

# HIMALAYAN MAKERS GUILD

## Foundation Activity 6

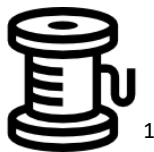
### Introduction to Soldering

#### WHAT IS SOLDERING?

Soldering is the use of molten metal to make permanent electrical connections.

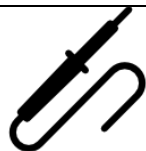
#### WHY SOLDER?

- Reliable
- Compact
- Good Conductivity



Solder

A soft metal that melts at a low temperature (usually a combination of lead and tin)



Soldering  
Iron

Used to melt the solder and heat the parts to be soldered



Flux

A paste/liquid that, when heated, helps the solder flow and bond to other metals



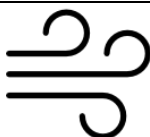
Soldering  
Sponge

For cleaning the tip of the iron

#### SAFETY



Wear safety glasses.



Work in a well ventilated area.



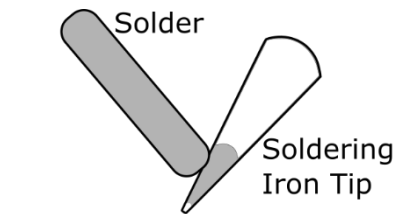
Only hold the soldering iron while soldering. Otherwise, put it in the soldering iron stand.



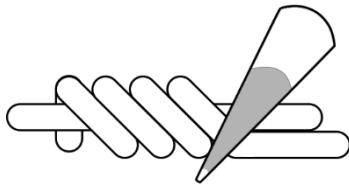
Wash your hands after soldering and do not touch your face while working with solder.

<sup>1</sup> Icons made by [Freepik](https://www.flaticon.com) from [www.flaticon.com](https://www.flaticon.com)

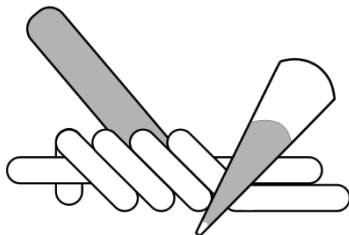
## HOW TO MAKE A WIRE-TO-WIRE SOLDER JOINT



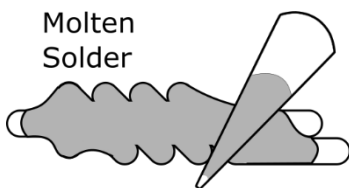
1. Tin the soldering iron tip by melting solder on it, then wiping the extra solder off onto the sponge. This gives the solder tip good wetting.



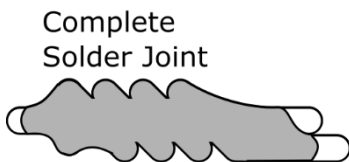
2. Touch the tip of the soldering iron to the joint so that it contacts both the wires.



3. Apply the solder so that it touches the wires on the side opposite where the iron is touching.



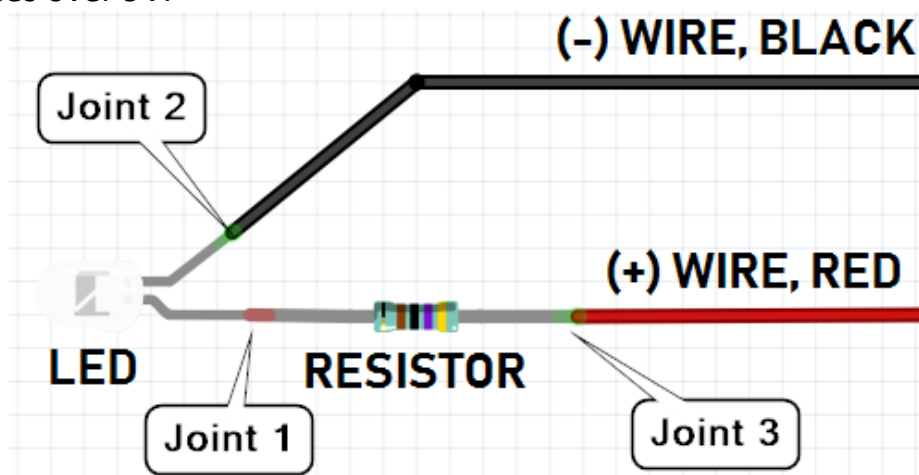
4. Remove the solder wire from the joint. (if you take away the iron first, the solder wire will stick to the joint!)



5. Remove the soldering iron from the joint.

## VOLTAGE TESTER CIRCUIT

Our objective is to solder together this LED circuit. It can be used to test for the (+) and (-) side of a voltage source that is greater than 3V. It should not be used for sources over 9V.



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<sup>2</sup> Circuit image made with Fritzing Handout