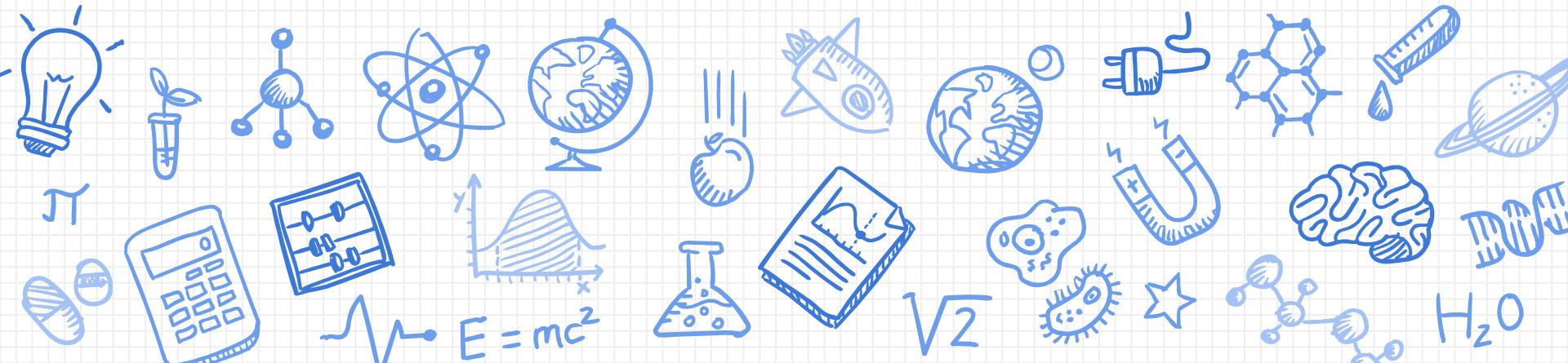
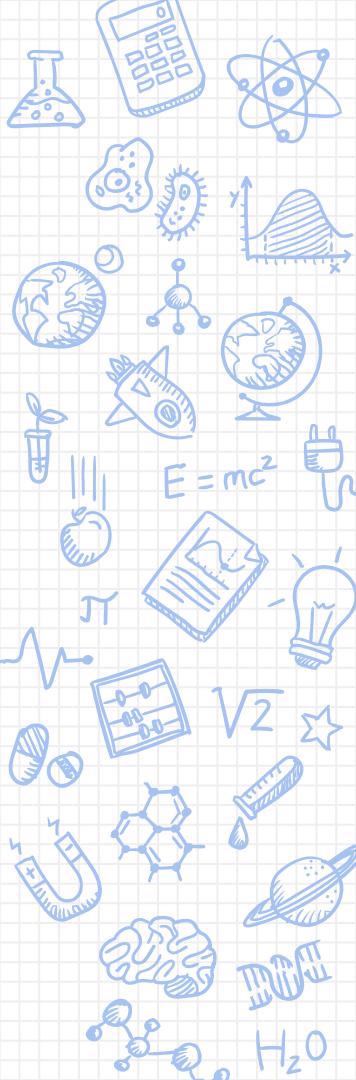


# EE16A Touchscreen 1



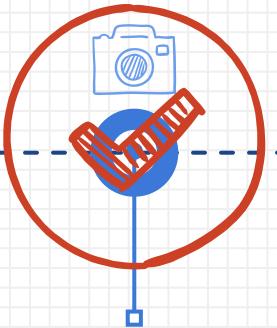
# Announcements

- Congrats on finishing MT1 !!
  - Today's lab is all about soldering!
    - Be safe, let us know if you are unsure or if you get hurt
    - First aid at the TA desk





