

Welding

Merit Badge Workbook



Merit badges are earned by doing: reading the pamphlet, practicing the skills, and showing your counselor what you have learned.
This workbook gives you a place to organize your notes and track your progress along the way.
Merit badge counselors may not require the use of this or any similar workbook.
You still must satisfy your counselor that you can demonstrate each skill and have learned the information.
Use the space under each requirement to note what you have done and what you want to talk about, not to write out full answers.
When a requirement says discuss, show, tell, explain, or demonstrate, that is what you must do.
No one may add to or subtract from the official requirements found on scouting.org (Guide to Advancement 7.0.4.8).
Scouting America last updated this badge's requirements page on January 7, 2026.
Requirements change from time to time. Double-check scouting.org before you start.

Scout's name: _____ Unit: _____ Date started: _____

Counselor's name: _____ Phone no.: _____ Email: _____

Links marked "Scouting America resources" are the ones Scouting America shares on its official badge page.
This workbook is unofficial and not endorsed by Scouting America.

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1. Do the following:

(a) Explain to your counselor the hazards you are most likely to encounter while welding, and what you should do to anticipate, help prevent, mitigate, or lessen these hazards.

Scouting America resources: Keep Yourself Safe: 6 Welding Safety Hazards & How To Avoid Them (video)

Welding hazards

Hazard	How I anticipate it and help prevent it	How I lessen it if it happens

(b) Show that you know first aid for, and the prevention of, injuries or illnesses that could occur while welding, including electrical shock, eye injuries, burns, fume inhalation, dizziness, skin irritation, and exposure to hazardous chemicals, including filler metals and welding gases.

Scouting America resources: How To Treat Welding Burns (website)

First aid and prevention

Injury or illness	How to prevent it	First aid
electrical shock		
eye injuries		
burns		
fume inhalation		
dizziness		
skin irritation		

First aid and prevention (continued)

Injury or illness	How to prevent it	First aid
hazardous chemicals (filler metals)		
hazardous chemicals (welding gases)		

Requirement 1 completed on _____ counselor initials _____

2. Do the following:

(a) With your counselor, discuss general safety precautions and safety data sheets (SDS) related to welding. Explain the importance of the SDS.

Scouting America resources: Safety Data Sheets (video)

General safety precautions for welding

What a safety data sheet (SDS) is, and why it matters

(b) Describe the appropriate safety gear and clothing that must be worn when welding. Then, present yourself properly dressed for welding—in protective equipment, clothing, and footwear.

Scouting America resources: Welding Safety PPE Guide | Must-Have Essentials for Safe Welding Practices (video)

Safety gear and clothing for welding

Item	Why it's needed

Presented myself dressed for welding on _____ Counselor _____

(c) Explain and demonstrate the proper care and storage of welding equipment, tools, and protective clothing and footwear.

Scouting America resources: A DIY Guide to Maintaining and Storing your Welding Equipment (video)
Safely Use and Care of PPE | ACSA Training | CSTS Clip (video)

Care and storage

Item	How I care for it	How I store it
welding equipment		
tools		
protective clothing		
footwear		

Date I demonstrated

Requirement 2 completed on counselor initials

3. Explain the terms welding, electrode, slag, and oxidation. Describe the welding process, how heat is generated, what kind of filler metal is added (if any), and what protects the molten metal from the atmosphere.

Scouting America resources: Understanding Common Welding Terms—A Guide for Beginners (website)

Welding terms

Term	What it means
welding	
electrode	
slag	
oxidation	

Welding process I describe

How the process works

About the process	My notes
How heat is generated	
Filler metal added (if any)	
What protects the molten metal from the atmosphere	

Requirement 3 completed on counselor initials

4. Name the different mechanical and thermal cutting methods. Choose one method and describe how to use the process. Discuss one advantage and one limitation of this process.

Scouting America resources: Types of Cutting Methods: Mechanical, Thermal & More (website)

Cutting methods

Mechanical cutting methods	Thermal cutting methods

The method I chose

How to use this process

	My notes
One advantage	
One limitation	

Requirement 4 completed on counselor initials

5. Do the following:

(a) Select two welding processes, and make a list of the different components of the equipment required for each process. Discuss one advantage and one limitation for each process.

Scouting America resources: 4 Types of Welding Explained: MIG vs TIG vs Stick vs Flux Core (video)

Process 1 Process 2

Equipment components

Process 1 components	Process 2 components

	Process 1	Process 2
One advantage		
One limitation		

(b) Choose one welding process. Set up the process you have chosen, including gas regulators, work clamps, cables, filler materials, and equipment settings. Have your counselor inspect and approve the area for the welding process you have chosen.

Process I chose _____ Date _____

- ☐ Gas regulators
- ☐ Work clamps
- ☐ Cables
- ☐ Filler materials
- ☐ Equipment settings
- ☐ Counselor inspected and approved the area

Equipment settings I used

Requirement 5 completed on _____ counselor initials _____

6. After successfully completing requirements 1 through 5, use the equipment you prepared for the welding process in 5(b) to do the following:

(a) Using a metal scribe or soapstone, sketch your initial onto a metal plate, and weld a bead on the plate following the pattern of your initial.

Scouting America resources: Welding Letters and Numbers for a Casting Form (video)

Date _____ My initial _____ How it went _____

(b) Cover a small plate (approximately 3" x 3" x 1/4") with weld beads side by side.

Scouting America resources: The First Lesson of Welding | Learning To Run Beads (video)

Date _____ How it went _____

(c) Tack two plates together in a square groove butt joint.

Scouting America resources: How To Weld a Butt Joint (video)

Date _____ How it went _____

(d) Weld the two plates together from 6(c) on both sides.

Scouting America resources: How To Weld a Butt Joint (video)

Date _____ How it went _____

(e) Tack two plates together in a T joint, have your counselor inspect it, then weld a T joint with fillet weld on both sides.

Scouting America resources: Helpful Tips for Tacking and MIG Welding Fillet Joints (video)

Date _____ How it went _____

- ☐ Tacked the T joint
- ☐ Counselor inspected the tacks
- ☐ Fillet weld on side 1
- ☐ Fillet weld on side 2

(f) Tack two plates together in a lap joint, have your counselor inspect it, then weld a lap joint with fillet weld on both sides.

Scouting America resources: TIG Welding Basics: Lap Joints (video)

Date _____ How it went _____

- ☐ Tacked the lap joint
- ☐ Counselor inspected the tacks
- ☐ Fillet weld on side 1
- ☐ Fillet weld on side 2

Requirement 6 completed on _____ counselor initials _____

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7. Do the following:

(a) Find out about three career opportunities in the welding industry. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why the profession might interest you.

Scouting America resources: Should You Become a Welder?—Everything You Need to Know About The Welding Profession (video)

Three careers in welding

Career	What the job involves

The one I picked

What it takes	My notes
Education	
Training	
Experience	

Why this profession might interest me

(b) Discuss the role of the American Welding Society in the welding profession.

Scouting America resources: What Does the American Welding Society Do For Welders? (video)

The role of the American Welding Society in the welding profession

Requirement 7 completed on ____ counselor initials ____

Counselor sign-off

Your counselor signs your blue card or approves the badge in Scoutbook, and your unit records it. This line is for your own records.

Counselor's signature ____ Date completed ____

Official Scouting America resources

Scouting America resources: Welding merit badge page (requirements and resources) · Welding merit badge pamphlet (free PDF)
All merit badges

Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
Spot an error or a requirement change? Tell me at scoutsmarts.com/contact.
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