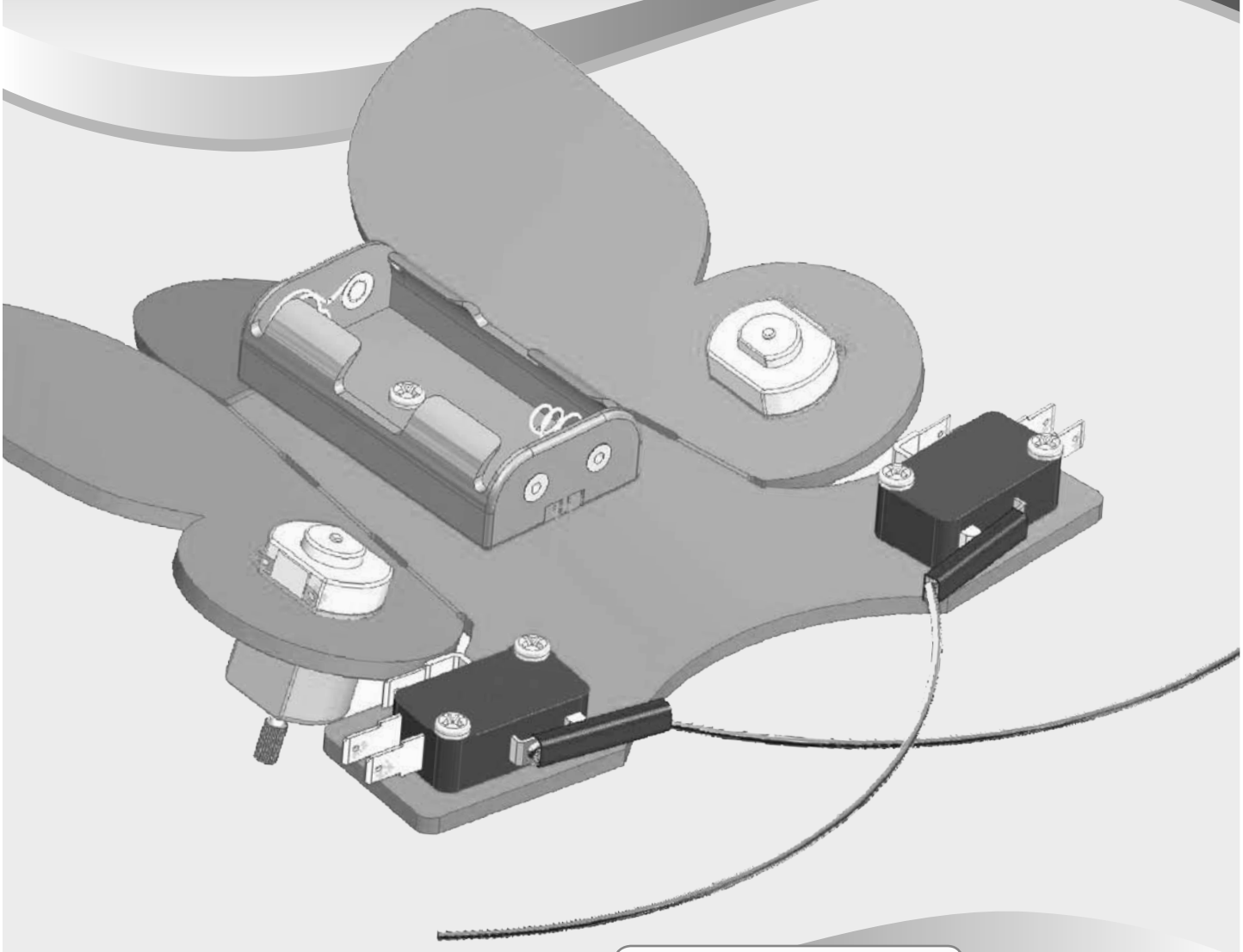
"Catch The Bug"
Body Build

Process #1



Where are we?