# Semester Outline



Imaging  
Module



Touchscreen  
Module

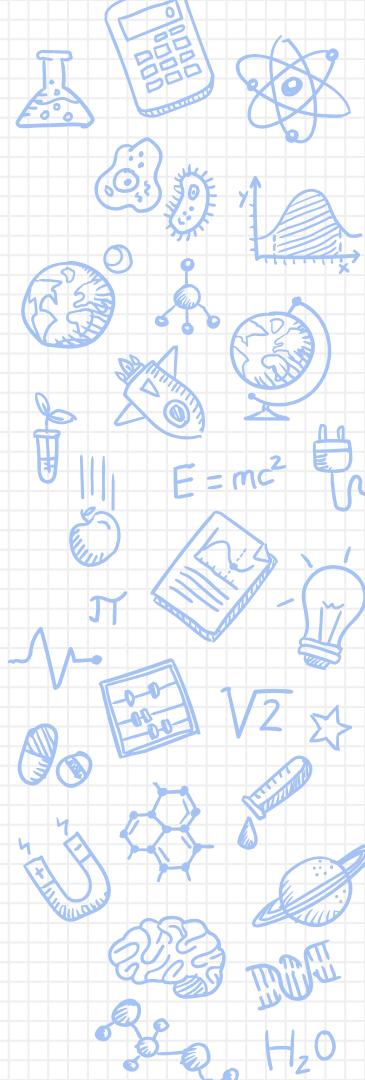


APS  
Module

## Today's Lab:

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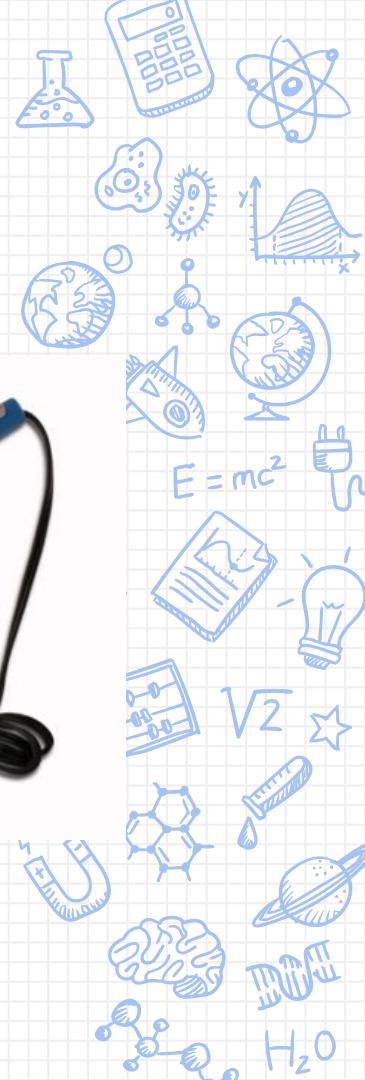
- Learn to solder
- Build simple LED fader circuit
- Make resistive touchscreen PCB
- Breadboarding Basics



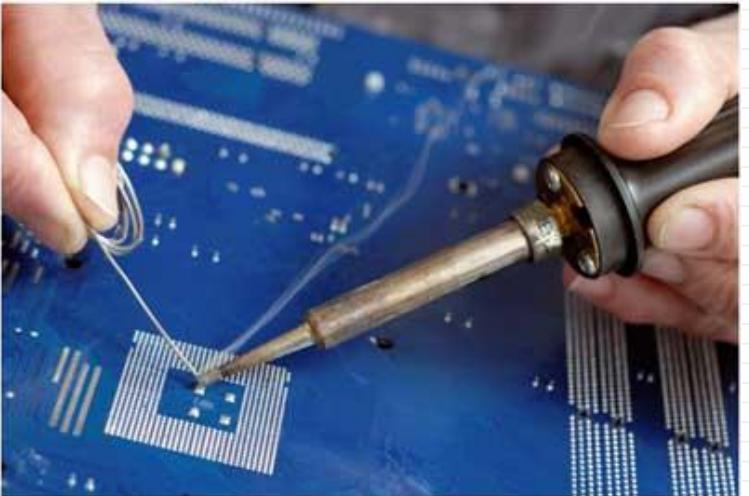
## Equipment For Today:

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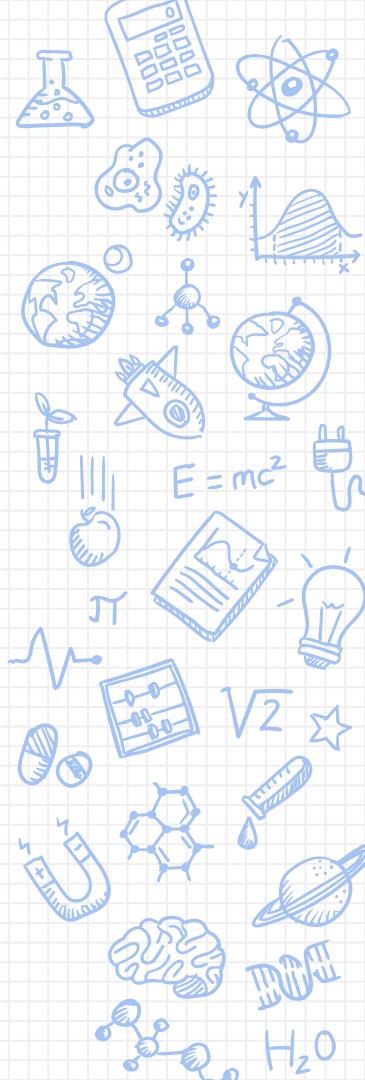
- Power Supply
- Soldering Iron
- Launchpad
- Desoldering Pump



