



**COLORADO STATE UNIVERSITY  
EXTENSION**

## Metalworking

**Project units are designed for  
members 8-18 years old**

**Inspiring youth to:**

- Understand the proper personal protective equipment for welding
- Be able to identify the different weldable metals and the different shapes of metal stock
- Identify the five different types of welding joints
- Understand the various methods to cut, bend and shape metal
- Understand the three most common welding processes
- Construct a project of metal using the information and skills learned



Colorado State University, U.S Department of Agriculture and Colorado counties cooperating. To simplify technical terminology, trade names or products and equipment occasionally will be used. No endorsement of product names is intended nor is criticism implied of products not mentioned.

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# Metalworking

## Exhibit Tips:

- Select the Unit that best fits your experience, skills and abilities to produce an exhibit project
- Basic Requirements:
  - Unit 1
    - Produce 3 sample welded joints
    - Build a project 3'x3'x7', under 50 lbs.
  - Unit 2
    - Build a project 3'x3'x7', under 100 lbs.
  - Unit 3
    - Build a Project 3'x3'x7', under 150 lbs.
  - Units 1 - 3
    - Photos of the project construction
      - Four photos of the prep work (cutting, torching, bending, fitting, etc.)
      - Four photos of actual welds (individual welds)
      - Four photos of finished work (no painting, no oil, no seasoning, front view, side view, top view, best overall view)
- Unit 4
  - Exhibit is larger than 3'x3'x7' or over 150 lbs:
    - A 4' wide by 3' tall display board of your completed project with the following minimum information
      - Title or description of exhibit project
      - Left Side - Four photos minimum of the prep work
      - Right Side - Four photos minimum of completed welds
      - Center - Four photos of minimum finish project
      - All project photos must be 5"x 7" minimum
      - Captions for each photo
- Calculating weights for the project is required. A resource can be found at: [www.sss-steel.com/public/pdf/reference-book.pdf](http://www.sss-steel.com/public/pdf/reference-book.pdf)
- The project will be evaluated on the quality of the information in the e-Record and the quality of the exhibit

## Resources:



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- Exhibit & Judging Requirements
- Record Books
- Manual Information

Located at: [Colorado4h.org](http://Colorado4h.org)



Beyond  
Ready

# Metalworking Industry Careers



## Safety

Provide oversight and educational awareness to those involved in the metalworking industry



## Regulation & Inspection

Ensure safe products and structures that involve metalwork



## Education

Opportunity to teach others about metalworking and uses and design



## Fabrication & Repair

Create and design products



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## Degrees/Certifications:

Occupational Health & Safety  
Administration (OSHA) Safety  
Certifications  
Certified Associate Welding Inspector  
Welding Technology College Degrees  
Certified (Pipe Welder, Ironworker,  
Boilermaker, Robotic Technician  
Welder, Welding)



## Supervision & Management

Provide oversight of projects and builds and staff support



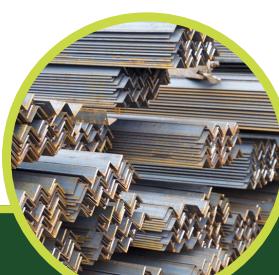
## Research

Test out products, designs, and methods;  
Work with consumer safety and support



## Information Technology

Support individuals and businesses as they provide services utilizing technological advances



## Retail

Provide sales of products at different retail levels to support the metalworking industry