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

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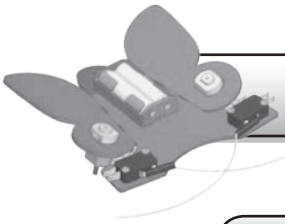
Revision 2.0



Body Build

Tools Needed

Crimper/Stripper

Safety Glasses

Wire Stripper (optional)

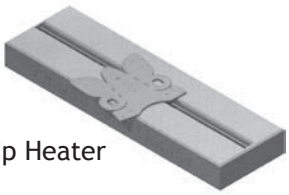
Pliers

#1 Phillips Screwdriver

Soldering Pencil and Lead-Free Solder

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:



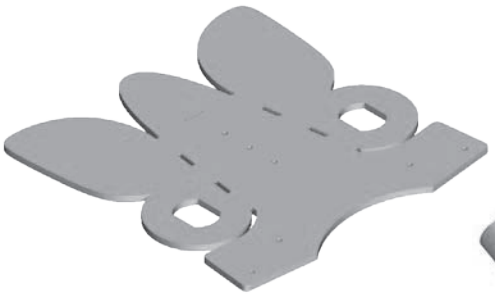
Strip Heater

or

Blow Dryer / Heat Gun

Hot Water (run hot water over bug)

Bug Parts (parts to build 1 bug)



1- Bug Body

1- Spade Connector

2- Snap Action Switches

2- Motors

4- Long Screws

1- Battery Pack

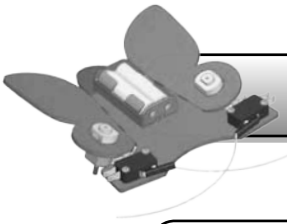
1/2" (~14mm)- Tire Material

2- Short Screws

2" (~50mm)- Blue Tubing

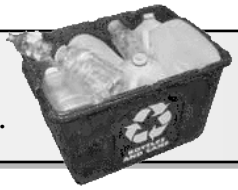
30"- (~76cm) Stranded Wire

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

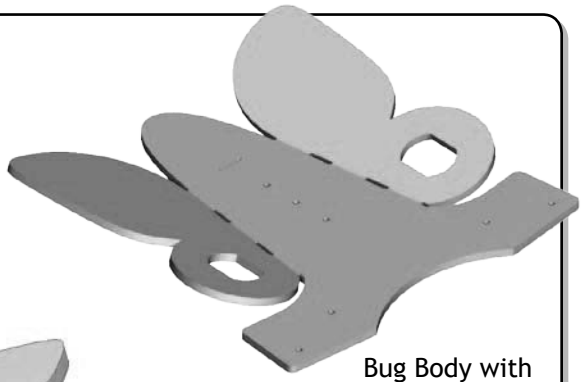
Blow Dryer

Hot Water (run hot water over bug)

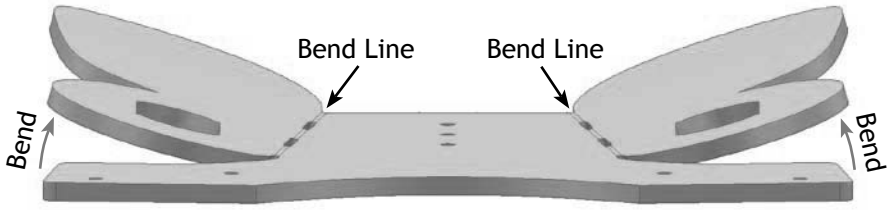
Bend The Wings Up

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.

