

# Soldering 101

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Colorado Space Grant Consortium

## *Caution:*

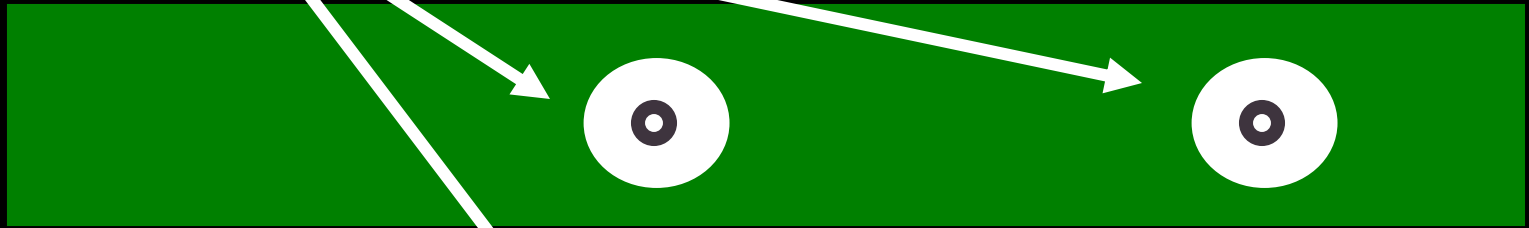
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- *Soldering is dangerous if not respected*
- *Be mindful of where you are and where the soldering iron is*
- *Eyes and liquid solder*
- *Everyone is expected to solder*
- *If you get burned...*
- *Stay together, don't work ahead*

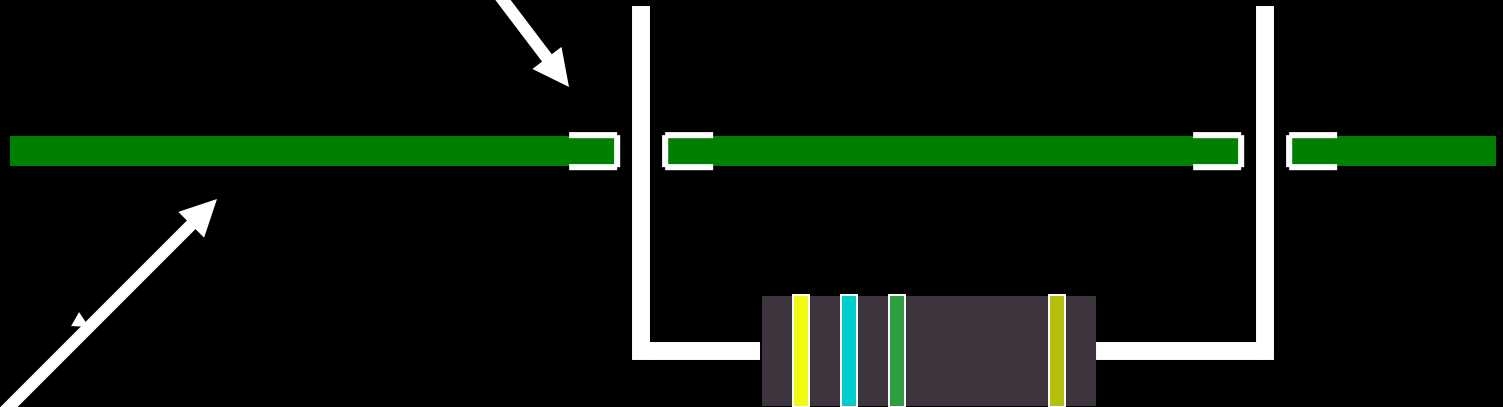
Solder Pads

## Soldering

Top View



Side View



Circuit Board

Resistor

# Prep Step 4: Tinning the iron



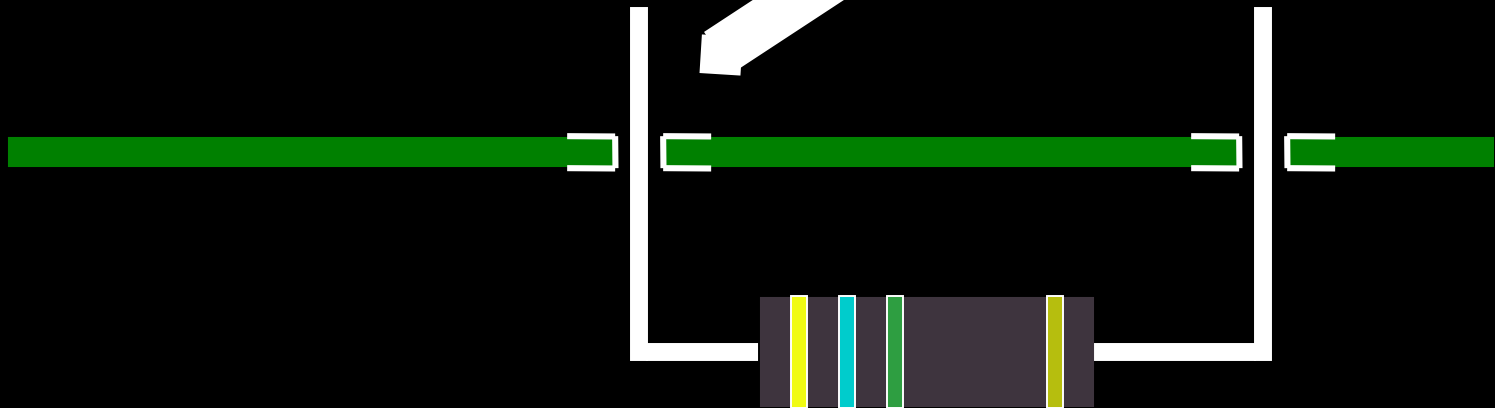
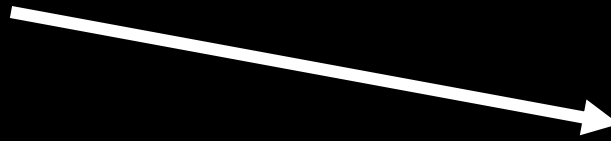
- **Tin the tip of the soldering iron by melting an inch or so of solder on the tip.**
- **The iron will now look shiny on the tip.**
- **Then wipe any excess solder on the golden sponge.**
- **Now place the iron back into the holder. Tinning your soldering iron in this manner will aid in future soldering.**



