

(The *runaway* Santa's)

Beginner's Guide to Welding

Welding is a rewarding skill that combines science, art, and fabrication. Whether you're new to it or looking to build confidence, this guide provides a head start to make welding safe, fun, and creative from day one.

This home welding program is a six-week outline, simple enough for beginners and flexible for self-paced learning. It covers setup, safety, basic techniques, and projects to get you started.

Let's start by showing you what each tool does and how to get set up safely. Then we'll walk into your first welds, your first projects, and even your first "Wow, I actually made that!" moment.

Ready to spark something new? Let's get started.

Course Outline

Section 1 — What You'll Receive & What It All Does

- Welder (Tooliom 180)
- Helmet & safety gear
- Gloves, jacket
- Clamps, magnets, pliers
- Grinder & discs
- Welding rods & wire
- Coupons (practice steel)

Section 2 — Safety That Actually Matters

- The "3 Layer Rule" for welding safely
- Clothing
- PPE
- Ventilation
- Fire safety & safe workspace layout
- What not to do

Section 3 — Setting Up Your Welding Workspace

- The garage / driveway / backyard shop
- Surfaces to weld on
- Managing cords, hoses, sparks
- The welding triangle: stance, torch angle, visibility
- Setting up clamps & magnets

Section 4 — Your Welder: Simple Instructions

- Plugging in
- Selecting amperage
- MIG vs flux-core vs stick vs lift TIG
- Wire tension
- Changing tips & nozzles
- Basic troubleshooting

Section 5 — Your First Welds: A 3-Day Progression

- Day 1: Beads on plate
- Day 2: Lap joint
- Day 3: T-joint
- Picture-based descriptions (diagrams can be generated if needed)

Section 6 — Understanding What a Good Weld Looks Like

- Penetration, heat, travel speed
- Examples of common beginner mistakes
- How to adjust instantly
- The “Sound Test” — bacon frying rule

Section 7 — Grinding & Finishing: Making Steel Look Good

- Flap wheels
- Cutoff wheels
- Cleaning slag
- Blending joints
- Preparing for paint

Section 8 — First Projects (Fun + Achievable)

- Dice cube (with your coupons!)

- Simple garden art
- Steel nameplate
- Welded picture frame
- Hooks & hangers for the house
- A small welding cart

Section 9 — The Bridge to Real Fabrication

- Reading simple shop drawings
- Making repeatable cuts
- Using jigs
- How pros get straight, square, and plumb
- When to think about a welding table
- The first money-making jobs (farm, neighbors, small repairs)

Section 10 — Where to Go Next

- Courses
- Projects
- MIG vs TIG goals
- Tool upgrades over time ...and a lot MORE!

Section 1 — What You'll Receive & What It All Does

Before anyone strikes an arc, let's take a quick tour of what's in your welding kit. Think of this as the "meet your tools" chapter. Every item has a purpose, and once you understand how they work together, the whole process becomes simple and intuitive.

THE WELDER — Tooliom 180 Multiprocess This machine can do four things:

1. Flux-core MIG welding (great for beginners)
2. Gas MIG welding (cleaner welds when you add shielding gas later)
3. Stick welding (classic rod welding)
4. Lift TIG (fine, precise welds for a future skill jump) Flux-core is what you'll start with — it's the easiest and most forgiving.

AUTO-DARKENING HELMET Your helmet darkens automatically the instant the arc starts. This keeps your eyes safe and gives you a clear view of the weld puddle. Tip: You will learn to "see the puddle" — your first superpower.

LEATHER WELDING JACKET Protects your arms, chest, and belly from sparks and spatter.

HEAVY WELDING GLOVES Designed to protect your hands from heat and UV. You'll use these every time — no exceptions.

EAR PLUGS Grinding = loud. Earplugs = still hearing clearly in the years ahead.

SAFETY GLASSES Worn under the helmet. Grinding wheels throw sparks faster than you can blink.

WELDING MAGNETS These hold your metal pieces in perfect position while you tack them together. They're the extra hands you wish you had.

WELDING CLAMPS Used to squeeze pieces tight so the weld stays straight, square, and clean.