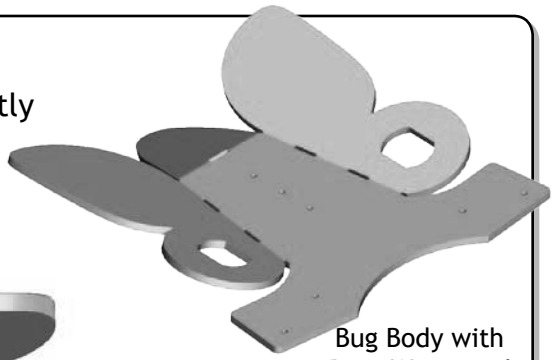


Bug Body with Bent Wings

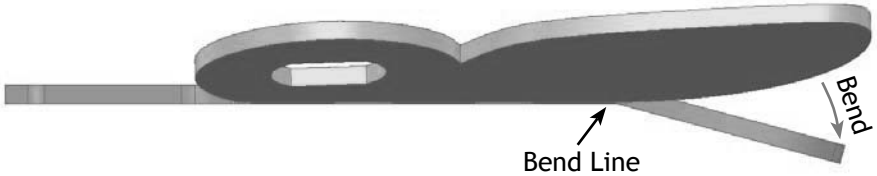


Bend The Tail Down

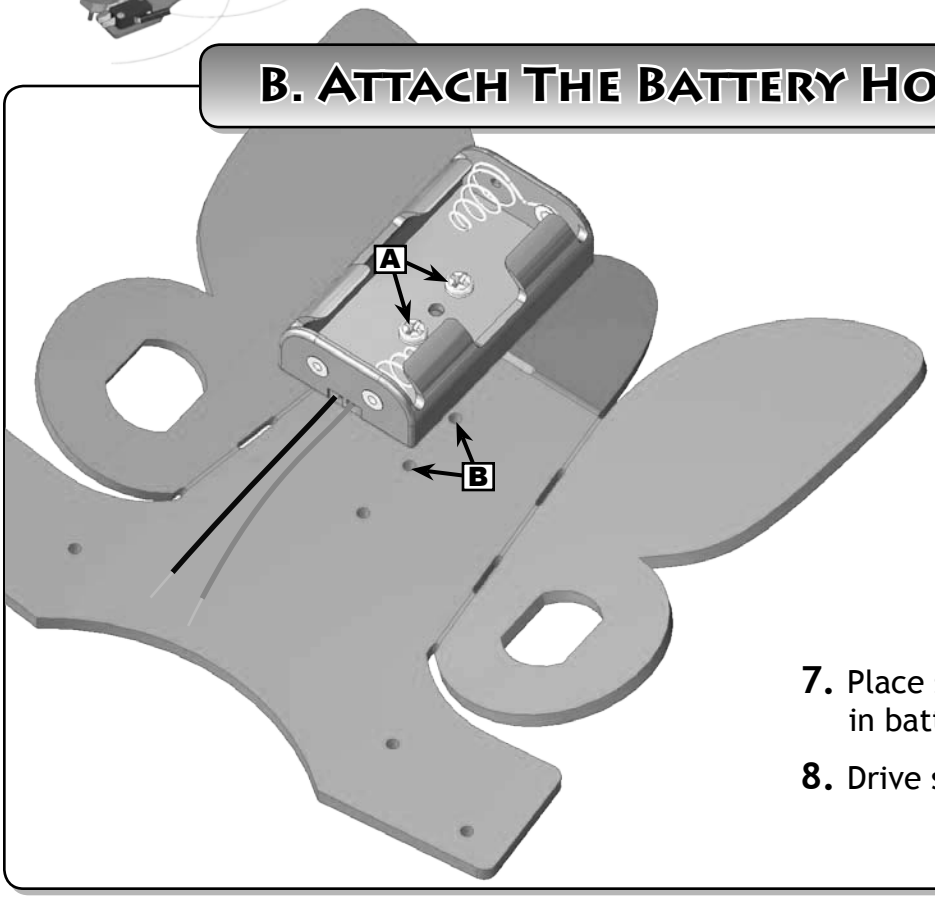
4. Apply heat to the tail's bend line until it becomes slightly more flexible (don't wait for it to melt or droop).
5. Bend the tail downwards (about 15 degrees).
6. Hold the tail in the bent position until it cools.