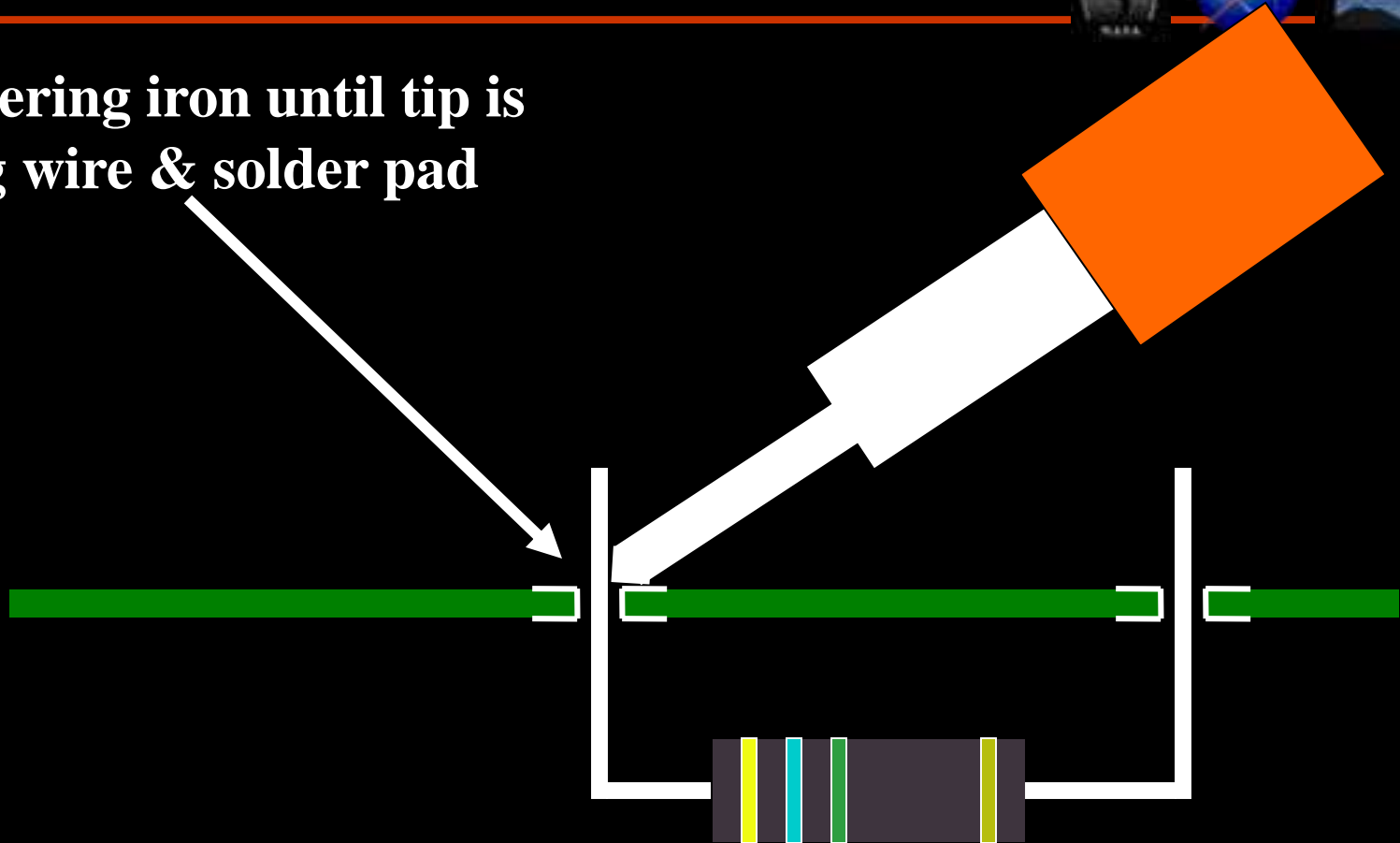
# Prep Step 4: Tinning the iron (close-up)



