Worn Equipment/Safety:

- A welding “helmet”
    - They’re called helmets even though they seem more like masks to me… I guess they attach to you in the manner of a helmet rather than in the manner of glasses or a mask.
    - You can use any cheap helmet as long as it has an adequate **shade number** for what you’re doing. To find the shade rating you need, try these: [OSHA] [non-pdf table]
    - An auto-darkening helmet is great, and really makes life easier.
        - Supposedly the time to darken (1/1000, 1/2000, 1/5000th of a second) doesn’t particularly matter.
        - In fact, even a clear lens will shield your eyes from the very dangerous ultraviolet radiation - but you do need the shades because you’re basically looking into the sun.
        - If you do get an auto-darkening helmet, it probably requires **batteries** and you should **test it first** to make sure you won’t flash yourself.
    - Theoretically, there are some helmets which might lack the **impact protection**. If you don’t see a clear screen in front of your shade lens that says Z87.1, you do not have eye protection, and you should wear safety goggles under your helmet or get a screen in front of your shade.
    - I picked up a **Hobart Creator** from Tractor Supply for a good price, along with some spare clear shields. The shields do get scratched and dirty, and that can make it difficult to see your arc and weld puddle.
- Welding Gloves
- Adequate apparel to cover your neck, arms, legs, feet, and head
    - You **really** want to keep the ultraviolet out of your eyes, but you should also take care to cover the rest of your exposed skin - you can get a sunburn quickly at high power levels.
    - You will also get spattered, and possibly burned if you brush up against a hot workpiece.
    - Non-Synthetic fibers are recommended (like cotton and leather) because they do not melt to your skin. Nylon etc will melt onto your skin if they get hot.
    - I’m more concerned about the UV than an occasional spark, so I’m prioritizing coverage and light-blockage over thickness. I’m starting with a thick black denim shirt (with a collar to turn up), thick jeans, and leather boots. If you are a clutz and going to lean your arms onto hot things all the time, it might be a good idea to just start out wearing a leather jacket for some protection.
    - If you’re working on heavy things, steel toes and/or metatarsal guards are a good idea.
    - If you’ll be standing the entire time, leather aprons are common PPE
    - A cap is not a bad idea, if you are using a fluxy process (more prone to spatter)
- Safety Glasses
    - You can use the helmet in grind-mode, but you may want a pair of regular safety glasses for other tasks.

- Hearing Protection
    - My welder is not very loud, but the grinder will definitely cause hearing damage. I use soft foam earplugs because they don't interfere with the respirator or the welding helmet, so I can just leave them inserted.
- Respirators:
    - If you are doing flux-core or stick without a respirator, you are probably going to end up with a sore throat at the least. You really don't want to breathe any of this stuff.
    - I'm using a 7000 series soft silicone respirator from 3M, and it's adequately comfortable.
    - The internet seems to recommend 3M's 2097 filters for welding fumes, and I think they are working well because no weird smells get through them and my throat doesn't burn afterwards.
        - Store these in a sealed plastic bag when they're not in use. Exposure to atmosphere slowly depletes the activated carbon that's inside them. I believe they are rated for 8 hours of serious fumes and 30 days of storage. YMMV.
    - You need soft filters. The hard-cased respirator filters will interfere with your helmet. I use these: 3M P100 2097s

Tools/non-consumable equipment:

- Welder
- Wire brush
- "Welpers"
    - Optional but handy, you can clip your sticking out wire with them, but they are also pliers for handling hot things.
- Clamps
    - Made of metal so you don't melt anything
- Maybe those magnet-clamps
    - Optional but handy, the cheap ones from Harbor Freight are just sturdy enough to hold things for a tack
- A table or surface of some kind
    - Far from flammables
- Angle Grinder
    - You'll need some disks too, listed under consumables.
    - Make sure it has a **guard** and **side-handle**. These help with stability and shielding you from flying bits of metal.
- Saw/Drill/etc
    - I have a porta-bandsaw which is really great and much better than cutting with a cut wheel on a grinder. Optional for just learning to weld, but handy and safer.
    - A Jigsaw with a metal blade would work too.

Consumables:

- Welding material:
    - Wire for MIG/FCAW, or
    - Electrodes for Stick, or
    - Rods and tungsten for TIG/GTAW.
- Gas, unless you're doing stick or FCAW.
- Angle Grinder Disks:
    - Cutoff wheel (you can use the cheap ones, but the diamond ones do last longer and will be cheaper in the long run)
    - Grinding wheel (don't grind with a cutting wheel unless you want to end up with shards of cutting wheel in your face)
    - Flap Disks (just a 40-grit would suffice)