

# SMALL BUT MIGHTY MACHINES

The 4-H Ontario Small Engines Project



## RECORD BOOK

Name \_\_\_\_\_ Age \_\_\_\_\_

Club \_\_\_\_\_ Year \_\_\_\_\_



## THE 4-H PLEDGE

"I pledge:

My Head to clearer thinking

My Heart to greater loyalty

My Hands to larger service

My Health to better living

For my club, my community and my country."

## THE 4-H MOTTO

Learn to do by doing

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## WEBSITE

[www.4-hontario.ca](http://www.4-hontario.ca)

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## Your Small Engines Record Book...

### Why Use a Record Book?

You're about to try some great activities, meet new people, have a lot of fun and this book will help you keep track of it all! That way you'll be able to reference what you learn and use it later in life. It will also be useful at the Achievement Program, when looking at your progress and when reviewing your accomplishments.

### What Should I Include in my Record Book?

1. Your club name and the name of the project in which you are enrolled
2. A list of members and leaders in your club and project
3. A record of club activities
4. A record of any special 4-H activities in which you have participated
5. Your goals for the project
6. Records of project meetings and activities
7. Descriptions of work done for each activity, including written activities
8. Records of other resources you used during the project
9. An evaluation of your activities and goals for the project
10. A checklist of knowledge and skills you've learned



### How do I organize my materials?

1. Make your records neat and easy to read. This will make it easier to find information later on, and to share your information with others.
2. Use a three-ring binder to hold your materials, and divide your information into sections using dividers. This will keep things from becoming lost, and will make it easier to find what you need later on. This will also allow you to add extra pages later.

### How do I keep good records?

1. Keep track of activities throughout the meetings, as you complete different parts of the project. It's often difficult to remember things that happened in earlier meetings. You may want to include a calendar in your Record Book, with important events and activities.
2. Make sure the information you write in your Record Book is complete and accurate. If you're not sure about something, ask your leader for help before writing it in your book. You can also consult people in your community, or do some research on your own. If you borrow information from someone or someplace else, make sure you write down the where you found it.
3. Read instructions carefully, and review your Record Book in advance so you are prepared.
4. If you need to use units of measurement, be sure to use the same ones throughout your Record Book. If you think you might need to use different units, you should include a conversion chart.
5. Keep track of any equipment you use or borrow, as well as money you spend. No cost is too small to record, as it may affect the end result of your project.

*Remember that this is YOUR personal Record Book. You should include information that YOU think is important. To make things easier, try to write things down at the beginning of each meeting.*

## Record of Special 4-H Activities

In the space provided write about social events, fundraisers, public speaking, club committee meetings, district meetings and events, regional events, the annual meeting, provincial summer programs, travel opportunities, and other 4-H activities in which you participated.

Date/Time	Place	Notes (things to bring, etc.)	What We Did

# Record of 4-H Small Engines Project Meetings



Total Meetings Held: \_\_\_\_\_

Total Meetings Attended: \_\_\_\_\_

Date/Time	Place	Notes (things to bring, etc.)	What We Did

## Project Goals

Before beginning this project ask yourself what you'd like to learn and accomplish. When you finish an activity review your list to see what you've explored and completed, and what you'd like to work on.

*This year, I'd like to learn more about...*

*I can learn about these things by doing activities such as...*

*In order to finish these activities, I will need to find materials and resources such as...*

## Resources

While you're working through activities at meetings, and doing research on your own, you're likely to find useful resources such as books, television shows, and websites. Be sure to write them down as you go, so that you'll be able to go back to them later. You can share what you find with your leader(s) and fellow members. Remember that any time you borrow from another source, you should indicate where your information came from.

Useful Books or Magazines:

Useful Television Shows or DVDs:

Useful Websites:

People I've Contacted:







**Next, look at the accessories and major units...**

1. What type of carburetor air cleaner is used (oil bath, oiled filter or dry filter)?
2. What type of fuel strainer is used (combination screen/sediment bowl or screen inside the fuel tank)?
3. What type of crankcase breather is used (reed valve or floating disk valve)?
4. What type of starter is used (rope wind, wind up, electric AC or electric DC)?
5. What type of ignition system is used (battery, flywheel magneto, solid state or external magnet)?
6. What type of fuel pump is used (mechanically driven or differential pressure driven)?
7. What type of carburetor is used (float, suction life, or diaphragm)?
8. What type of governor is used (air vane or centrifugal)?