**Soldering  
Iron**

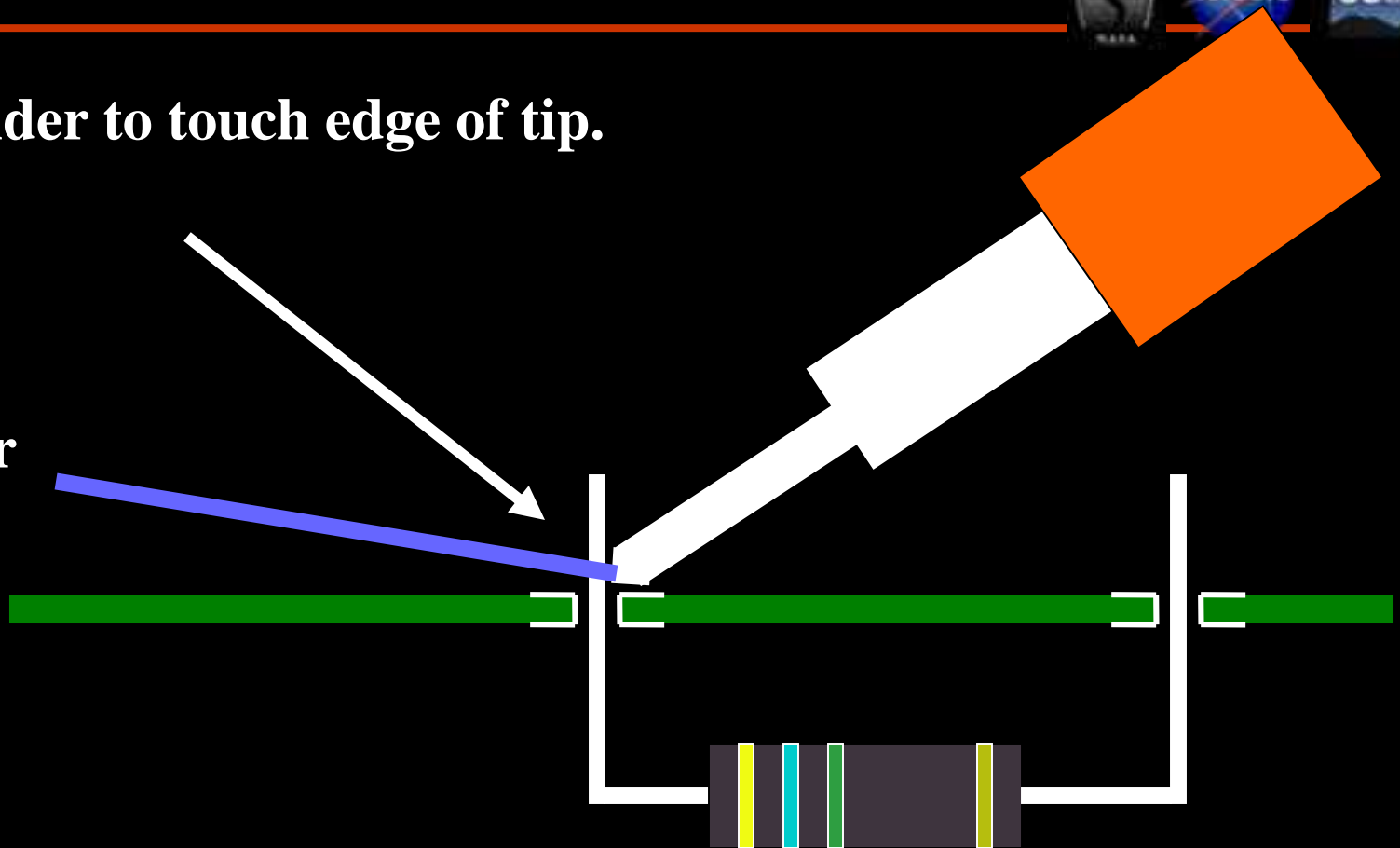


Move soldering iron until tip is touching wire & solder pad



Move solder to touch edge of tip.

