

4-H WELDING and METAL ARTS: WELDING

TERMS AND CONDITIONS

1. Posters must be displayed horizontally, sized 22" x 28", mounted on a firm backing (foam core board or other), and covered in clear plastic or other transparent material. Refer to 4-H Poster Guidelines.
2. Exhibit entry tags must include the name of the exhibitor, grade and level.
3. There is no State Fair entry at this time, but each division will have a champion and reserve champion. One overall grand and reserve grand champion will be selected.

EXHIBITS

1. There will be three divisions: beginning, intermediate and advanced.
2. Every member must complete division in order before advancing to next division. Members are allowed to "test out" of earlier divisions by demonstrating proficiency to the superintendent.
3. In addition to the division projects, each member will include a project general record sheet. The record sheet will contain information about the processes, costs, related tools and knowledge used to complete your project. **This must be turned in with your project.**
4. All metal must have burrs removed and a protective finish to prevent rust: oil or paint.

PROJECT OBJECTIVES

1. To learn about different methods of welding and what materials are best suited for each type of welding.
2. To acquire a working knowledge of the machines and equipment used in the building trade.
3. To know the safety procedures and practices involving the equipment used.
4. To understand the proper care and maintenance of welding equipment and accessories.
5. To obtain a working knowledge of equipment and accessories in a modern workshop.
6. To acquire knowledge of the techniques involved in arc and gas welding and oxygen cutting.
7. To be familiar with the terms and definitions of welding.

TECHNIQUES TO BE TAUGHT

1. Safety in welding, clothing, gloves, shoes, helmet, jacket. Safe practices.
2. Basic skills: striking an arc, running a bead, setting heat range, learning electrodes and current flow, etc.
3. Use of measurement and cutting tools, other fabrication techniques.
4. Joint preparation (using a grinder).
5. Out-of-position welding.
6. Multiple fillet welds.
7. Flame cutting and learning the parts, safety, igniting and stopping a cutting torch.

DIVISION DEFINITION - Each division project must demonstrate listed skills.

Division I (suggested for grades 3 - 5):

- A. Exhibit a poster illustrating a butt weld, lap weld and a tee-weld in the flat position **OR**
- B. Join two pieces of metal using: but joints welded with groove welds and tee and lap joints welded with fillet welds.

DIVISION II (suggested for grades 6 - 8):

- A. Exhibit a poster illustrating the four welding positions (flat, horizontal, overhead and vertical) **OR**
- B. Exhibit one or more items of your own creation, which includes three of the four welding positions (flat, horizontal, overhead or vertical) and label each. Exhibit a different item each year.

DIVISION III (suggested for grades 9 - 12):

- A. Exhibit one or more items of your own creation, which includes three of the four welding positions (flat, horizontal, overhead or vertical) and label each. Exhibit a different item each year.

PROJECT IDEAS & SUGGESTIONS

Beginner:

Chipping hammer
Step stool
Coat rack
C clamps

Boot scraper
Flower pot holder
Tool stand
Horseshoe sign

Tool box, hinged lid, handle
Flower trellis
Shooting target
Pipe whistle

Intermediate:

Tool stand/rack
Milking stand
Steel post driver
Coffee table

Tool base
Work/car ramps
Rolling work stool
Portable welder base

Hay rack/feeder
Hand cart
Corner welding fixture w/clamps

Advanced:

Adjustable jacks
Portable loading chute
Garden cart
Mechanics floor creeper

Pipe saw horses
Trailer
Welding table/stand
3 point hitch tractor hoist

Snow blade
Hand cart
Tool rack