MIG PLIERS Like a pocketknife for welders: · Cuts wire · Cleans nozzles · Removes tips · Knocks off spatter Every welder keeps these in their back pocket.

CHIPPING HAMMER & WIRE BRUSH Used mostly for stick welding to remove slag. You'll use the brush constantly.

ANGLE GRINDER The second most important tool in welding. Used for: · Cleaning metal · Removing rust · Cutting steel · Smoothing welds · Shaping parts The grinder turns raw metal into finished work.

CUTTING AND FLAP DISCS Cutting wheels = slice steel like pizza. Flap wheels = smooth and shape your welds.

FLUX-CORE WELDING WIRE (.030) This is what actually makes your welds. The machine feeds this wire through the gun, melts it, and joins the metal.

WELDING RODS (E6013) Used for stick welding — a great second skill to learn. Stick welding is the “tractor of the welding world”: tough, simple, dependable.

ANTI-SPATTER SPRAY Spray on your work so sparks and globs don't stick everywhere. Makes cleanup far easier.

WELDING COUPONS These small steel plates are your practice material. You'll learn beads, joints, angles, and eventually weld a cube.

Section 2 — Safety That Actually Matters

Welding is fun, practical, and empowering — but it also produces heat, light, sparks, fumes, and noise. The good news is that welding is very safe when you follow a few simple rules. Think of this section as the “seatbelt and steering wheel” before you begin driving the welding machine. Everything here is straightforward. Nothing complicated. And once you learn these habits, they become second nature.

The Three-Layer Rule (The Core of Welding Safety) Every welder — beginner or pro — stays safe by managing just three things: **Layer 1: Protect Yourself** · Helmet · Safety glasses · Leather jacket or sleeves · Gloves · Closed-toe shoes or boots · Ear protection (especially while grinding) You already have everything needed.

Layer 2: Protect Your Space · Work in a well-ventilated area to avoid fumes. · Keep a fire extinguisher nearby. · Clear flammable materials from the workspace. · Use a fire-resistant surface for welding.

Layer 3: Protect Your Process · Check equipment before use. · Avoid welding on galvanized metal without proper precautions (fumes can be toxic). · Never weld alone if possible; have someone nearby in case of emergency.

Clothing Wear long-sleeved shirts and pants made of natural fibers like cotton or leather. Avoid synthetics that can melt.

PPE (Personal Protective Equipment) Always use the helmet, gloves, jacket, glasses, and ear plugs as described.

Ventilation Weld outdoors or use fans/exhaust systems to direct fumes away.

Fire Safety & Safe Workspace Layout Have water or a extinguisher ready. Layout your space to avoid tripping over cords.

What Not to Do · Don't weld without PPE. · Don't ignore fumes. · Don't weld near flammable substances. · Don't touch hot metal bare-handed.

Section 3 — Setting Up Your Welding Workspace

Creating a safe and efficient workspace is key to successful welding.

The Garage / Driveway / Backyard Shop Choose a dry, well-ventilated area. Garages work well; outdoors is great for flux-core welding.

Surfaces to Weld On Use a metal table or non-flammable surface. Avoid wood or concrete that can crack.

Managing Cords, Hoses, Sparks Secure cords to prevent trips. Contain sparks with screens or wet blankets.

The Welding Triangle: Stance, Torch Angle, Visibility Stand comfortably, hold the torch at 10-15 degrees, ensure clear view through helmet.

Setting Up Clamps & Magnets Use magnets for quick holds, clamps for secure fits.

Section 4 — Your Welder: Simple Instructions

Get familiar with your machine for smooth operation.

Plugging In Use a dedicated 120V outlet; check for proper grounding.

Selecting Amperage Start low (around 80-100A for thin steel) and adjust based on material.

MIG vs Flux-Core vs Stick vs Lift TIG Begin with flux-core MIG for ease; progress to others as skills grow.

Wire Tension Adjust so wire feeds smoothly without slipping.

Changing Tips & Nozzles Replace when worn; use pliers for removal.

Basic Troubleshooting If no arc, check connections; if spatter, adjust voltage.