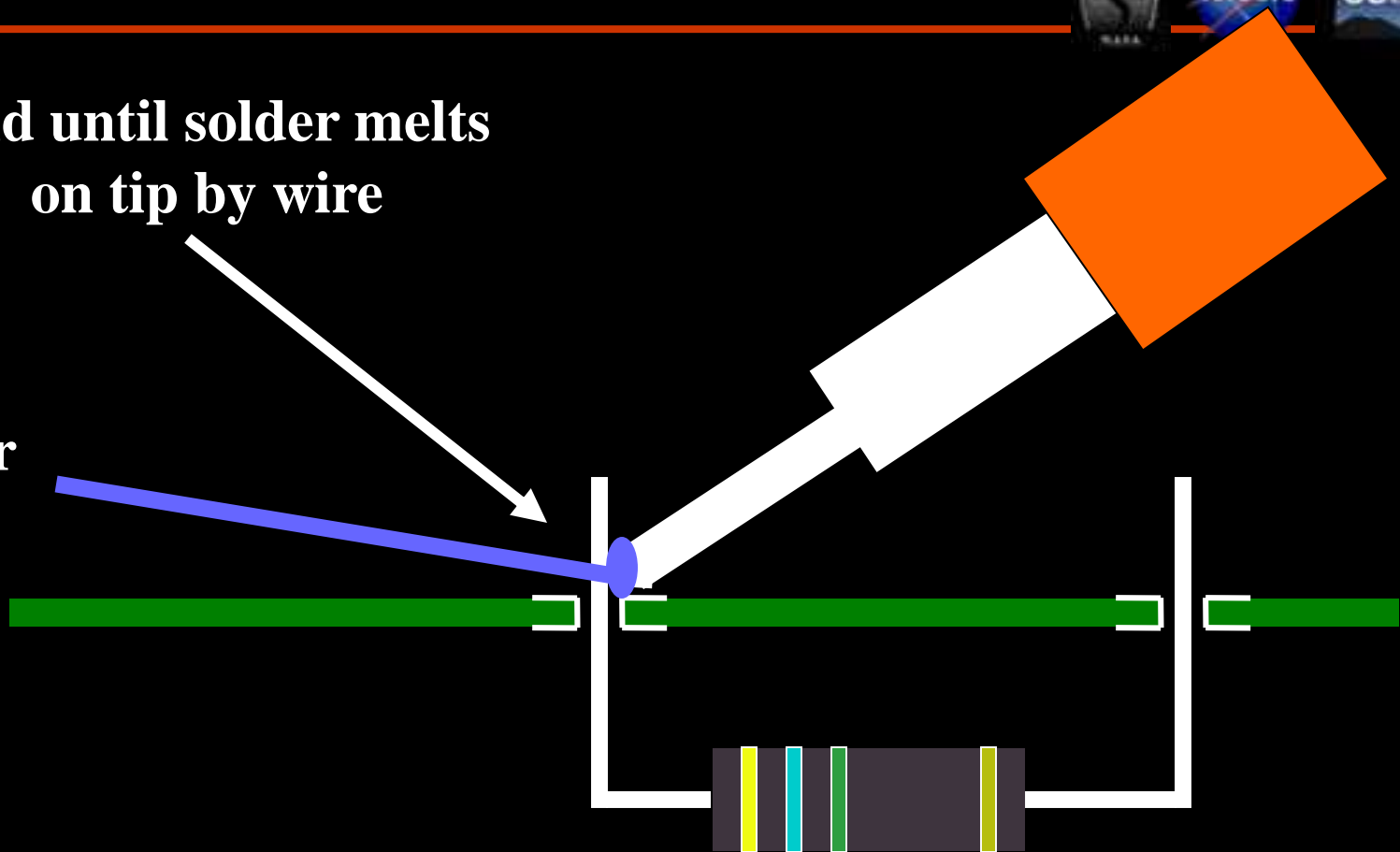
Solder