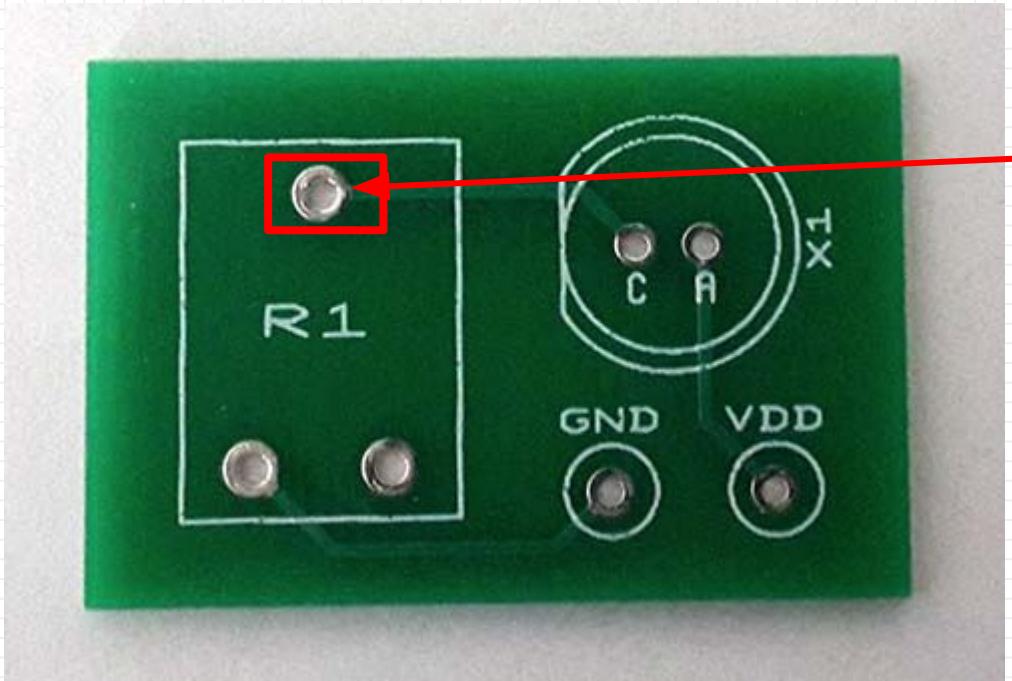
# Soldering!!



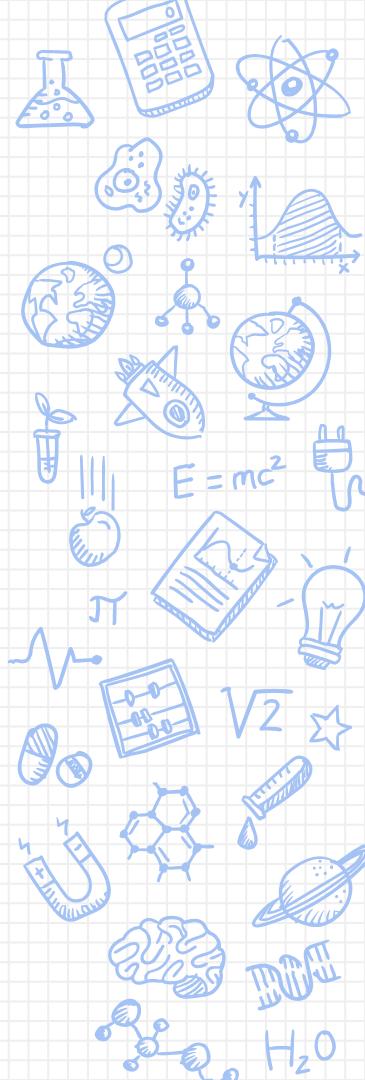
- Like hot glue for circuits
  - Ensures there's a physical connection for all your components.



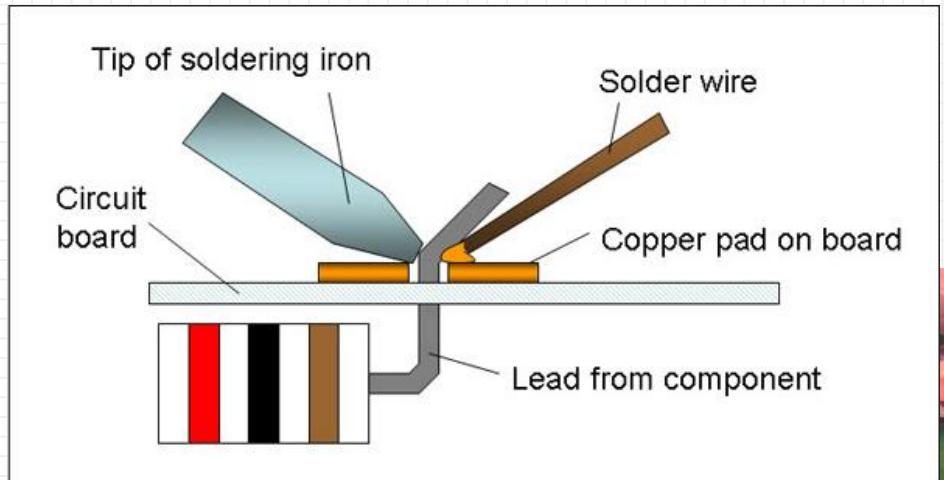
# PCB (Printed Circuit Board)



