

IEEE's Hands on Practical Electronics (HOPE)

Week 1: Course Introduction, Safety, Soldering, Terminology

Definitions:

IEEE: Institute of Electronic and Electrical Engineers

Standards: A balanced blend of technical alternatives, economic needs, and global requirements

Soldering: Fuse metal together by melting

Schematic: Ideal plan for the circuit

Closed Loop: There are no breaks in the circuit; there is a path for current to flow

Open Loop: There is a break in the circuit resulting in no path for current flow

Leads: The wires that stick out from your components

Soldering:

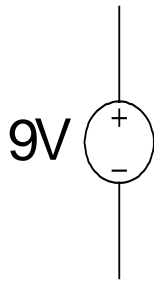
1. Lay out the circuit on the breadboard
2. Prepare the wire - Strip $\frac{1}{4}$ " – $\frac{1}{2}$ " of insulation from the ends of the wires.
3. Twist the exposed strands.
4. Clean the soldering iron tip.
5. Tin the wire by placing the tip of the soldering iron along the exposed strands.
6. Apply solder to the wire. The solder will melt and form a connection.
7. Solder so all the connections are tight (ex: connect the battery to the LED)
8. Make sure to solder right on top of the junction of where the two wires join

Circuits:

Circuits will work only if there is a closed loop.

Circuit Symbols:

Battery:



Resistor:



LED:

