



Farm Mechanics

Merit Badge Workbook

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

The work space provided for each requirement should be used by the Scout to make notes for discussing the item with his counselor, not for providing the full and complete answers. Each Scout must do each requirement.

No one may add or subtract from the official requirements found in **Boy Scout Requirements** (Pub. 33216 – SKU 34765).

The requirements were last issued or revised in 2009 • This workbook was updated in March 2012.

Scout's Name: _____ Unit: _____

Counselor's Name: _____ Counselor's Phone No.: _____

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

Please submit errors, omissions, comments or suggestions about improving this workbook to: Workbooks@USScouts.org

1. Do the following:

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

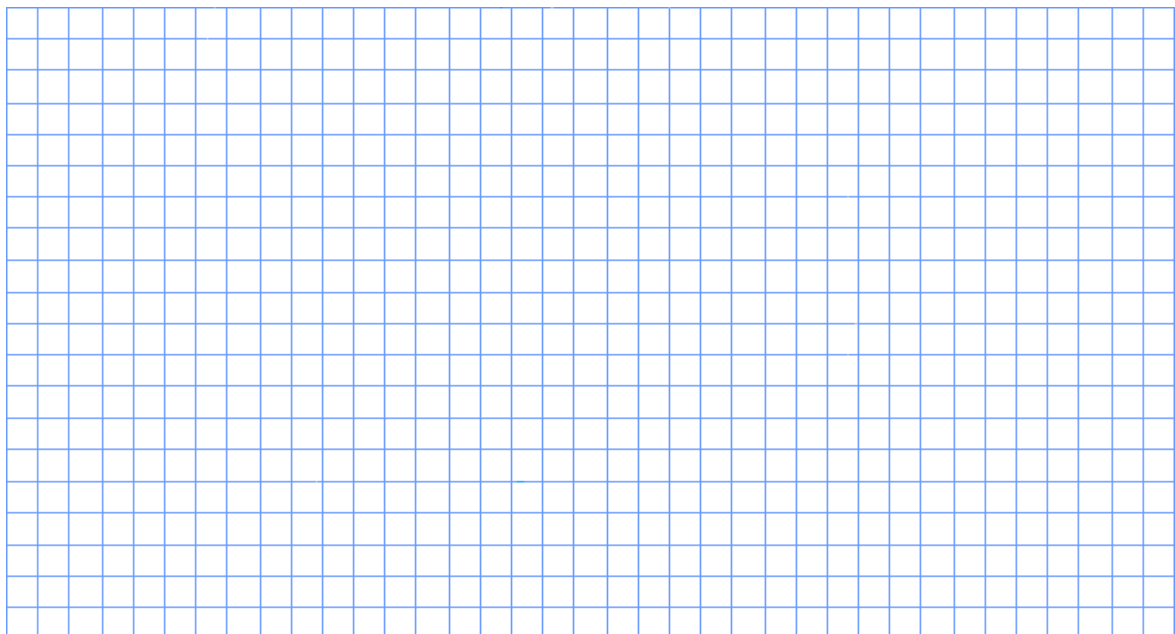
Safety equipment: _____

Tools: _____

Clothing: _____

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. _____

Requirement resources can be found here:
http://www.meritbadge.org/wiki/index.php/Farm_Mechanics#Requirement_resources

Important excerpts from the [‘Guide To Advancement’](#), No. 33088:

Effective January 1, 2012, the ‘Guide to Advancement’ (which replaced the publication ‘Advancement Committee Policies and Procedures’) is now the *official* Boy Scouts of America source on advancement policies and procedures.

- **[Inside front cover, and 5.0.1.4] — Unauthorized Changes to Advancement Program**
No council, committee, district, unit, or individual has the authority to add to, or subtract from, advancement requirements.
(There are limited exceptions relating only to youth members with disabilities. For details see section 10, “Advancement for Members With Special Needs”.)
- **[Inside front cover, and 7.0.1.1] — The [‘Guide to Safe Scouting’](#) Applies**
Policies and procedures outlined in the ‘Guide to Safe Scouting’, No. 34416, apply to all BSA activities, including those related to advancement and Eagle Scout service projects. [Note: Always reference the online version, which is updated quarterly.]
- **[7.0.3.1] — The Buddy System and Certifying Completion**
Youth members must not meet one-on-one with adults. Sessions with counselors must take place where others can view the interaction, or the Scout must have a buddy: a friend, parent, guardian, brother, sister, or other relative —or better yet, another Scout working on the same badge— along with him attending the session. When the Scout meets with the counselor, he should bring any required projects. If these cannot be transported, he should present evidence, such as photographs or adult certification. His unit leader, for example, might state that a satisfactory bridge or tower has been built for the Pioneering merit badge, or that meals were prepared for Cooking. If there are questions that requirements were met, a counselor may confirm with adults involved. Once satisfied, the counselor signs the blue card using the date upon which the Scout completed the requirements, or in the case of partials, initials the individual requirements passed.
- **[7.0.3.2] — Group Instruction**
It is acceptable—and sometimes desirable—for merit badges to be taught in group settings. This often occurs at camp and merit badge midways or similar events. Interactive group discussions can support learning. The method can also be attractive to “guest experts” assisting registered and approved counselors. Slide shows, skits, demonstrations, panels, and various other techniques can also be employed, but as any teacher can attest, not everyone will learn all the material.

There must be attention to each individual’s projects and his fulfillment of *all* requirements. We must know that every Scout — actually and *personally*— completed them. If, for example, a requirement uses words like “show,” “demonstrate,” or “discuss,” then every Scout must do that. It is unacceptable to award badges on the basis of sitting in classrooms *watching* demonstrations, or remaining silent during discussions. Because of the importance of individual attention in the merit badge plan, group instruction should be limited to those scenarios where the benefits are compelling.
- **[7.0.3.3] — Partial Completions**
Scouts need not pass all requirements with one counselor. The Application for Merit Badge has a place to record what has been finished — a “partial.” In the center section on the reverse of the blue card, the counselor initials for each requirement passed. In the case of a partial completion, he or she does not retain the counselor’s portion of the card. A subsequent counselor may choose not to accept partial work, but this should be rare. A Scout, if he believes he is being treated unfairly, may work with his Scoutmaster to find another counselor. An example for the use of a signed partial would be to take it to camp as proof of prerequisites. Partials have no expiration except the 18th birthday.