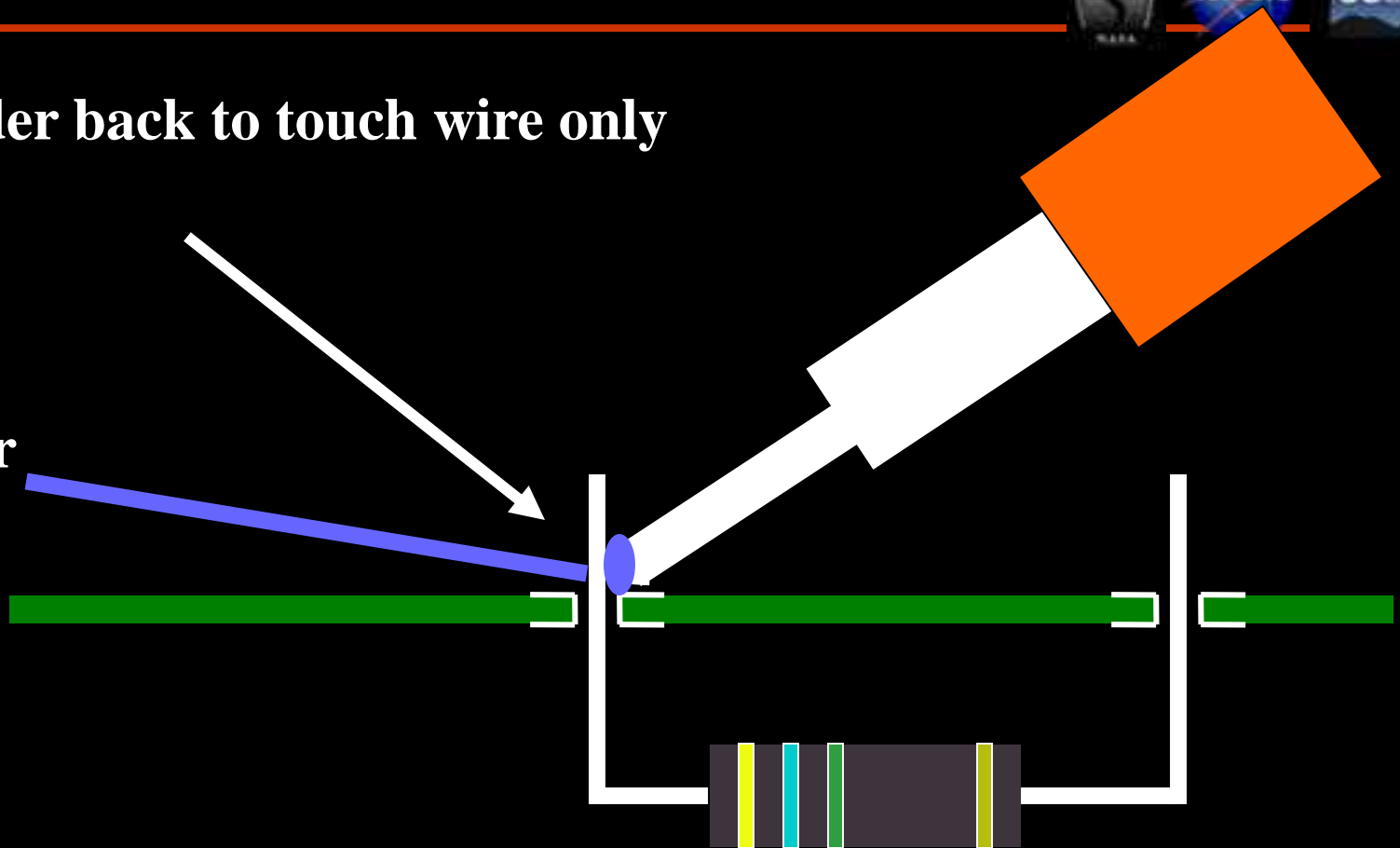
**Hold until solder melts  
on tip by wire**

**Solder**



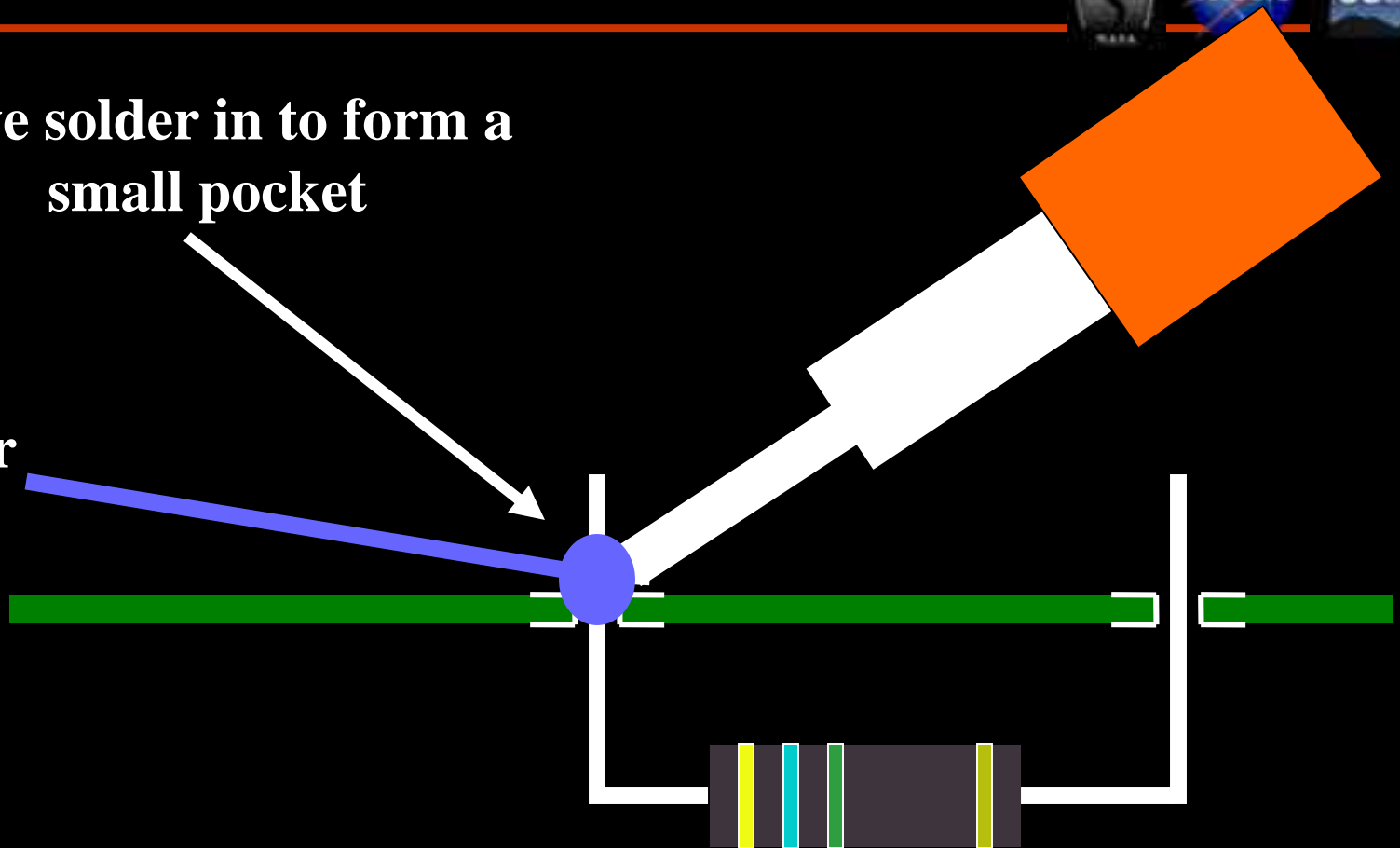
Move solder back to touch wire only

Solder



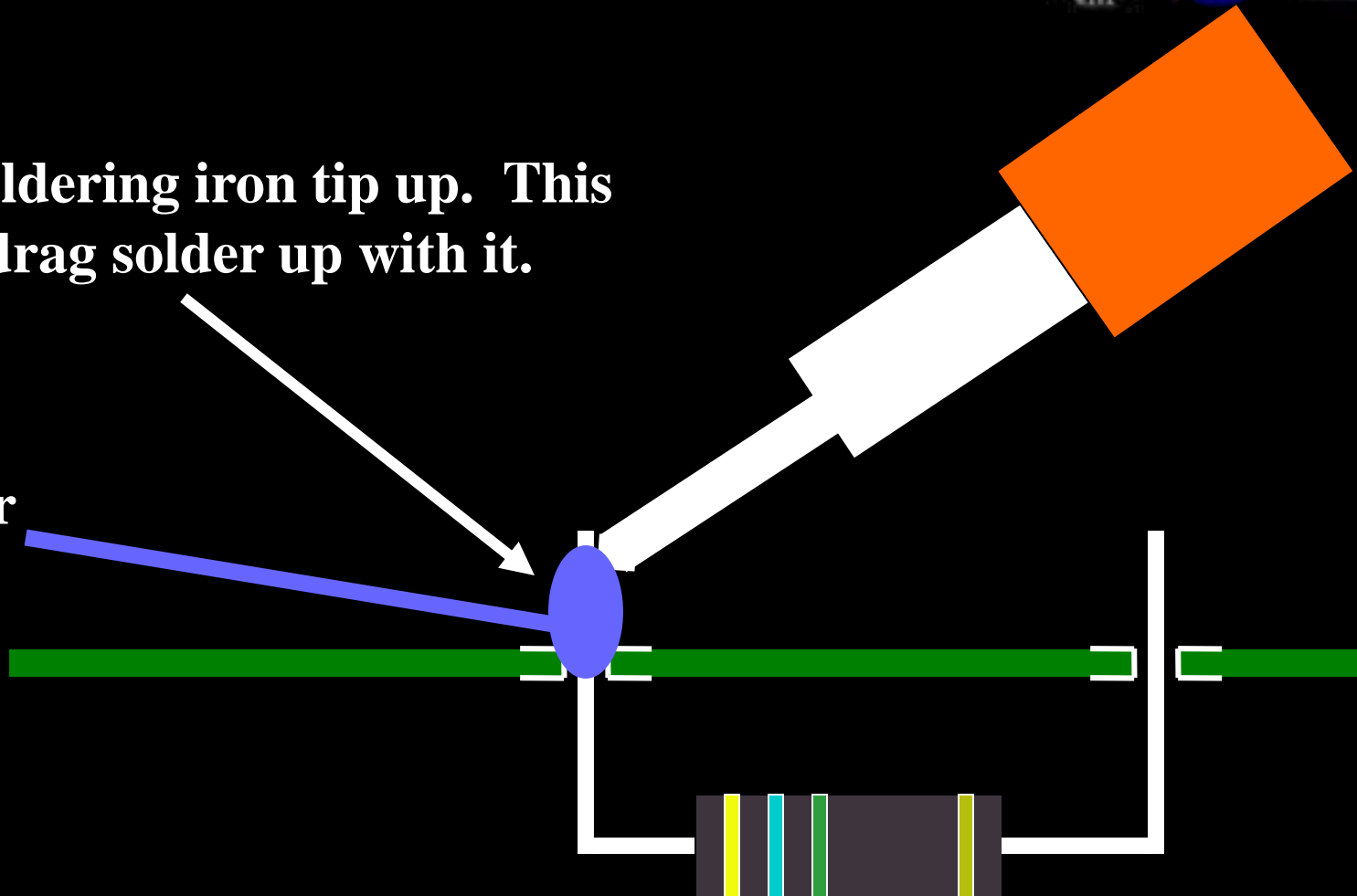
Move solder in to form a  
small pocket

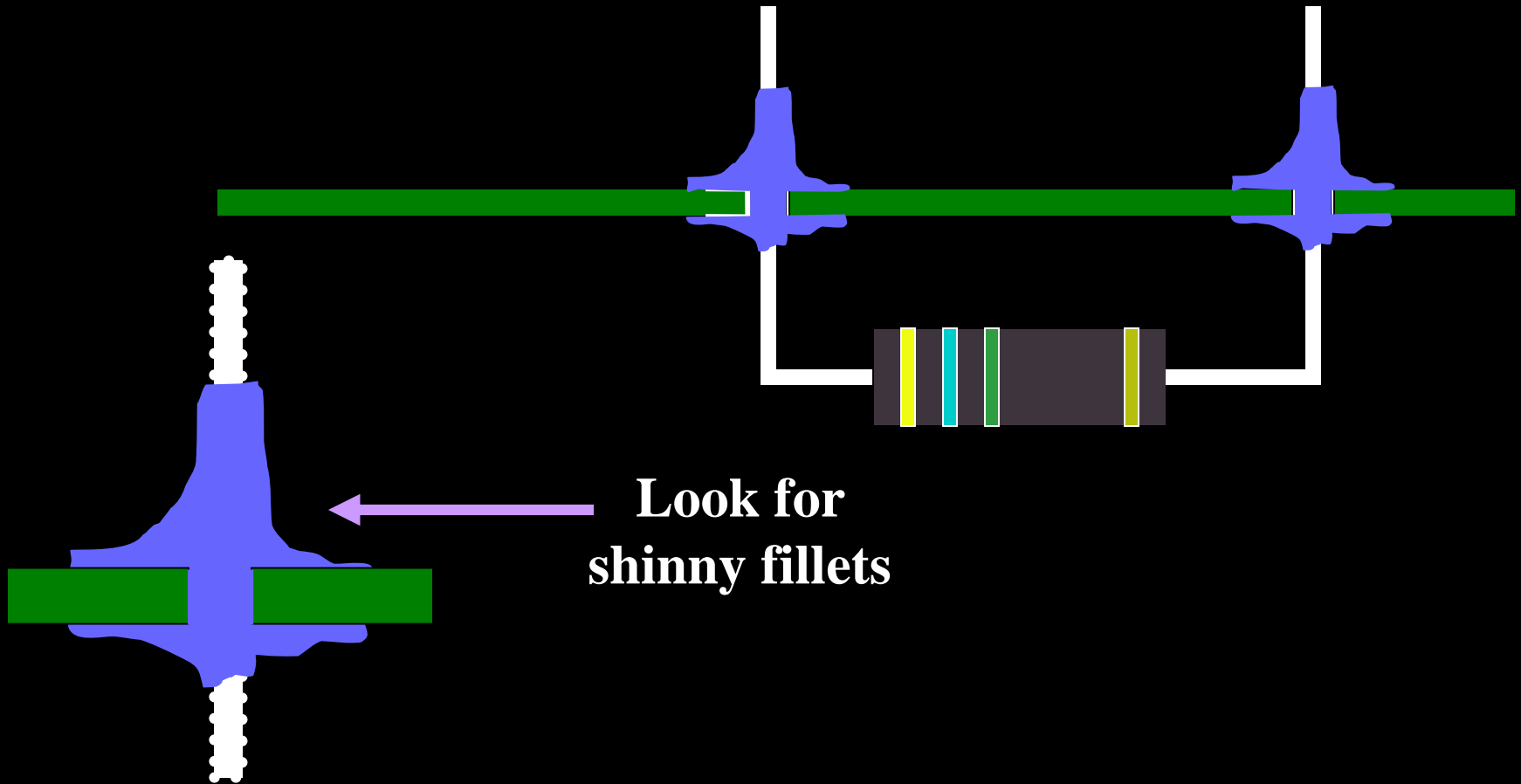
Solder



**Move soldering iron tip up. This will drag solder up with it.**

**Solder**





- 1. Make sure tip is hot**
- 2. Clean & tin tip**
- 3. Keep tip clean by using wet sponge and cloth**
- 4. Heat until the parts are hot enough to melt solder**
- 5. Hold until solder flashes around pad**
- 6. Do not put too much solder on**

# TIPS:

- Use caution when clipping leads to avoid flinging metal across the room.
- All soldering must achieve a good solder filet on the pad as shown for circuit reliability.
- Also clip the leads in this fashion.
- Bend resistors and diodes using your plastic tool as shown.