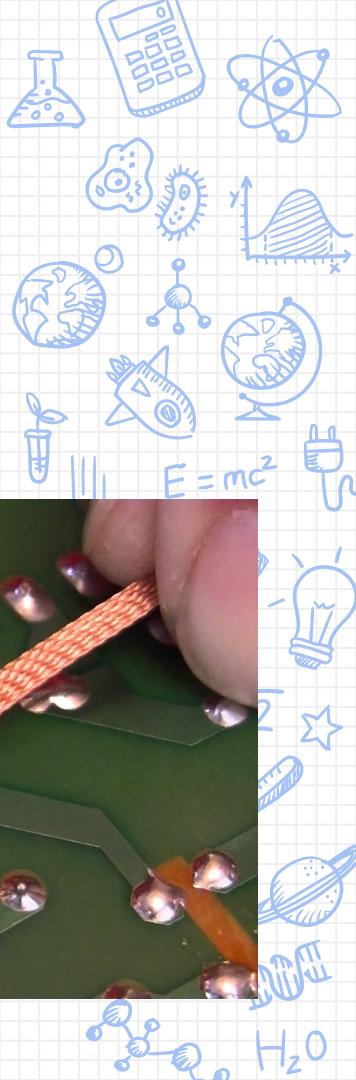
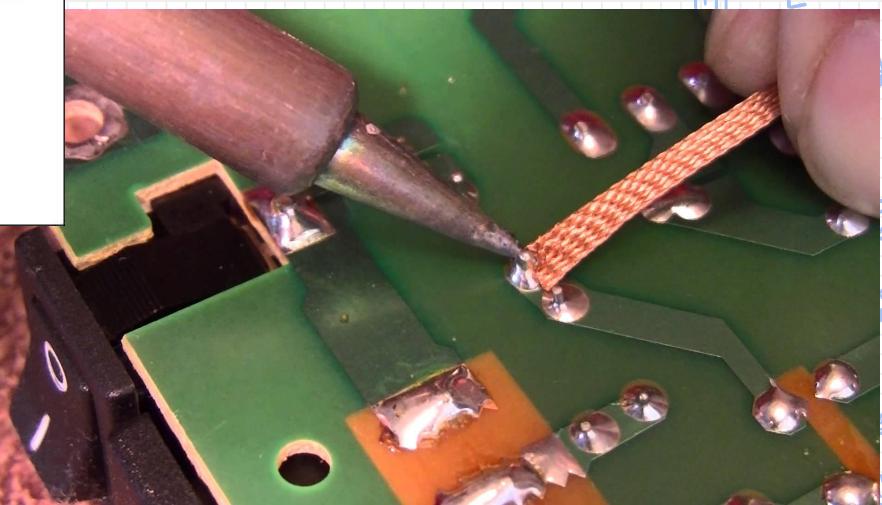
Pad  
(Copper plate)



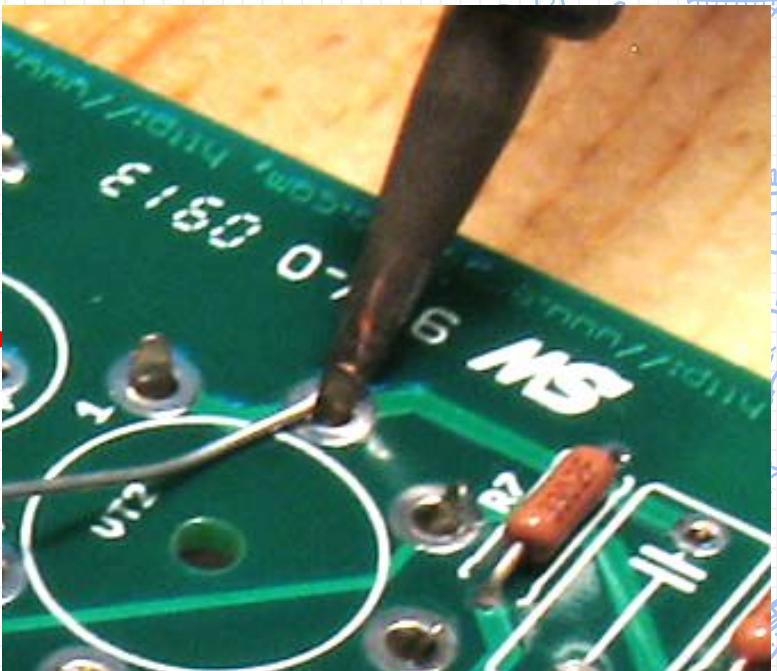
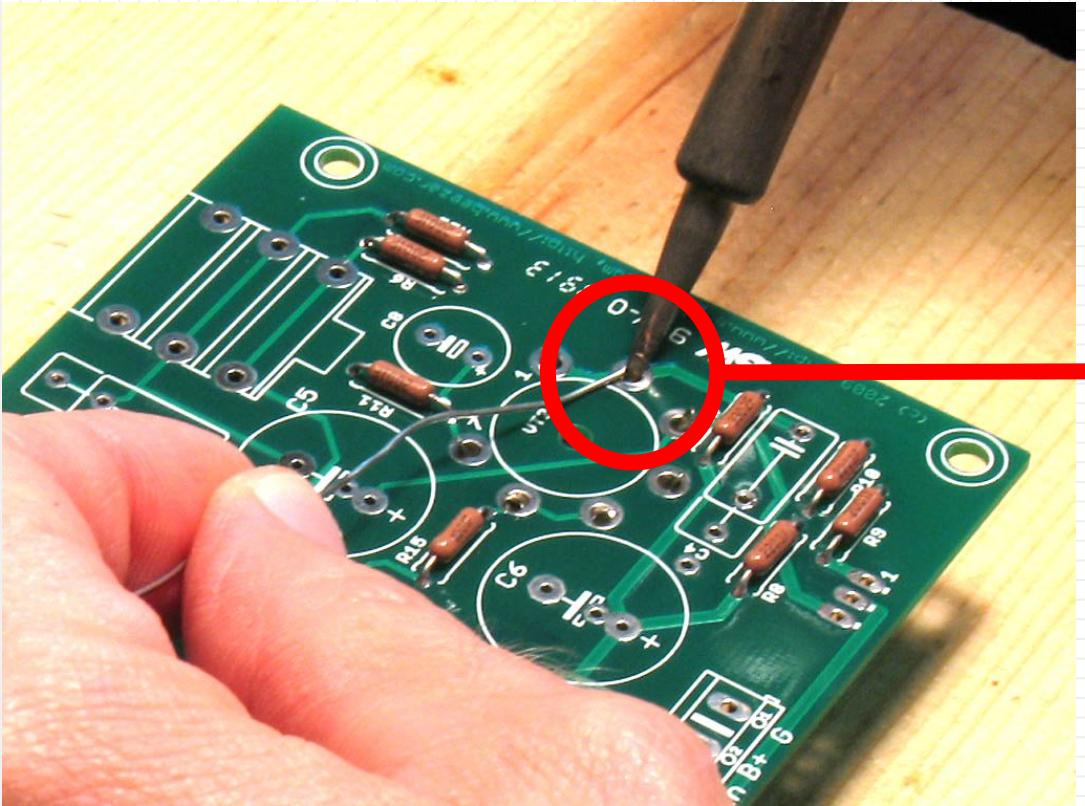
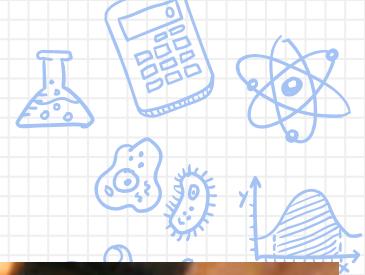
# Soldering cont.



