



# Farm Mechanics

## Merit Badge Workbook



This workbook can help you but you still need to read the merit badge pamphlet.

This Workbook can help you organize your thoughts as you prepare to meet with your merit badge counselor.

You still must satisfy your counselor that you can demonstrate each skill and have learned the information.

You should use the work space provided for each requirement to keep track of which requirements have been completed, and to make notes for discussing the item with your counselor, not for providing full and complete answers.

If a requirement says that you must take an action using words such as "discuss", "show", "tell", "explain", "demonstrate", "identify", etc, that is what you must do.

**Merit Badge Counselors may not require the use of this or any similar workbooks.**

No one may add or subtract from the official requirements found in Scouts BSA Requirements (Pub. 33216 – SKU 653801).

The requirements were last issued or revised in 2009 • This workbook was updated in June 2020.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Phone No.: \_\_\_\_\_ Email: \_\_\_\_\_

<http://www.USScouts.Org> • <http://www.MeritBadge.Org>

Please submit errors, omissions, comments or suggestions about this **workbook** to: [Workbooks@USScouts.Org](mailto:Workbooks@USScouts.Org)

Comments or suggestions for changes to the **requirements** for the **merit badge** should be sent to: [Merit.Badge@Scouting.Org](mailto:Merit.Badge@Scouting.Org)

1. Do the following:

- a. Discuss with your counselor the safety equipment, tools, and clothing used while checking or repairing farm equipment.

Safety equipment:


Tools:

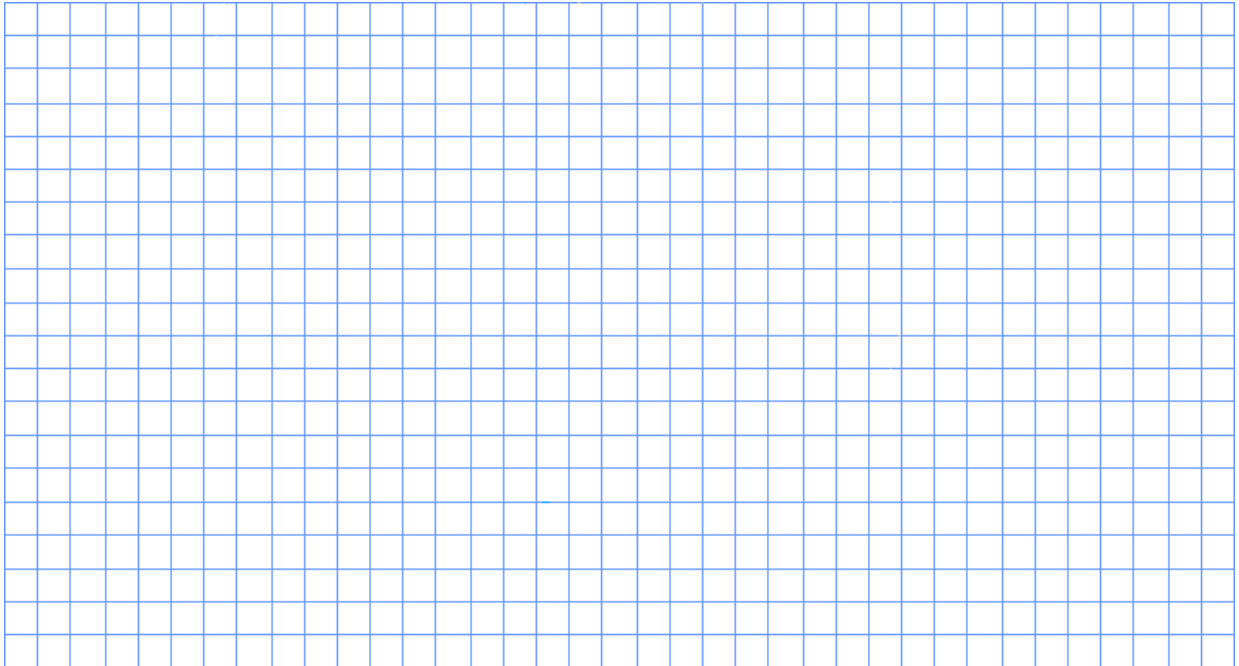

Clothing:


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Use this equipment, tools, and/or clothing (when needed or called for) in meeting the requirements for this merit badge.

- b. Draw a plan showing a well-equipped farm shop. Point out the shop's mandatory safety devices and features.



- c. Find all the universal warning and safety symbols on a piece of equipment and explain what they mean.


- d. Describe what a material safety data sheet (MSDS) is and tell why it is used.


- Obtain the MSDS for any engine coolant, oil, grease, fuel, hydraulic or transmission fluid, or other flammable or hazardous materials you use in meeting the requirements for this merit badge.

2. Explain how power is produced or transferred in a:

a. Diesel engine


b. Hydraulic system


c. Transmission or any other power system.


3. Do TWO of the following:

- a. Replace the handle on any tool found on the farm.
- b. Organize a tool rack or a storage system for nails, bolts, nuts, and washers.
- c. Using a hand file, properly dress the mushroom head of a chisel or punch.
- d. Using a hand file, properly dress a screwdriver tip.

4. Do ONE of the following:

- a. On an engine-powered machine: Grease all fittings, change the oil and oil filter, clean the air filter, clean the radiator fins, and replace the fuel filters.
- b. For any engine-powered machine, create a preoperational checklist; include checking the engine coolant, engine oil, hydraulic and/or transmission fluid, and battery voltage (using a voltmeter). Using your checklist, conduct a preoperational check of that machinery or equipment.
- c. Prepare any farm machine for winter storage.

5. Visit an implement dealer. Interview the dealer, technician, or service manager for hints on good preventive maintenance. Ask why it is important, the costs, and what causes wear or damage? Report what you learn.


6. Explain each step in ONE of the following maintenance procedures:

- a. Tightening hydraulic fittings
- b. Checking the air filter
- c. Cleaning a work piece with a wire-brush wheel.


7. Find out about three career opportunities in farm mechanics.

1.	
2.	
3.	

Pick one and find out about the education, training, and experience required for this profession.

Career:	
Education:	
Training:	
Experience:	

Discuss this with your counselor, and explain why this profession might interest you.


**When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088). Important excerpts from that publication can be downloaded from <http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf>. You can download a complete copy of the *Guide to Advancement* from <http://www.scouting.org/filestore/pdf/33088.pdf>.**