**Finally, examine some of the service and maintenance specifications:**

1. What type of fuel does the engine take?
  - a. What is its octane number (the mixture of oil and gasoline)?
  - b. How much oil should there be per gallon of gasoline (0.12 litres or 1.4 pint)?
2. What type of oil should be used? What SAE grade is needed (SAE 5W, 10W, 20W, 30W or 10W30)?
  - a. What classification of oil should be used (ML, MM, MS, SC, SD, SE, CC or Two-cycle)?
3. Which type of spark plug is needed? Which gap setting is correct (0.5mm/0.020" or 0.6mm/0.25")?
4. What is the ignition breaker-point gap (.3mm/.12", .4mm/.15" or other)?

## Tool Inventory

Keeping track of tools and equipment is important when working with small engines. Use this inventory page to help you keep track of the equipment you already have, the equipment you need to find, and the cost of your project. This page should be filled in at the beginning and the end of your small engine project, and should be updated as often as needed.

Here is an example:

Date	Item	Cost/Value	Total Spent
Oct. 5, 2008	Set of 1/4" to 9/16" open ended wrenches	\$20.00 (Already Own)	
	Phillips screwdriver (4", 6"	\$15.00 (Already Own)	
	Needle Nose Pliers	\$8.00 (Borrowed)	
	Knife	\$7.50 (Borrowed)	
	Putty Knife	\$6.00 (Already Own)	
	Wire Brush	\$5.00	
	Safety Goggles	\$10.00	\$15.00
Nov. 8, 2008	Slot head screwdrivers (4", 6", 8")	\$15.00	
	Box end wrench (7/16", 1/2", 9/16")	\$42.00 (Gift)	\$30.00
Dec. 1, 2008	Off-set needle nose pliers	\$8.50	
	Project End Total		\$38.50

\* Adapted from the Saskatchewan 4-H Small Engines Record Book

## Expense Record

Besides the tools used, you'll probably find that there are other costs involved in rebuilding your small engine. Use the chart below to help you keep track of additional expenses.

Here is an example:

	Date	Item	Cost	Total
Section A (Engine)	Oct. 3, 2008	Stihl Chainsaw Model 017	\$30.00	\$30.00
Section B (Parts)	Oct. 22, 2008	Carburetor	\$25.00	\$25.00
Section C (Tools)	Oct. 5, 2008	Wire Brush	\$5.00	
		Safety Goggles	\$10.00	
	Nov. 8, 2008	Slot head screwdrivers	\$15.00	
	Dec. 1, 2008	Off-set needle nose pliers	\$8.50	\$38.50
Section D (Machining and Outside Labour)				
Section E (Supplies)	Oct. 5, 2008	XP Premium Two-Cycle Engine Oil	\$5.00	
Project End Total				\$98.50



## Expense Record

	Date	Item	Cost	Total
Section A (Engine)				
Section B (Parts)				
Section C (Tools)				
Section D (Machining and Outside Labour)				
Section E (Supplies)				
Project End Total				

## Before and After!

Take pictures of your project before you begin work, and while you're working on it. This will allow you to see how far you've come and how much you've learned.



## What I've Learned: A Checklist

Besides all of the things you've learned about small engines, you've probably also learned skills and knowledge that will help you in any activity. While you're thinking about everything you've achieved and learned in this project, have a look at the list below. Put a checkmark beside any of the skills and knowledge that you feel you've improved over the course of this project

- I learned to set goals for myself.
- I learned how to organize my materials and my time.
- I gained new knowledge about small engines.
- I have learned to try new things, and to be open to new ideas.
- I have learned to accept change, and to be flexible.
- I have learned to think on my feet.
- I have learned how to keep better records.
- I have taken responsibility for my words and actions, and even my mistakes.
- I have found useful places to look for information for my project.
- I have learned to make informed decisions and choices.
- I have dealt with winning and losing gracefully.
- I have learned how to listen to others.
- I have learned to work well with others.
- I have learned how to participate in or run a business meeting.
- I have learned new public speaking skills.
- I have made new friends, and met new people in my community.
- I have learned how to be a more effective committee member.
- I have learned about my own strengths and limitations.
- I have learned to respect the feelings and ideas of others.



*Are there any other areas in which you feel you've made progress or improved this year?  
Feel free to list them below...*

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## Project Evaluation

At the end of any project, it's important to take a look at how things went. By doing this, you can decide if you were successful, and what you need to improve. At the end of the year, take some time to answer the following questions:

1. Did you achieve the goals you set for this project? Which are you most proud of? Which ones did you not meet? What helped you to meet your goals?
2. Did you have to change your plans during the project? What caused your plans to change?
3. How will you use the knowledge and skills you learned during this project? How will you share what you learned with others?
4. Which activity and meeting was most interesting? Why?
5. Would you like to be part of this project again next year? Why or why not?
6. What other projects are you interested in taking?



*After your own reflection, and if you feel comfortable, hand in this sheet to your leader. Your comments will help leaders improve the project the next time it is led.*