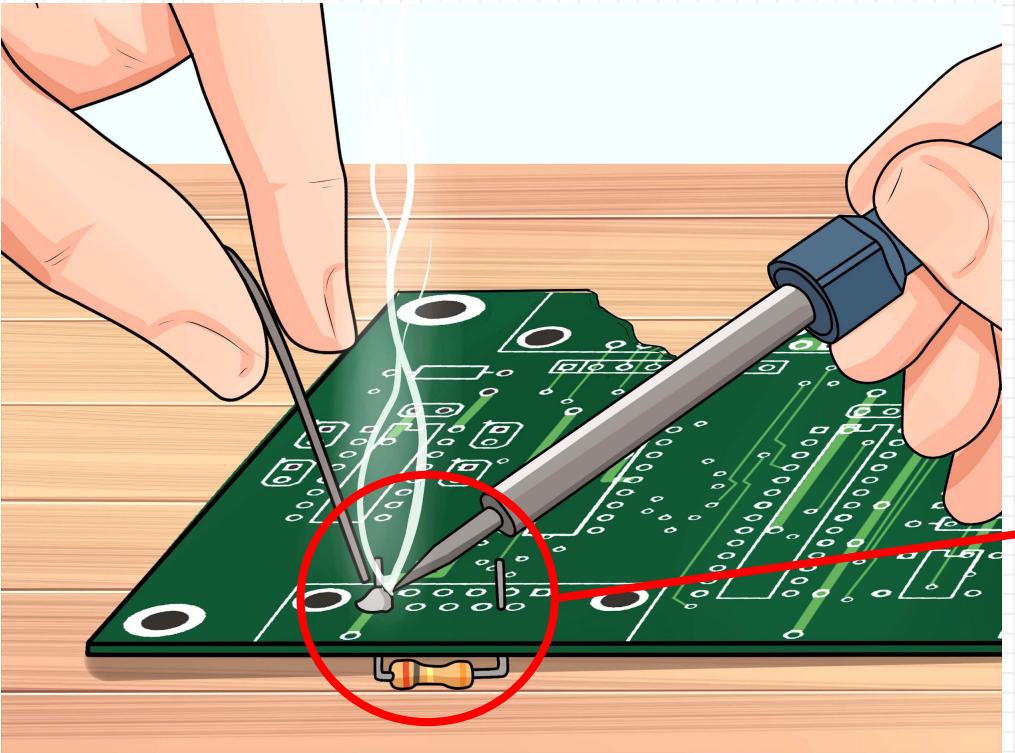
Only solder metal to metal!



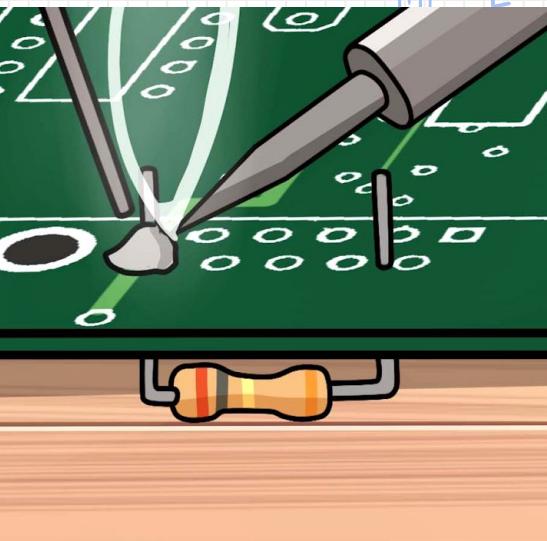
# Soldering



# Soldering



**Component  
should be  
flush to the  
board  
... why?**



# tag urself soldering equipment edition

soldering iron



- super hot and knows it
- will burn you if not careful
- microwaves all their food for too long

