

## **4-H SMALL ENGINES - PROJECT GUIDELINES**

Helping youth develop life skills is part of the goal of 4-H. The following are suggested guidelines for providing learning experiences in the small engines' project area, and making it a more educational and consistent type of program.

### **GENERAL GUIDELINES FOR ALL MEMBERS**

- Understand the fundamentals of preventive maintenance.
- Gain proper attitudes and concerns for safety when operating motors and motorized vehicles.
- Become familiar with engine parts and learn how these parts function together as a unit.
- Become familiar with proper use of hand tools.
- Learn to use an operator's manual.
- Participate in a safety inspection tour.
- Learn two-stroke cycle engine principles.
- Participate in a tour to a local dealer or factory.
- Learn four-stroke cycle engine principles.
- Learn how to buy the right engine and equipment for the job.
- Investigate alternative fuel sources.
- Learn the ways motors have had an impact on American society.
- Reference material is available from the Cooperative Extension Service office.
- A dynamometer can be borrowed on loan from Michigan State University.
- Become aware of career opportunities in fields related to petroleum power.
- Neatness is very important!

The fair classes for Small Engine Projects are categorized as basic skill, intermediate and advanced. These are determined by the number of years of experience a member has had in the project and are flexible depending on the member's ability. The skill level should be determined by the leader. For example, the 4-H'er who has no small engine experience should start at the basic skill level, and if they are older they can move into the more advanced levels quicker. The level should best meet the needs and experience of the member.

The suggested experience guidelines are:

Basic Skill:	1-2 years in the project
Intermediate:	3-4 years in the project
Advanced:	5 years and over in the project

### **4-H FAIR CLASSES FOR SMALL ENGINES**

#### **General Information:**

1. Member should enter the skill level appropriate for their experience. First year members must exhibit an individual project; second year and above members may work in a group project, but each member must exhibit an individual report, poster, etc., on what was learned from the group project.
2. An exhibit that does not meet the established criteria for a class, will be dropped one

grade.

3. Attach index card to exhibit tag if member is disabled or has reached his/her capability. Use card to briefly explain this. Disabled members may remain at basic skill or intermediate level.
4. All engines will be test ran at the fair.
5. Gas must be taken out of engine before being displayed.
6. It is suggested that all engines exhibited be painted except for the muffler.

**Basic Skill:** (Can do either one for the fair, but suggested doing the board first year, the engine - second year.)

1. Educational exhibit of an identification board. Mount and identify (label) all major parts, understand what the parts do and where they belong.
2. Two or 4 cycle engine - tune-up, maintenance work, or minor repairs such as replacing spark plugs, replacing oil, replacing points and setting, adjusting carburetor, clean and paint engine (except muffler), etc. Also clearly understand engine operating principles. Engine will be test ran at the fair.

**Intermediate:** (Complexity of the exhibit must increase each year.)

1. Two (2) or 4 cycle engine - major repairs such as replacing valves or grinding, engine block repairs, piston work, rebuilding carburetor, any internal engine repairs, etc. Engine will be test ran at the fair.

**Advanced:** (Complexity of the exhibit must increase each year.)

1. Recreational or lawn & garden equipment - such as snowmobiles, motorcycles, garden tractors, roto-tillers, outboard motors, riding lawn mowers, chain saws, etc. Rebuild one major component or more such as the engine, transmission, clutch, trans-axle, gear case, etc. Engine will be test ran at the fair.