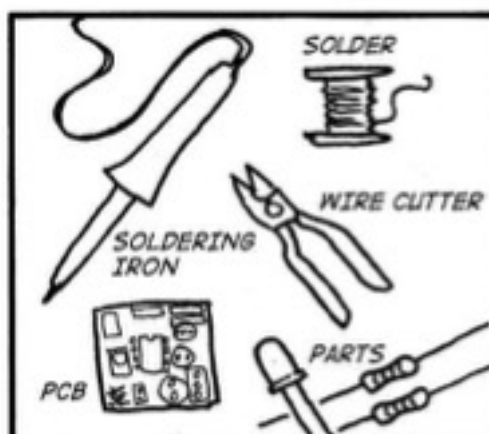


# PHYSICAL COMPUTING

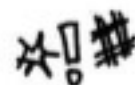
## **WEEK 03 - LAB**

# SOLDERING IS EASY

## HERE'S HOW TO DO IT



THE IRON IS HOT!! BE CAREFUL!



YOUR KIT SHOULD COME WITH INSTRUCTIONS FOR WHAT PARTS GO WHERE AND WHAT WAY!

CLEAN THE TIP OF YOUR IRON BEFORE EACH SOLDER CONNECTION!



PUT YOUR PART IN PLACE. BEND OUT THE LEADS SO IT STAYS IN PLACE



PUT THE PCB DOWN SO YOU CAN SOLDER.

CAREFUL WITH THE SURFACE UNDERNEATH!

FIND SOME GOOD WAY TO KEEP IT STEADY



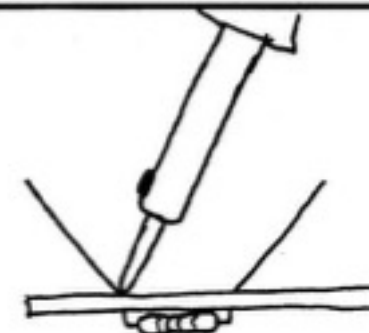
IF YOU NEED A THIRD HAND, YOU CAN MAKE A STANDING COIL OF THE SOLDER INSTEAD OF HOLDING IT IN YOUR HAND

OK, LETS SOLDER!

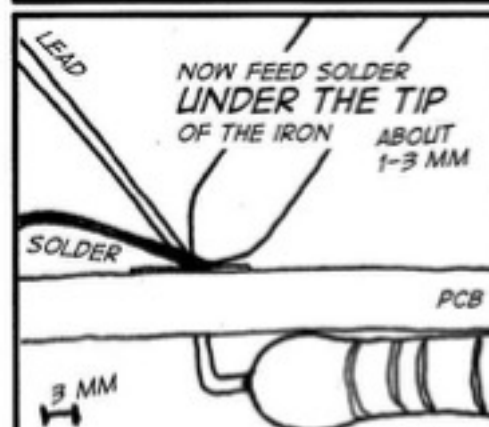
FIRST, YOU WANT TO HEAT BOTH THE PAD AND THE LEAD FOR ABOUT 1 SECOND



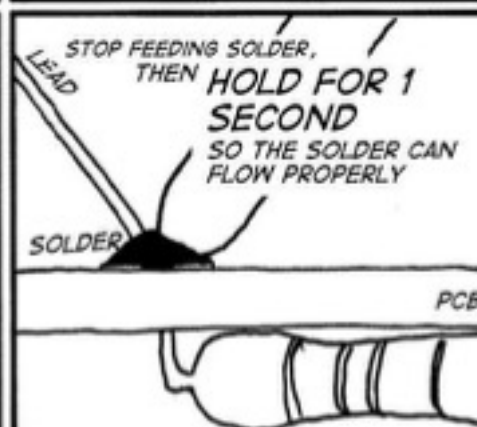
PSST! CLEAN THE TIP FIRST!



TOUCH THE SOLDERING IRON TO BOTH THE PAD AND THE LEAD!



NOW FEED SOLDER UNDER THE TIP OF THE IRON ABOUT 1-3 MM



STOP FEEDING SOLDER, THEN HOLD FOR 1 SECOND SO THE SOLDER CAN FLOW PROPERLY



A GOOD CONNECTION COVERS THE PAD WITHOUT TOUCHING OTHER PADS AND SURROUNDS THE LEAD



CUT THE LEADS OFF WITH THE WIRE CUTTER

ALWAYS HOLD ON TO THE LEAD!

EYES DON'T LIKE JUMPING LEAD BITS!

SOME LEADS ARE ALREADY SHORT, YOU DON'T NEED TO CUT THOSE.