solder wire



- seems tough but melts easily
- gets sick if you dont wash your hands
- "what doesnt kill you makes you stronger"

desoldering pump



- mom of the group
- there when you need it the most
- two shot wonder

wet sponge



- nice and soft
- backs away from fights
- says moist to annoy you

clamp



- definitely lifts
- has a truck and will help you move
- gives good hugs

wire

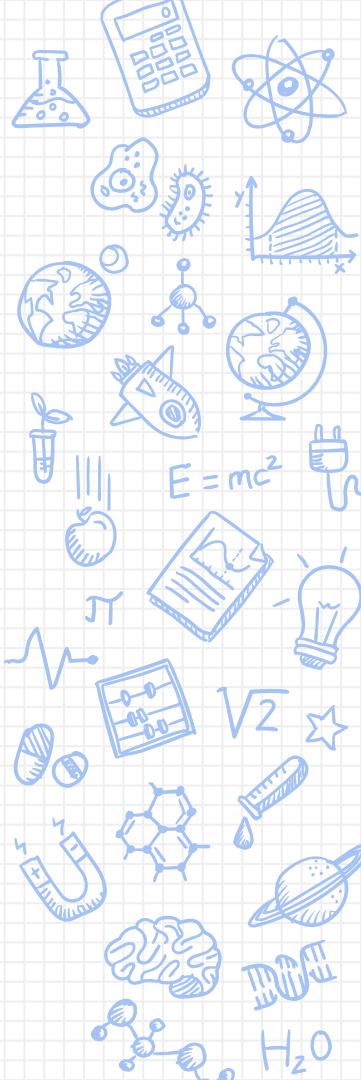


- bendy and twisty
- can eat whatever they want and still stay thin
- always wants to play strip poker

# Soldering DON'TS

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- Don't eat while in lab today (or ever)!
- Don't solder your jumpers
  - Use the wires from the TA desk
- Don't solder plastic and other non-metals
- Don't use too much solder
  - but also not too little
- Don't hold your soldering iron like....





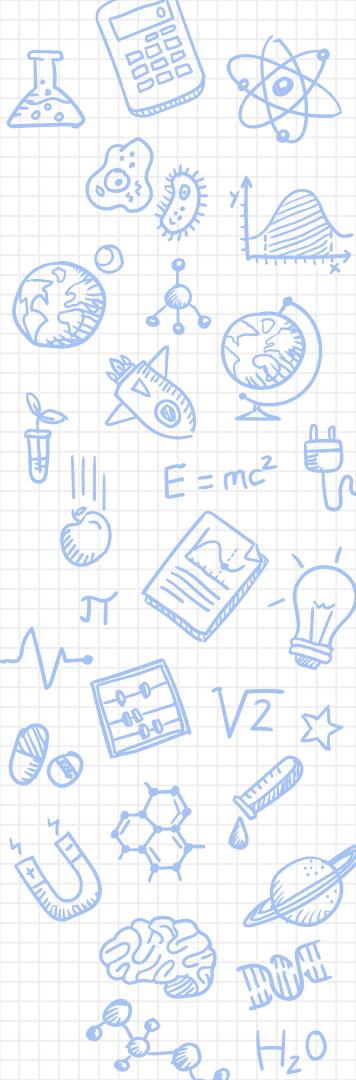
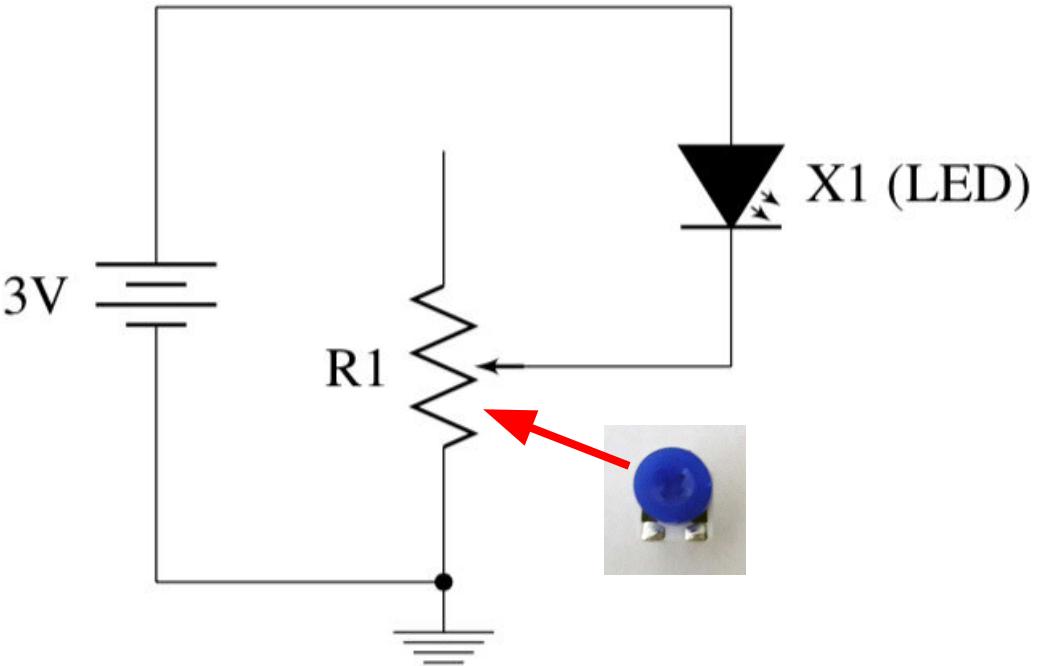
# Soldering DO'S