Section 5 — Your First Welds: A 3-Day Progression

Build skills step by step.

Day 1: Beads on Plate Practice straight lines on flat steel to control the puddle.

Day 2: Lap Joint Weld overlapping pieces for strength practice.

Day 3: T-Joint Create perpendicular joints, focusing on penetration.

Picture-based descriptions: (Imagine diagrams showing bead patterns, joint types.)

Section 6 — Understanding What a Good Weld Looks Like

Learn to evaluate your work.

Penetration, Heat, Travel Speed Good weld penetrates base metal; balance heat and speed.

Examples of Common Beginner Mistakes Porosity (holes), undercuts, excessive spatter.

How to Adjust Instantly Increase amps for better penetration; slow down for even beads.

The “Sound Test” — Bacon Frying Rule A good MIG weld sounds like sizzling bacon.

Section 7 — Grinding & Finishing: Making Steel Look Good

Polish your projects.

Flap Wheels For smoothing surfaces.

Cutoff Wheels For precise cuts.

Cleaning Slag Use hammer and brush.

Blending Joints Grind to seamless finish.

Preparing for Paint Remove rust and smooth for adhesion.

Section 8 — First Projects (Fun + Achievable)

Apply skills to real items.

Dice Cube (with your coupons!) Weld plates into a cube.

Simple Garden Art Create abstract shapes.

Steel Nameplate Personalize with welds.

Welded Picture Frame Frame for photos.

Hooks & Hangers for the House Practical storage.

A Small Welding Cart Mobile storage for tools.

Section 9 — The Bridge to Real Fabrication

Advance to more complex work.

Reading Simple Shop Drawings Understand blueprints.

Making Repeatable Cuts Use guides for accuracy.

Using Jigs Fixtures for consistency.

How Pros Get Straight, Square, and Plumb Measure twice, weld once.

When to Think About a Welding Table For larger projects.

The First Money-Making Jobs (Farm, Neighbors, Small Repairs) Start with simple fixes.

Section 10 — Where to Go Next

Expand your knowledge.

Courses Online or local classes.

Projects Build furniture, art.

MIG vs TIG Goals TIG for precision.

Tool Upgrades Over Time Add gas, better grinder.

...plus a lot MORE!

Section 11 — Advanced Tips for Better Welds

(Assuming based on structure: Cover distortion, multiple passes, etc.)

Metal expands and contracts; plan for it. Use tack welds to hold position.

Practice multi-pass for thicker materials.

Section 12 — Common Challenges and Solutions

Troubleshoot issues like warping. You stop fighting distortion and start planning for it. You learn faster because you understand cause + effect. Skill grows exponentially.

Section 13 — Turning Welding Into a Paid Side Gig

(Practical Money, Safe Jobs, and How to Build a Small Fabrication Reputation)
Welding is one of those rare skills that sits right at the intersection of art, mechanics, repair, and entrepreneurship. You don't need a shop full of equipment. You don't need a giant workload. You just need the ability to reliably solve metal problems — and people will always need that. This section explains how a beginner can turn welding into: · A creative outlet · A confidence-building skill · A low-stress side income · A practical capability that increases resilience · A gateway to making tools, machines, and things that last

13.1 — Welding as a Side Gig Works Because Metal Problems Never Go Away Every neighborhood has: · Broken gates · Cracked lawnmower decks · Trailers with bad hinges · Rusted brackets · Broken patio furniture · Loose handrails · Projects that need attention · Vehicle accessories that got damaged And every one of those problems is a 20–60 minute welding job that most people cannot do themselves. A hobby welder with: · A 180A multiprocess machine · A grinder · Cutoff wheels · A welding jacket and helmet ...can solve 80% of everyday metal problems. This is why part-time welders are quietly in demand even in big cities — and especially in suburban or rural areas.

13.2 — What a Beginner Can Safely Charge (First 6 Months) When starting: · \$40–\$60 per hour is normal for hobby welders · \$50 minimum per job · Small repairs often land at \$60–\$120 You won't be doing structural steel, certified pipeline welds, or high-liability work — so the pricing stays simple. The trick is to charge per job, not by the minute. People are happy to pay to solve a problem they can't solve themselves, and welding problems are always inconvenient.