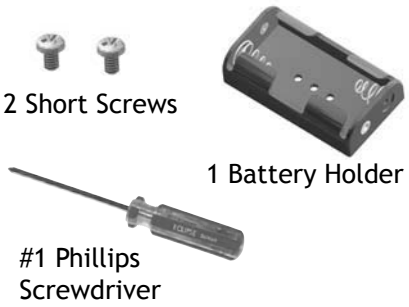
Bug Body with Bent Wings and Bent Tail



B. Attach The Battery Holder



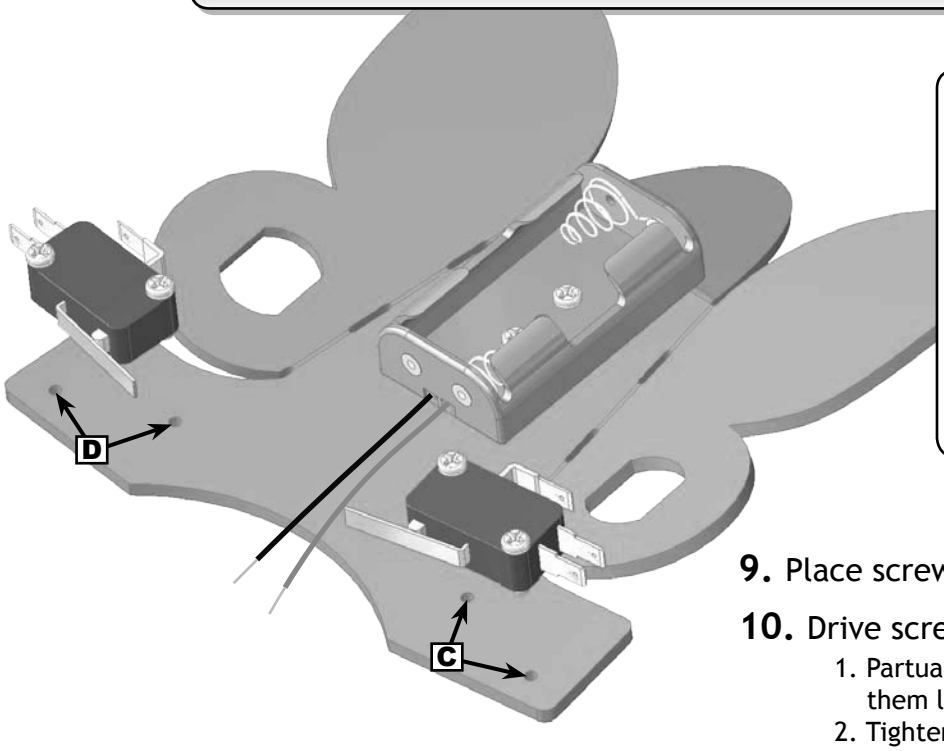
What Is Needed?



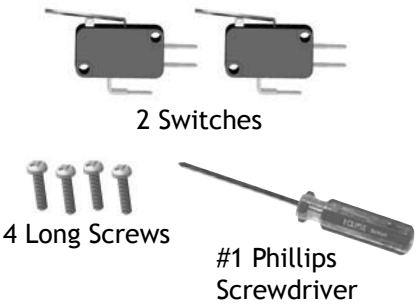
7. Place screws into holes **A** in battery holder.

8. Drive screws into holes **B**.

C. Attach The Switches



What is Needed?



9. Place screws into switches (as shown).

10. Drive screws into holes **C** and **D**.

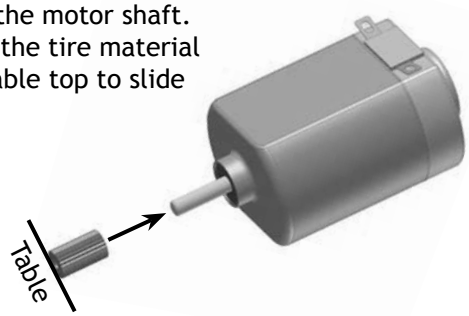
1. Partually drive in all screws (leaving them loose)
2. Tighten all screws

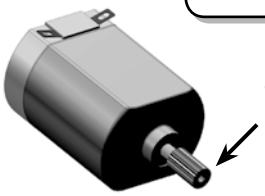
D. Put The "Tires" On

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.





Tire Material should extend slightly past the motor shaft.

What Is Needed?

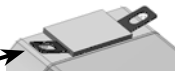
2 Motors

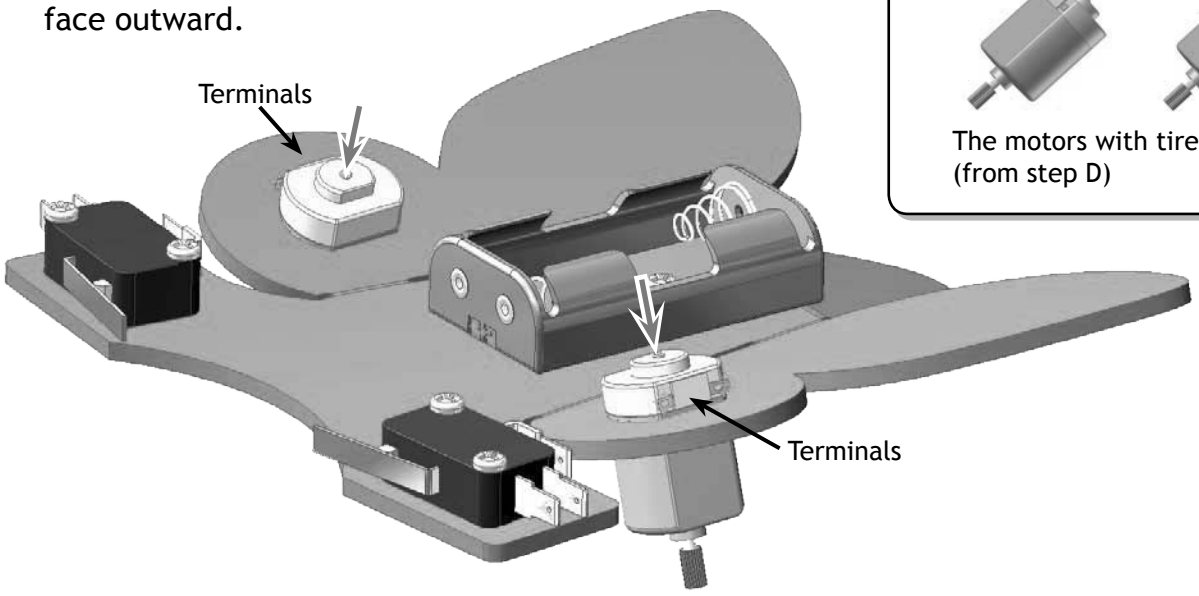
1/2" (~14mm) Tire Material

A Cutting Tool

E. Attach The Motors

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





What Is Needed?

The motors with tire material (from step D)

F. Bend The Feelers

14. Create 2 feelers using this process:

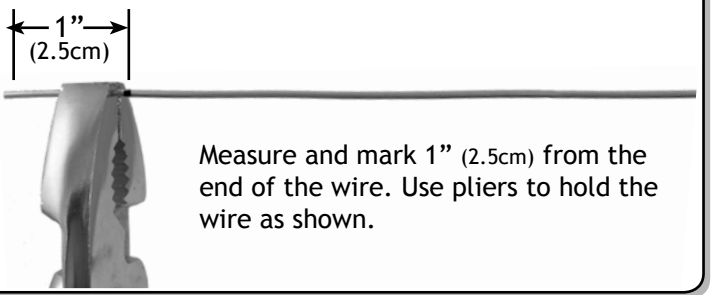
What's Needed?

Marker

Pliers

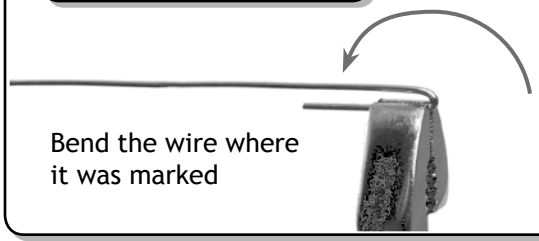
2 Steel Feeler Wires

1. Measure, Mark, Hold



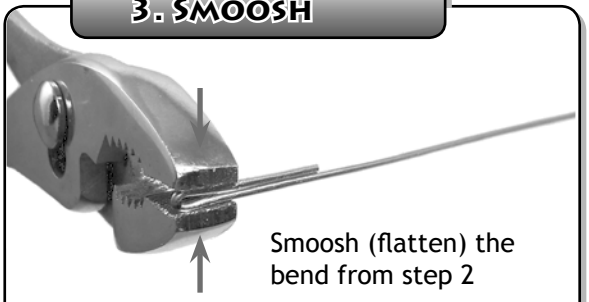
Measure and mark 1" (2.5cm) from the end of the wire. Use pliers to hold the wire as shown.