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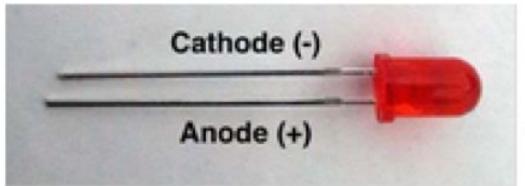
- Wet the sponge and clean the tip when you start.
- Use the clamp: components should be stable before you start soldering.
  - Push components **ALL THE WAY IN**
- **Safety first;** don't burn yourself.
- Ask if you feel unsure of what you're doing.
- Clean up after yourself, turn off all equipment



# LED Fader Circuit Diagram

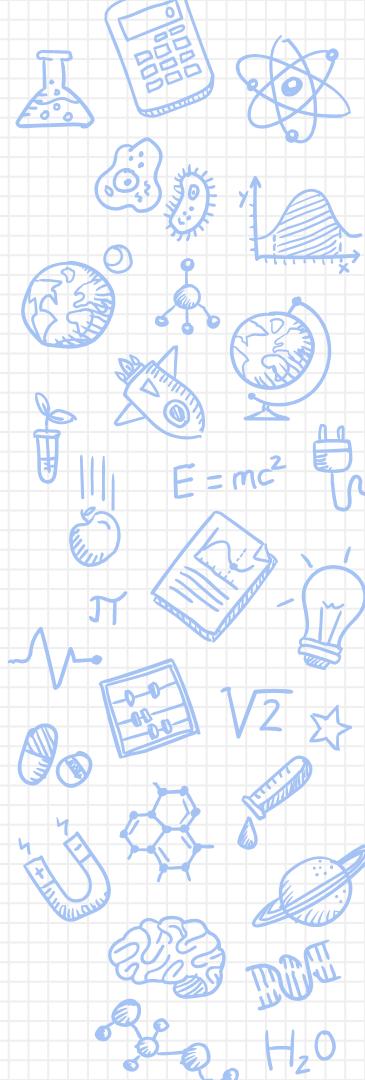
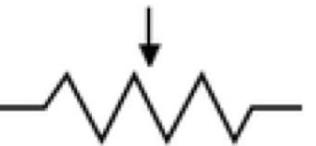


# New Circuit Elements



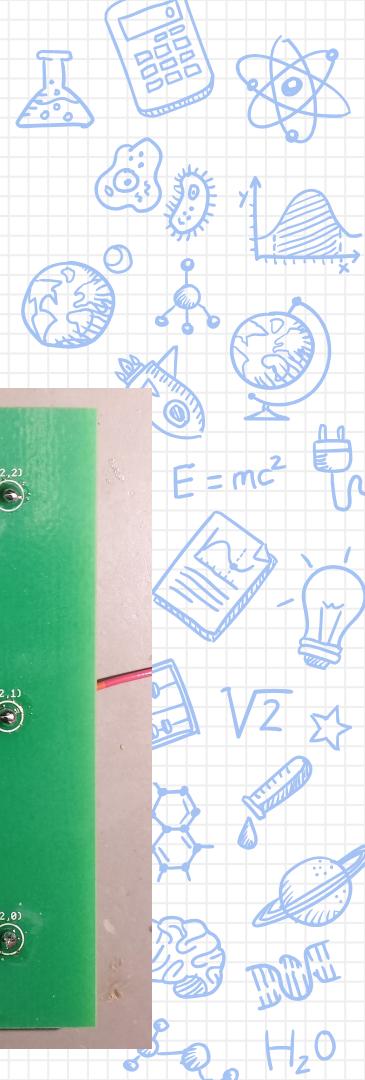
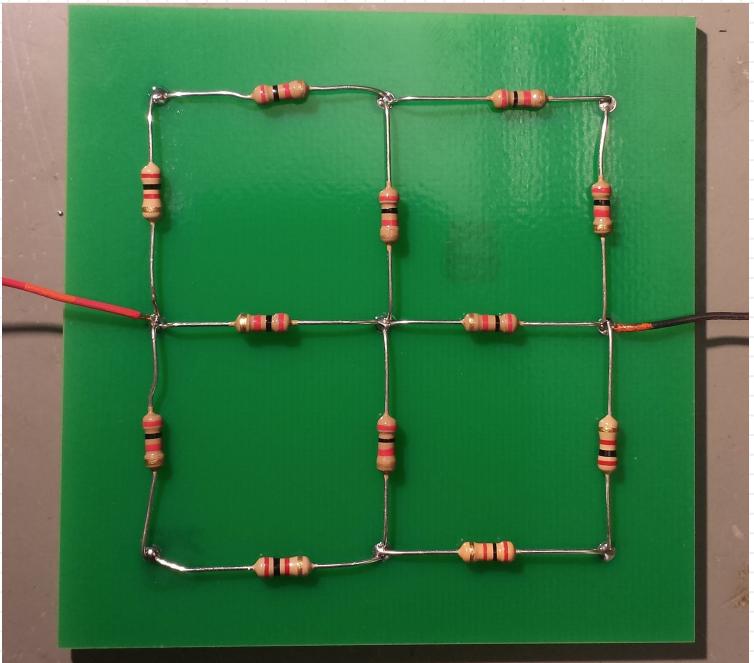
- LED

