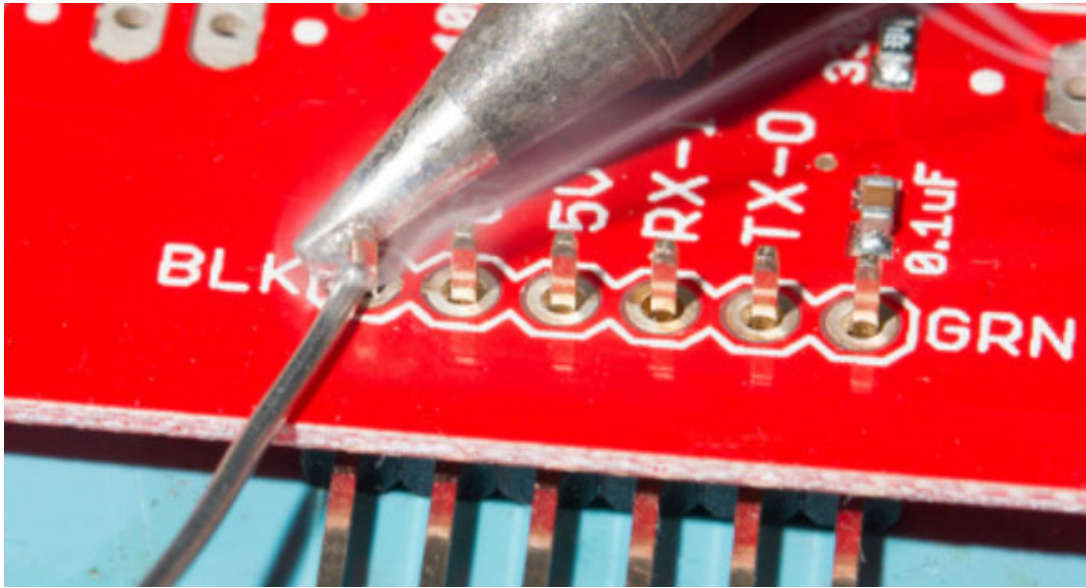# Soldering

What it is

- Soldering ("sah-dering") is the the process of melting metal (also called *solder*) to create connections between components
- Solder serves both to make electrical connection and provide some attachment of components

Why do I care?

- Soldering is a critical skill in working with electronics
- Many breakout boards and components come soldering without headers
- Soldering allows us to design custom PCB to create more permanent projects (as opposed to using the breadboard)

Safety Tips

- The tip is **very hot!** Don't touch it, and always return it to stand when not using
- Use clamps or vise to hold wires because they will get hot
- Wear eye protection (especially when cutting the ends of components)
- Keep food and drink away when soldering, and wash hands thoroughly when done

How to Solder

- Make sure iron has reached desired temperature
- "Tin" the solder by applying a small amount of solder to tip
- Use tip to heat board and pin evenly
- Apply solder to other side of pin

- Avoid putting solder directly on tip
- A good solder joint will resemble a Hershey's Kiss

A Solder flows around the leg and fills the hole - forming a volcano-shaped mound of solder.

Resources

For much more in-depth information and tips, checkout

- Adafruit soldering guide (features common mistakes, useful tools)
- Sparkfun soldering guide

Image Credits

- Sparkfun