2. Bend



Bend the wire where it was marked

3. Smoosh

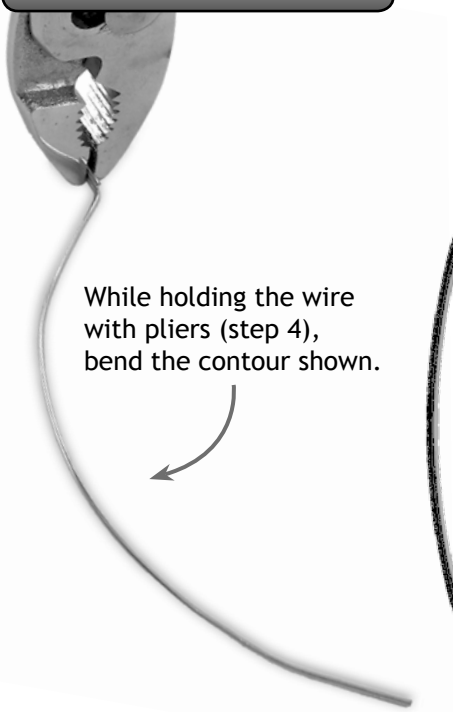


Smoosh (flatten) the bend from step 2

4. Hold

Hold the wire as shown

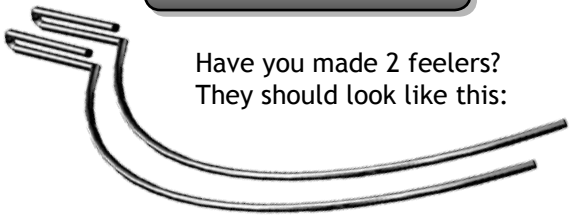
5. Form



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

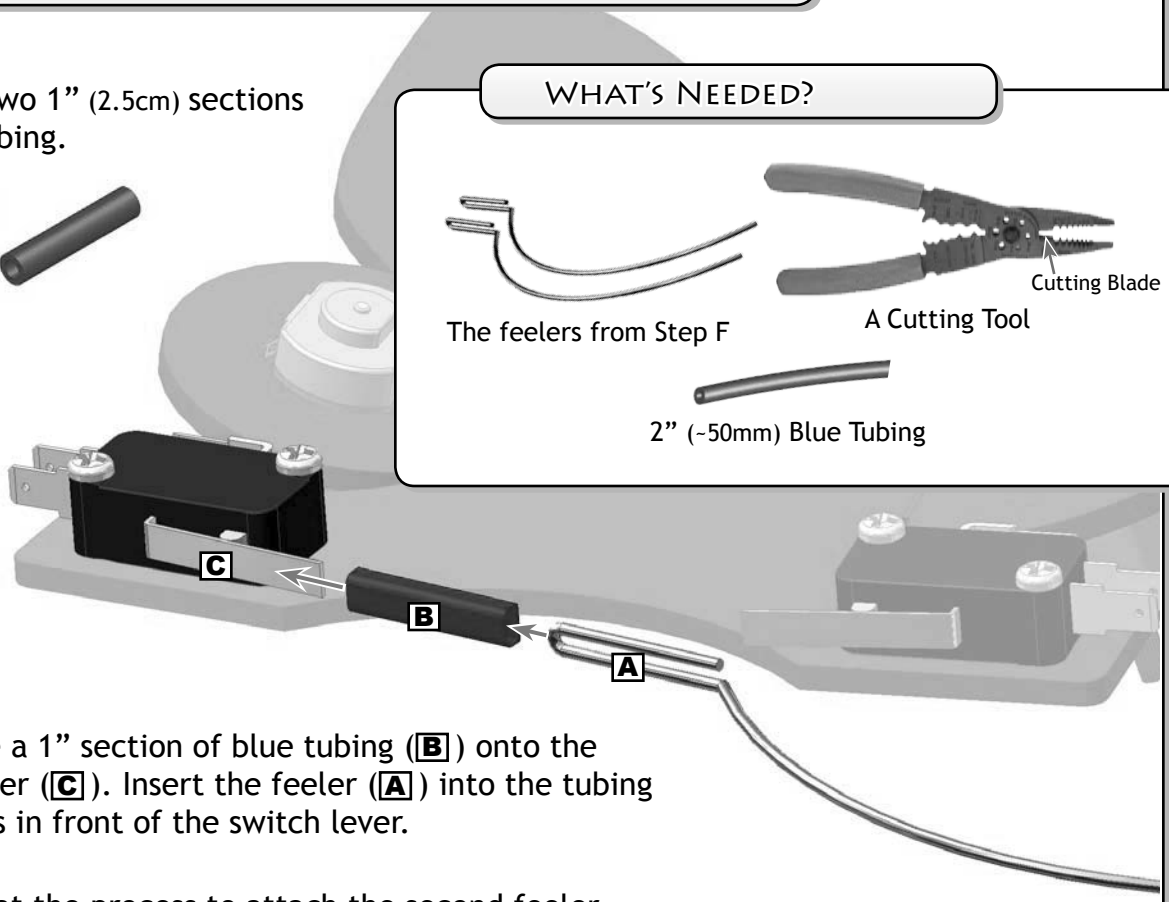
15. Cut two 1" (2.5cm) sections of blue tubing.