THE SMOKE FROM THE MELTING SOLDER IS NOT TOXIC, BUT BLOW GENTLY ON IT TO AVOID BREATHING IT.

LEAD ON THE OTHER HAND IS TOXIC, AND GETS ON YOUR SKIN WHEN HOLDING THE SOLDER.



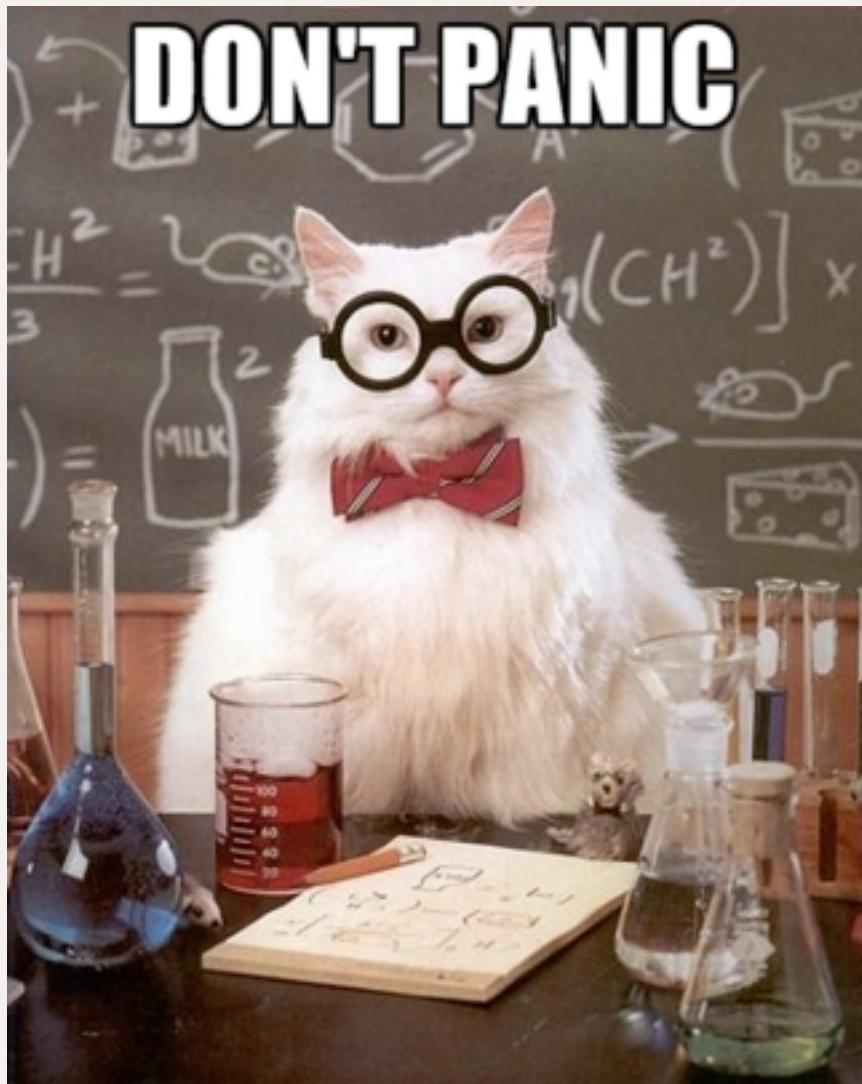
KEEP SOLDERING EACH PART IN ITS CORRECT PLACE. REMEMBER SOME PARTS NEED TO GO IN A CERTAIN WAY!

IF ALL YOUR CONNECTIONS ARE GOOD, YOUR CIRCUIT WILL JUST WORK!

THERE ARE MORE TRICKS YOU WILL LEARN AS YOU KEEP SOLDERING, BUT NOW YOU KNOW ENOUGH TO MAKE MANY COOL THINGS.

SOLDERING COURSE BY MITCH ALTMAN  
[HTTP://CORNFELDELECTRONICS.COM](http://cornfeldelectronics.com)

COMIC ADAPTATION BY ANDIE NORDGREN  
[HTTP://LOG.ANDIE.SE](http://log.andie.se)



- \* Keep your temp at about 317 - 321 C
- \* put the component between the iron and the solder
- \* wait until the solder starts to flow
- \* lift the iron
- \* if you end up with the solder stuck to the board, don't panic. Just clip it







<https://www.youtube.com/watch?v=QKbJxytERvg>

# Desoldering

is as important as soldering



# Fade an LED with PWM

In the Arduino IDE

File > Examples > Analog > Fading



# Servo library in action

In the Arduino IDE

File > Examples > Servo > Sweep

File > Examples > Servo > Knob