workmanship.  
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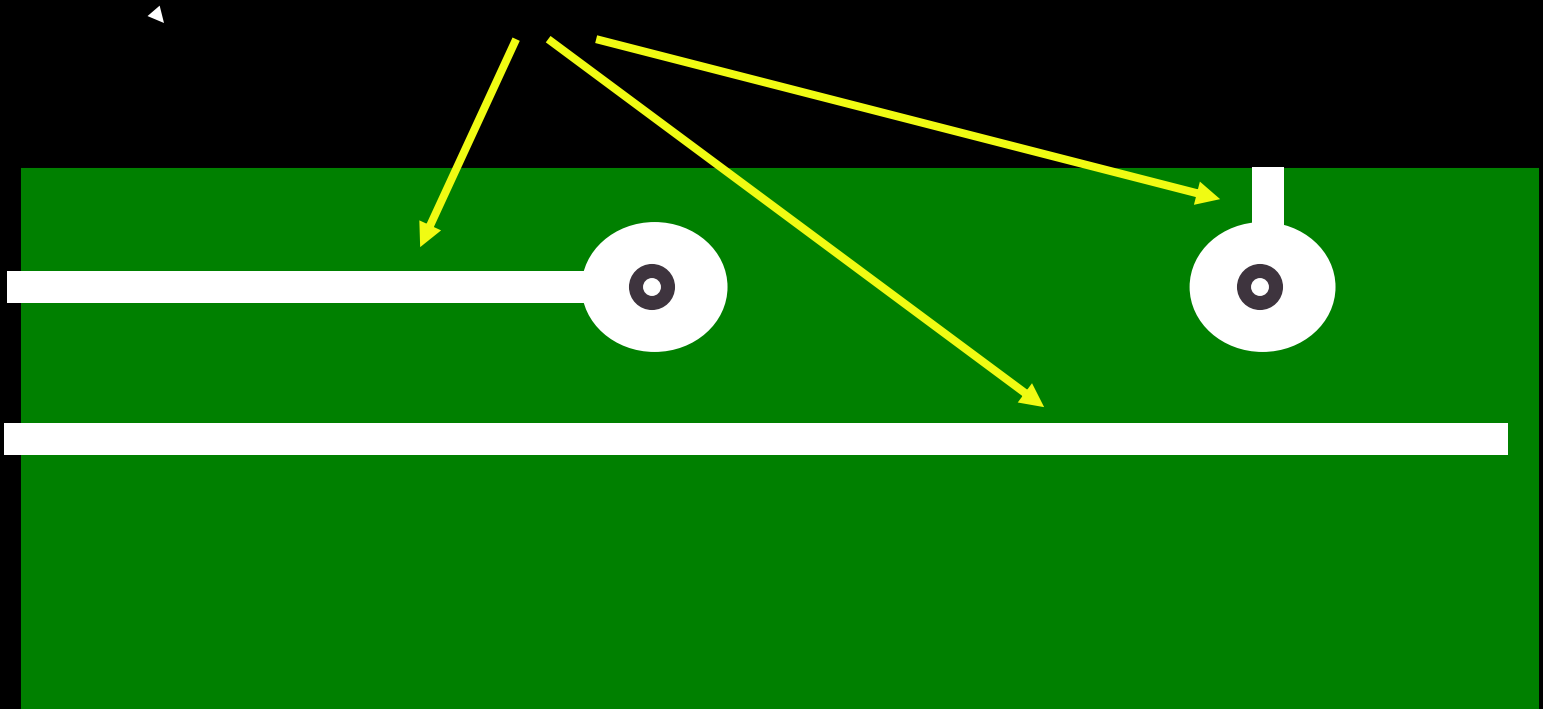


**Example of a good solder filet**



## Tinned Copper Traces

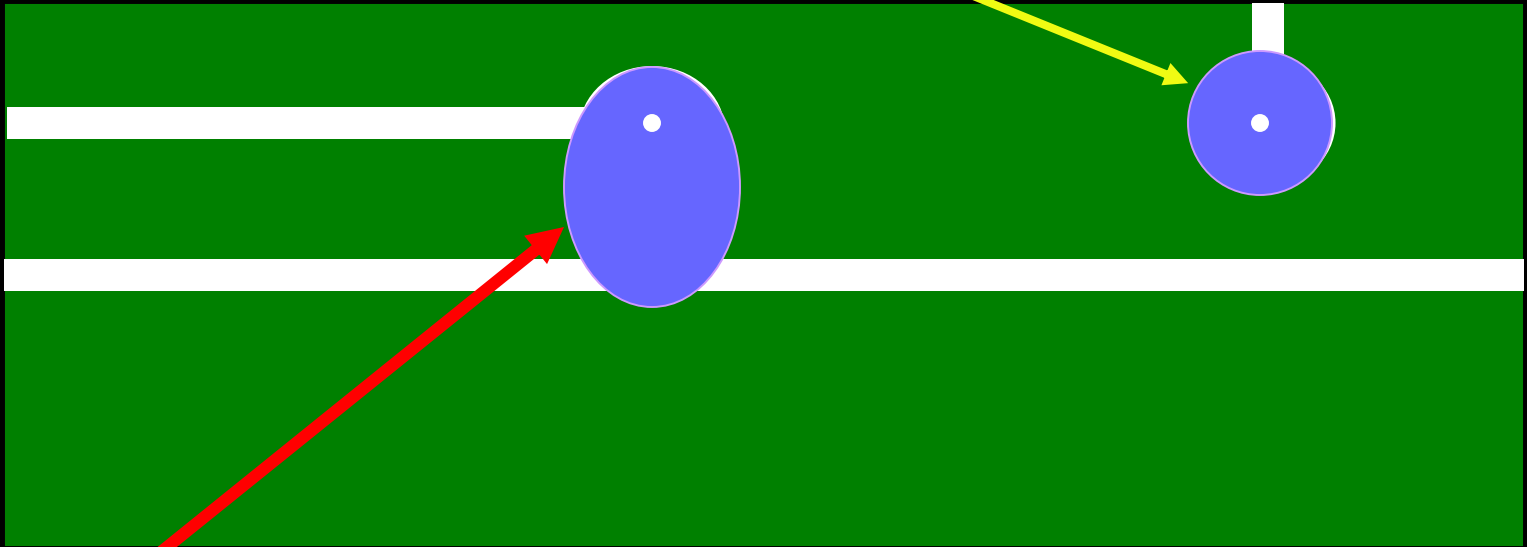
Top View





**Soldered**

**Top View**



**Solder bridge shorting two traces - bad, bad, bad**

**But, can be fixed by reheating or using solder sucker**