What's Needed?

The feelers from Step F

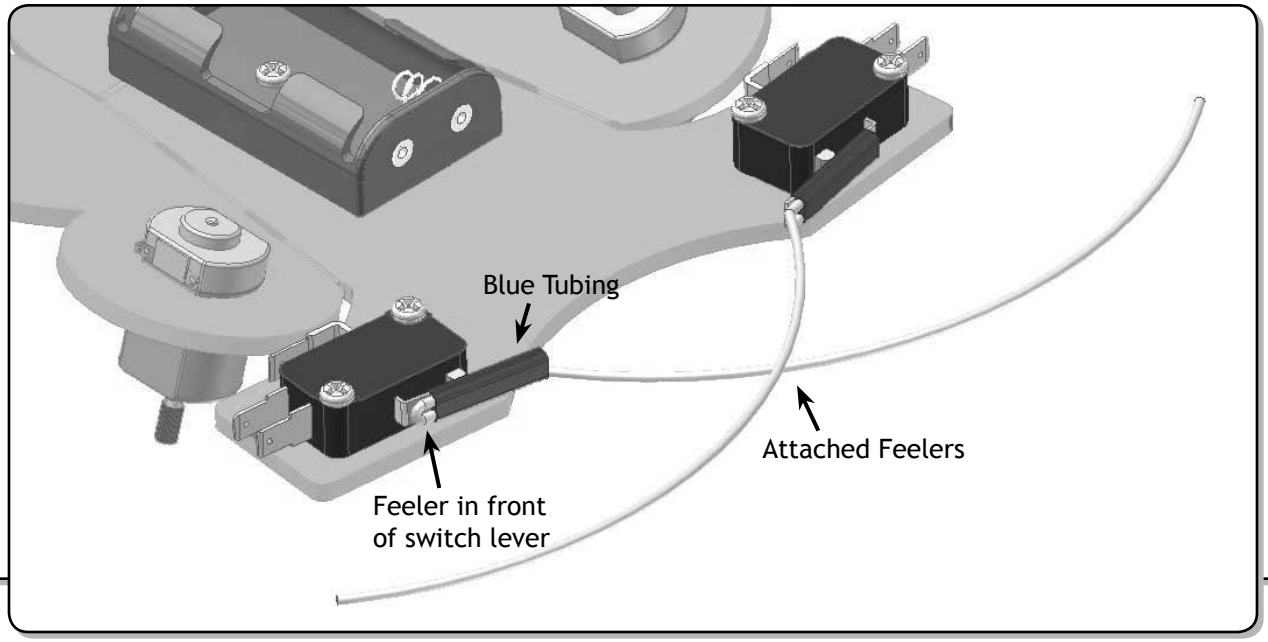
A Cutting Tool

2" (~50mm) Blue Tubing



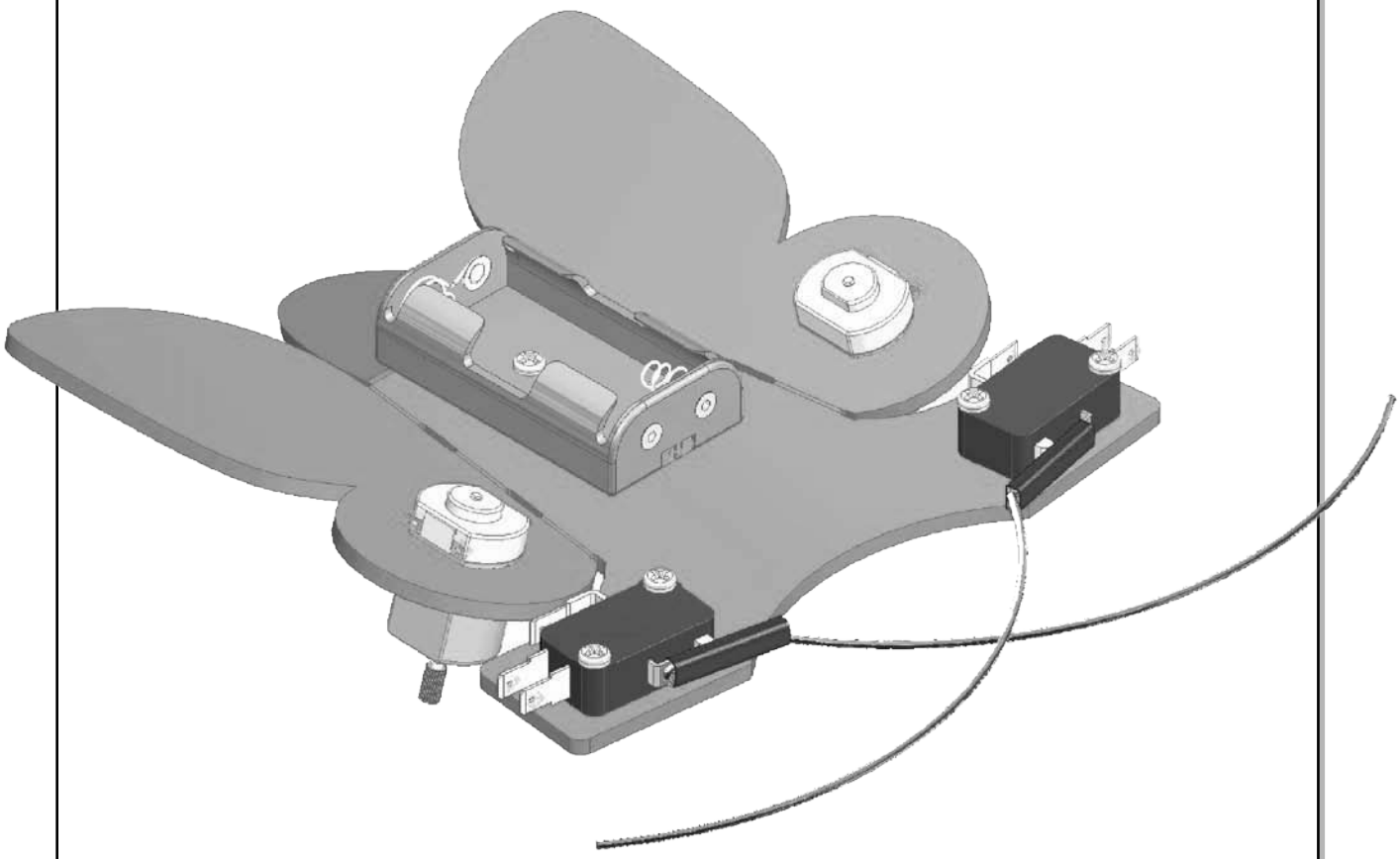
16. Place a 1" section of blue tubing (**B**) onto the switch lever (**C**). Insert the feeler (**A**) into the tubing so it slides in front of the switch lever.

17. Repeat the process to attach the second feeler.



You're Done !!!

Your bug should look something like this:



Next Step: The Electronics Lab