13.3 — The Sweet Spot: “Low-Liability Jobs” (The Jobs You WANT) These are perfect for a hobby welder: · Patio furniture repair · Trailer tailgate fixes · Rewelding lawn tools · Brackets, hinges, tabs · Garden carts · BBQ smokers

and modifications · Truck rack add-ons · Simple fabrication like shelves or fire pits · Garage storage hooks · Metal art pieces These jobs: · Fit in a single afternoon · Don't require certification · Have low liability · Allow creative freedom · Build quick portfolio photos Sweeping guidance: If it holds a human, a vehicle, or a building — avoid it. If it holds a flowerpot or a shovel — take the job. That keeps life simple and profitable.

13.4 — Jobs to Avoid (At Least in the First 2–3 Years) A new welder should NOT take jobs involving: · Structural beams · Vehicle frames · Roll cages · Motorcycle frames · Suspension parts · Pressure vessels (tanks, boilers) · High-rise or commercial building components · Anything that lives or dies by code or certification Liability is real. Stay in the happy zone.

13.5 — Welding Projects a Beginner Can Sell Immediately Even with just 4 weeks of training, you could build and sell: **Practical Items** · Firepits · Plant stands · Garden gates · Mailbox posts · Brackets · Workbench frames · Garage shelving · Metal hooks and racks **Artistic Items** · Metal roses · Silhouette art · Wall signs · Horseshoe sculptures · Decorative garden stakes **Upcycling** (Where creativity meets profit.) · Converting scrap into small tables · Welding reclaimed steel into décor pieces · Fixing junk furniture into sellable pieces These are low-risk, fun, and profitable.

13.6 — How to Blend Welding With Existing Skills If you have mechanical or maintenance experience, welding enhances it: · Tools · Machines · Hand–eye coordination · Safety · Reading schematics · Diagnosing broken things · Problem-solving on the fly Welding is just another tool in that toolbox. The combination is powerful: someone who can fix almost anything mechanical and weld.

13.7 — How a Home Shop Naturally Grows (Without Pressure) Once the gear is set up, the skills expand “because the tools are there.” Younger learners could branch into: · Jewelry · Small metal art · Online shop · Light fabrication for sculptures · Helping build décor pieces to sell locally Others might enjoy: · Metal décor · Plant stands · Hanging art pieces · Making holiday projects · Helping with layout · Designing things to weld The combination means: · Someone designs · Someone measures · Someone welds · Someone sands and paints Suddenly it's a small creative project without pressure.

13.8 — Welding + 3D Printing: The Hybrid Future Combining with 3D printing = amazing things happen: · 3D print jigs for welding small parts · Print fixtures to hold tubing at angles · Create decorative add-ons · Prototype brackets before welding real steel · Make custom logos or tags to weld onto pieces This is how modern fabrication works: Print → Test → Weld → Sell. It's a full design ecosystem.

13.9 — What You Actually Need for a Home Welding “Side Hustle Shop” What a beginner actually needs: · Welder (multiprocess = perfect) · Grinder + flapper wheels · Vice grips and clamps · Magnets · Gloves + helmet · Steel brush + chipping hammer · A small table to work on · A fan to move fumes away · Ear plugs · A fire extinguisher · A place to store scrap metal Optional but helpful: · Casters to build your own rolling welding cart · A cheap metal chop saw (later) · A bench vise

13.10 — What a Part-Time Welder Earns in the Real World Truthful numbers: · \$200–\$500 a month without trying · \$500–\$1,200 with modest weekend work · More if you start building and selling products But the real value is: · Self-confidence · Ability to fix almost anything · Teaching skills · Building a hobby that produces useful stuff · Having a creative shop with tools that last a lifetime

13.11 — Why This Matters This isn't just welding equipment. It's a capability upgrade. It empowers: · Creativity · Self-reliance · Collaboration · Small-business exploration · Lifelong learning And it gives something rare: A hobby that pays for itself and enriches life instead of draining it.