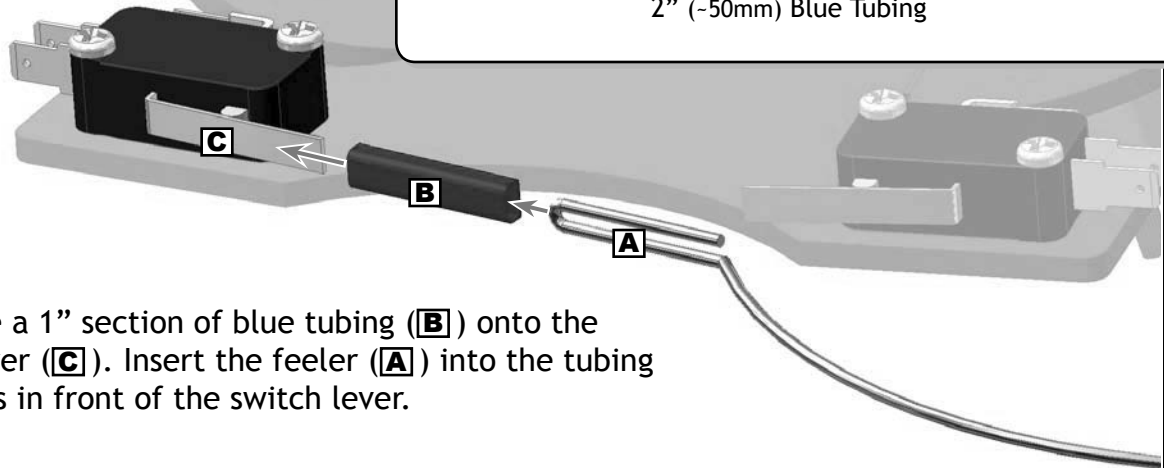


WHAT'S NEEDED?

The feelers from Step F

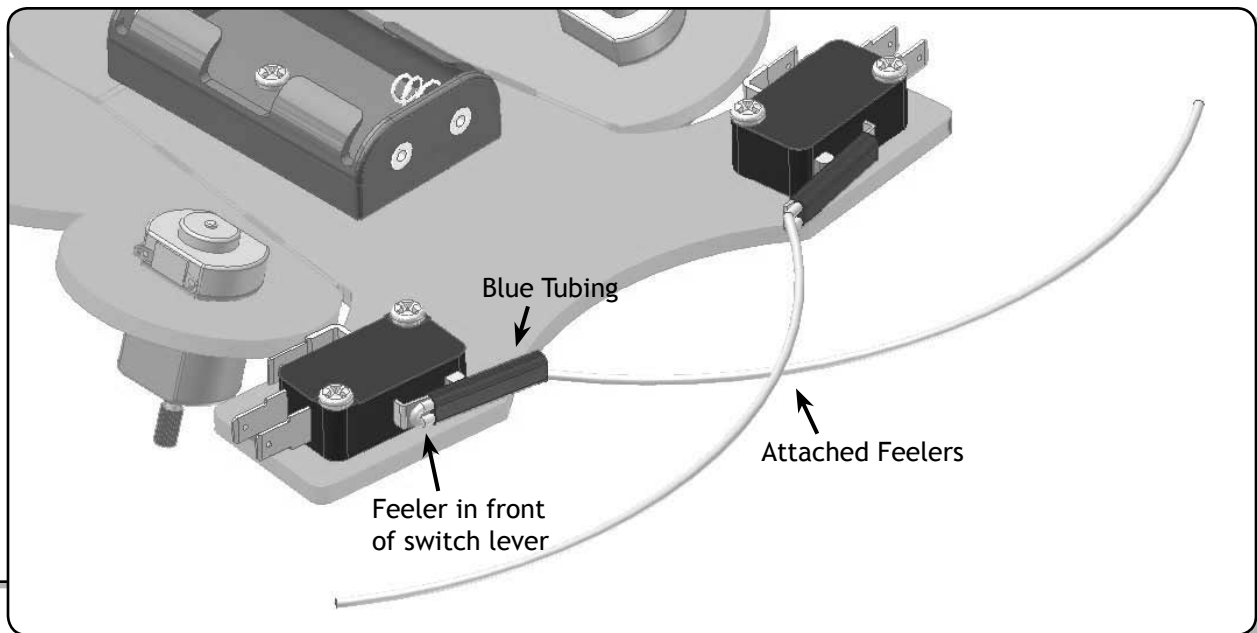
A Cutting Tool

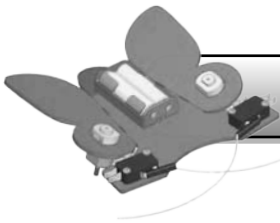
2" (-50mm) Blue Tubing



16. Place a 1" section of blue tubing (**B**) onto the switch lever (**C**). Insert the feeler (**A**) into the tubing so it slides in front of the switch lever.

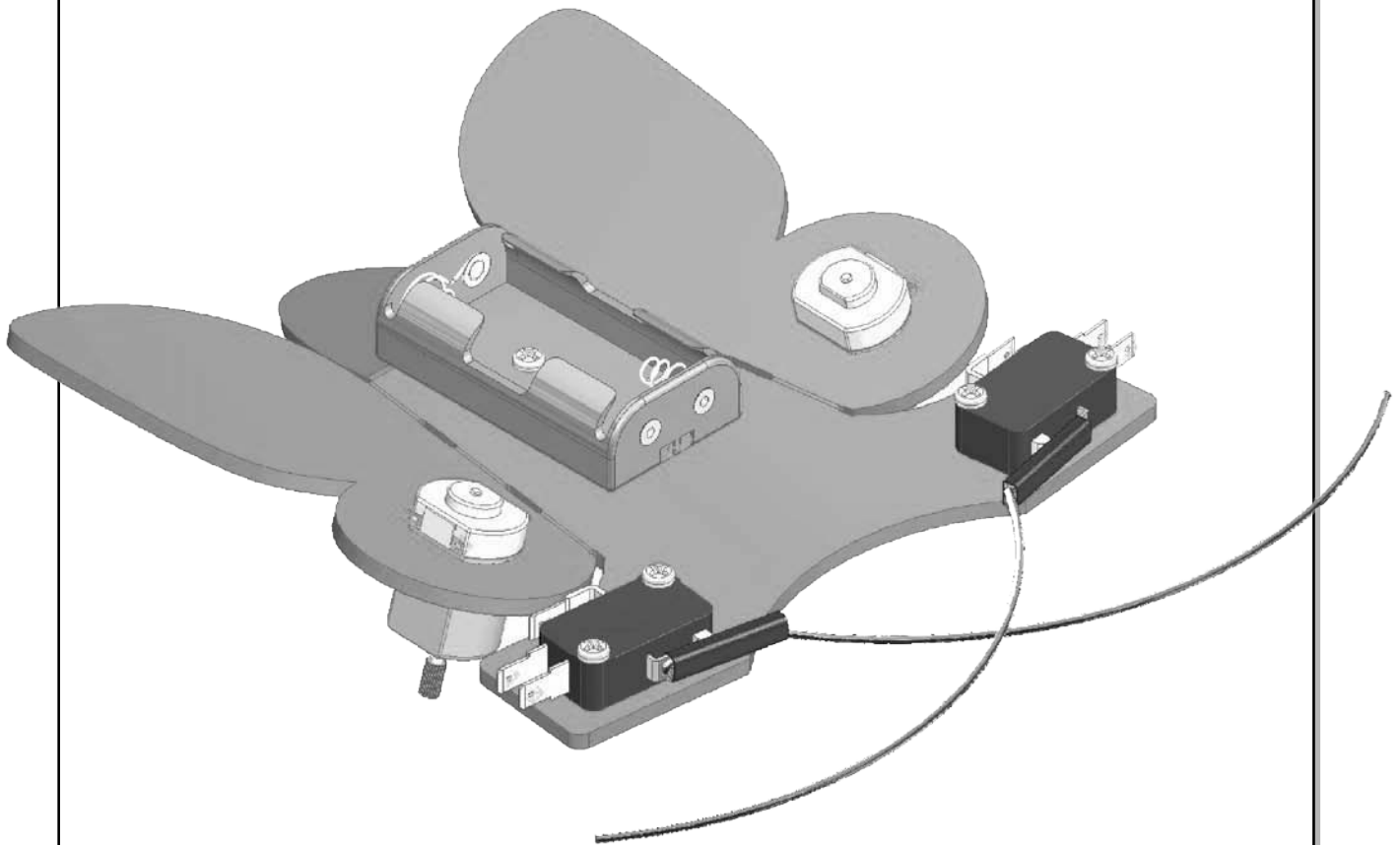
17. Repeat the process to attach the second feeler.





YOU'RE DONE !!!

Your bug should look something like this:



Next Step: The Electronics Lab