Potentiometer



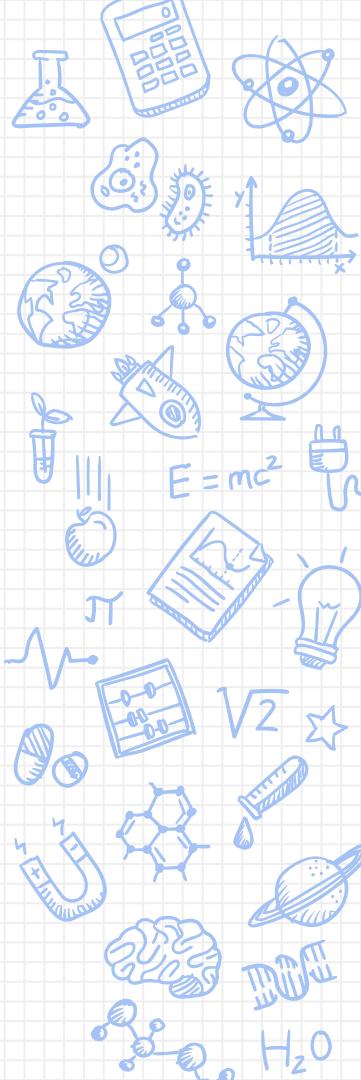
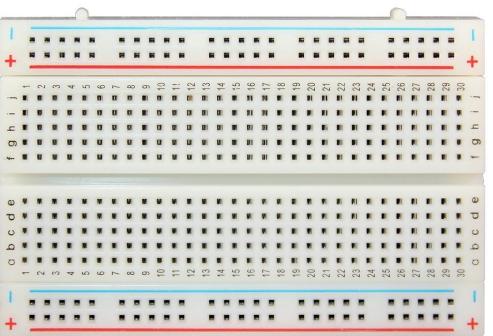
# Resistive Touchscreen Soldering

We will go more into depth next week on how this all works!  
Just solder for today :^)



# Breadboarding Basics

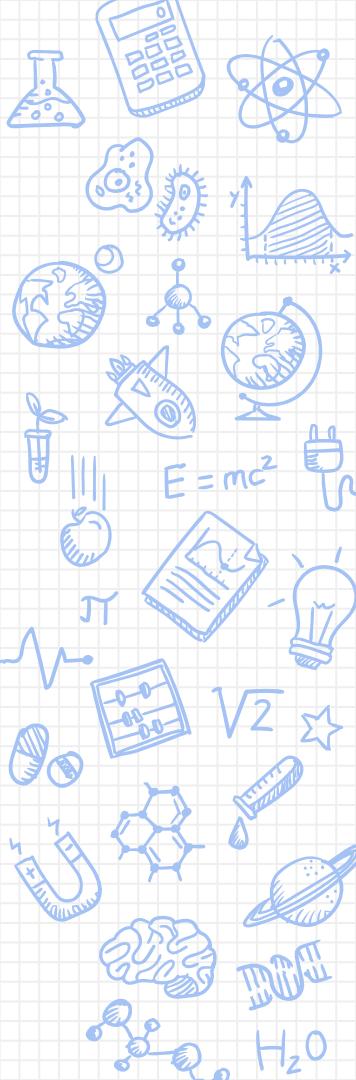
- Review Imaging 1 : Intro to Breadboarding
  - Very important skill to prototype, debug, and translate theoretical ideas into real circuits



# Notes

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- Apply solder on the side with text of touchscreen
  - These are the coordinates on the PCB (**use them**)
- **Be careful when soldering your resistive touchscreen!**  
**You only get one per group. Make sure to bring it back next week.**
- Don't Use your Jumper Wires use the wires at the TA Desk
- Make sure the components are all flush (pushed all the way down) with the PCBs before soldering
- Cut the soldered joints of the resistors to be **VERY VERY SHORT**
  - **Twist** component leads together before soldering



# Notes

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- **LED: polarity** matters -> Longer one is positive
- **Male to male wires** are at **TA desk**
  - **Wire stripper** at your **lab station**
  - **The base of the stripper is a cutter**
- Water Squirters, Cutters, and solder rolls **STAY** on the TA Desk
  - Only need few inches of solder (@TA desk)
  - Water squirters for sponge is also @TA desk

