Small Engines Project Brief

Learning Objectives
• Learn about engine size and compression ratios, seasoning engines and safety issues
• Focus on basic small engine knowledge
• Learn about occupational possibilities by interviews and learn about starting one's own business
• Study external engine parts
• Demonstrate the use of diagnostic tools, rules and regulations about using small engine machines, and about selecting a replacement engine
• Understand uses of small engines and safety issues regarding small engines
• Discover tools of the trade, learn concepts of what makes small engines works
• Study internal parts of engines and more advanced tools
• Understand the process of tearing down and rebuilding an engine

Ideas for Speech Topics
• Basic Parts & Functions
• Difference between 2 cycle & 4 cycle
• Winter storage of engine
• Small engine repair to make money
• Lawn mower maintenance
• Choosing the right motor for go-carts
• 4 wheeler engine maintenance
• Explain different types of outboard motors

Critical Thinking
• How has learning about small engines helped you learn responsibility?
• What are some careers that you are interested in exploring with small engine repair or sales?
• What effect does horsepower have on gas consumption? Machinery wear?
• How can you turn your project into a money maker?

Field Trips
• Visit a local repair shop
• Tour a factory
• Job shadow a mechanic

Community Service
• Organize a lawn mower tune up clinic
• Mow lawns or weed eat for elderly
• Winter prep clinic
• Collect used oil
• Pick up highway ditch trash before it's mowed

Fair Projects
• Parts board
• Engine Cutaway
• Refurbished engine

Demonstration Ideas
• Tuning an engine
• Preparing an engine for storage
• Cranking an engine
• Safe use of lawn mowers
• My two-cycle engine
• Grades of oil
• Adjusting a carburetor
• The importance of clean air
• How to correctly start and stop
• How to service engines
• How to prepare for winter storage
• Identification of engine parts
• Change Oil
• Perform tune up
• Winter Storage

Science & Technology
How have you used the science and technology process in this project area?
Examples:
• Build or construct an engine so that it runs correctly.
• Compare different types of engines and their uses.
• Troubleshoot possibilities to fix an engine that is not working properly.
• Test your theory about an engine that is not running properly.
Show Me Character

Trustworthiness - includes honesty, promise keeping and loyalty.

- Be dependable when working with dangerous equipment
- Be honest with your project leader and your teammates
- Only use equipment you have been trained to use
- Show off your talents-choose to build from scratch not using kits or pre-assembled projects

Respect - includes courtesy and proper treatment of people and things.

- Don't judge people based on the quality of their projects remember that everyone has tried their best
- Show care and respect for everyone's projects
- Treat others' projects the way you want your project treated

Responsibility - includes the pursuit of excellence, accountability and perseverance.

- Learn safety procedures for all equipment you use
- Be prepared with the materials you need to complete your projects
- Listen carefully to the instructions of your leaders
- Do your part when working in groups

Fairness - involves consistently applying rules and standards appropriately for different age groups and ability levels.

- Take turns using the equipment so everyone has equal time building and constructing
- Follow specifications and guidelines for your project
- Allow everyone access to the same materials

Caring - promoting the well being of people and things in a young person's world. It denotes action and not just feelings.

- Be willing to help friends even if you are competing against them
- Thank leaders and facilitators that help you with your project
- Share your tools and supplies if someone else runs low or is having trouble

Citizenship - includes making the home community and county a better place to live for themselves and others.

- Always clean up your workspaces and messes left behind by others
- Share your talents by building something that you can donate or give as a gift
- Don't use any supplies that are not allowed
- Create waste free environments and think of ways to better your community and environment by using your skills

Show Me Standards

Missouri 4-H members will acquire the knowledge and skills to gather, analyze and apply information and ideas, communicate effectively, recognize and solve problems, make decisions and act as responsible members of society.

4-H members will acquire a solid foundation which includes knowledge of:

- Communication Arts - participating in formal and informal presentations and discussions of issues and ideas
- Mathematics - discrete mathematics
- Science - properties and principles of force and motion

Resources

851 Small Engines Unit 1
Y620  4-H Project Record
Y8510  Crank It Up
LG8540  Small Engines Helper's Group Activity Guide

852 Small Engines Unit 2
Y620  4-H Project Record
Y8520  Warm It Up!
LG8540  Small Engines Helper's Group Activity Guides

853 Small Engines Unit 3
Y620  4-H Project Record
Y8530  Tune It Up!
LG8540  Small Engine Helper's Group Activity Guide

To Order
Extension Publications online at http://extension.missouri.edu/explore/shop/or by phone 1-800-292-0969
For additional resources check with your local University of Missouri Extension Center or the 4-H Source Book at

Missouri 4-H 4h.missouri.edu
http://www.4-hmall.org/educationalresources.aspx.