

4-H WELDING GUIDELINES

The 4-H welding project is intended to give 4-H members a fundamental background in the major aspects of arc welding and oxy-acetylene welding. The emphasis is for each member to master hand manipulative skills, develop successful welding techniques and to also gain an understanding of the equipment and specialized tools being used in the welding field. Each member progresses at his/her own rate as demonstrated by his/her ability and application. It is inherent in this type of instruction that a great deal of emphasis is put on safety, individual instruction, demonstration and application.

PROJECT OBJECTIVES

First Year:

1. To acquaint the 4-H member with the skills and knowledge of basic welding.
2. To acquire a working knowledge of the machines and equipment used in the welding trade.
3. To know the safety procedures and practices.

Second Year:

1. To understand the proper care and maintenance of welding equipment and accessories.
2. To obtain a basic knowledge of the correct practices and usages of equipment and accessories.
3. To acquire a knowledge of the techniques involved in arc and gas welding and oxygen cutting.

Third Year & Up:

1. To understand the proper care and maintenance of welding equipment and accessories.
2. To be familiar with the terms and definitions of welding.
3. To acquire a knowledge of the techniques involved in arc and gas welding and oxygen cutting.

TECHNIQUES TO BE TAUGHT

First Year:

1. Learn the safety procedures and practices in welding (clothing, gloves, shoes, helmet, safety glasses, etc.)
2. To acquaint the 4-H member with basic skills and knowledge of welding (striking and arc, running a straight weld, setting heat range, learning electrodes, and current flow, etc.)
3. Some 4-H members will need extra help in the use of measurement tools used in welding.
4. If a mig welder is available, the beginning 4-H member will learn how the arc feels easier than with an electrode.
5. Learn joint preparation (running grinder).
6. Projects should be easy and preferably done in the flat position (car stand, steel saw horses).
7. Suggested electrodes to use: AC Welders --

E6011
E6012 - straight polarity
E6013
DC Welders --
E7018

8. Books recommended for all three years -- "Arc Welding Basic Fundamentals", by John R. Walker (available or may be ordered from most bookstores. Check your local library as well.)

Second Year:

1. Review first year - run some rod to get used to welding again.
2. Start working with multiple past fillet welds.
3. Flame cutting (if available), learn parts, safety, starting and stopping torch.
4. Start out-of-position welding single beads. Use E6010 DC reverse or E6011 AC electrodes.
5. Projects should be slightly harder than first year with some out-of-position welds.

Third Year and Up:

1. 4-H member should be doing some out-of-position welding, flame cutting and fitting for project.
2. Projects should have some degree of difficulty (cutting, grinding weld).
3. Blue print and list of materials for project should be made before starting.
4. The leader is not trying to prepare the 4-H member for a job, only introduce him to basic welding and shop use.