Correct Method of Soldering: Basic Tips Unfolded
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Without knowing how to solder it is virtually impossible to build electronic circuit projects. The article describes the process of learning how to solder.

Introduction
Neatly assembled green and brown PCBs with colorful components look quite intriguing to the students pursuing electronics and to many people who are new to the electronic world. They tend to get quite impatient about building an electronic project without knowing the basics. They often forget that to build an electronic circuit one first has to learn how to solder, because a circuit will function flawlessly only when the solder joints are made perfectly. Learning how to solder properly should be the first step for all electronic novices, and we will find out how to do it here, but before that let’s gain some knowledge regarding solder wire.

What is a Solder Wire?

The most obvious question that often comes into people’s mind is what elements make up solder or a solder wire. A solder wire is basically an alloy of tin and lead in a proportion of 60:40 with dry flux sealed in its core. This ratio is considered to be the best as far quality is concerned. The low quality types may have different ratios with tin content on the lower side.
A correct melting point of solder wire (around 250 degree Celsius) is the hallmark of a good quality solder metal. A standard quality is also determined through its shine, low flux content and high conductivity.

It is used in PCBs to fix the inserted component leads with the copper tracks so that they are electrically connected.

When a solder wire and a hot soldering iron tip are touched together at the junction of a component lead and PCB track, the solder wire instantly melts and fuses to "cement" the joint firmly and permanently.

The smoke that emerges during soldering is due to the burning of the flux inside the core of a solder wire. The flux acts as a catalyst to remove its impurities and enhance a better solder joint. This joint is ideally a very good conductor of electricity and is non-corrosive.

Soldering Tutorial
Through the following given illustrations you should be able to clearly understand how to solder:
Procure a good quality (the costlier the better) 25 watt soldering iron and solder wire from your local electronic retailer. Also procure a general purpose PCB and few passive components like resistors and capacitors.

- Plug-in the solder iron, it may take approximately 100 seconds for the iron to reach the optimum temperature (250 degree Celsius which is the melting point of solder). In the meantime bend the leads of the resistors about 2 mm from its body ends.

- Since it’s a learning procedure, insert just one resistor first into the holes of the general PCB that exactly matches to the length of the bent resistor.

- Keep the board flat with the inserted leads looking upwards or towards you. Pick up the soldering iron with the right hand and the hold the solder wire with your left hand fingertips such that about 3 inches of it protrudes out of the finger grip.

- Now bring the hot tip of the solder iron and the solder wire close to the base of the lead and the copper track and make them touch the junction just at the same instant.
- The solder wire will start melting immediately; keep pushing the wire until you find the flown quantity enough for a perfect joint. Lift the iron and the wire together away from the joint smoothly and allow the joint to solidify.
- Similarly insert and solder the other left components.

The beginning results may look little unprofessional, but through a gradual process, learning how to solder, and practice, practice you should be able to master the technique and perform the operation flawlessly.

Source: