



Surveying

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 2005 • This workbook was updated in June 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 this **workbook** to: Workbooks@USScouts.Org
Comments or suggestions for changes to the **requirements** for the **merit badge** should be sent to: Merit.Badge@Scouting.Org

1. Show that you know first aid for the types of injuries that could occur while surveying, including cuts, scratches, snakebite, insect stings, tick bites, heat and cold reactions, and dehydration.

Cuts: _____

Scratches: _____

Snakebite: _____

Insect stings: _____

Tick bites: _____

Heat reactions: _____

Cold reactions: _____

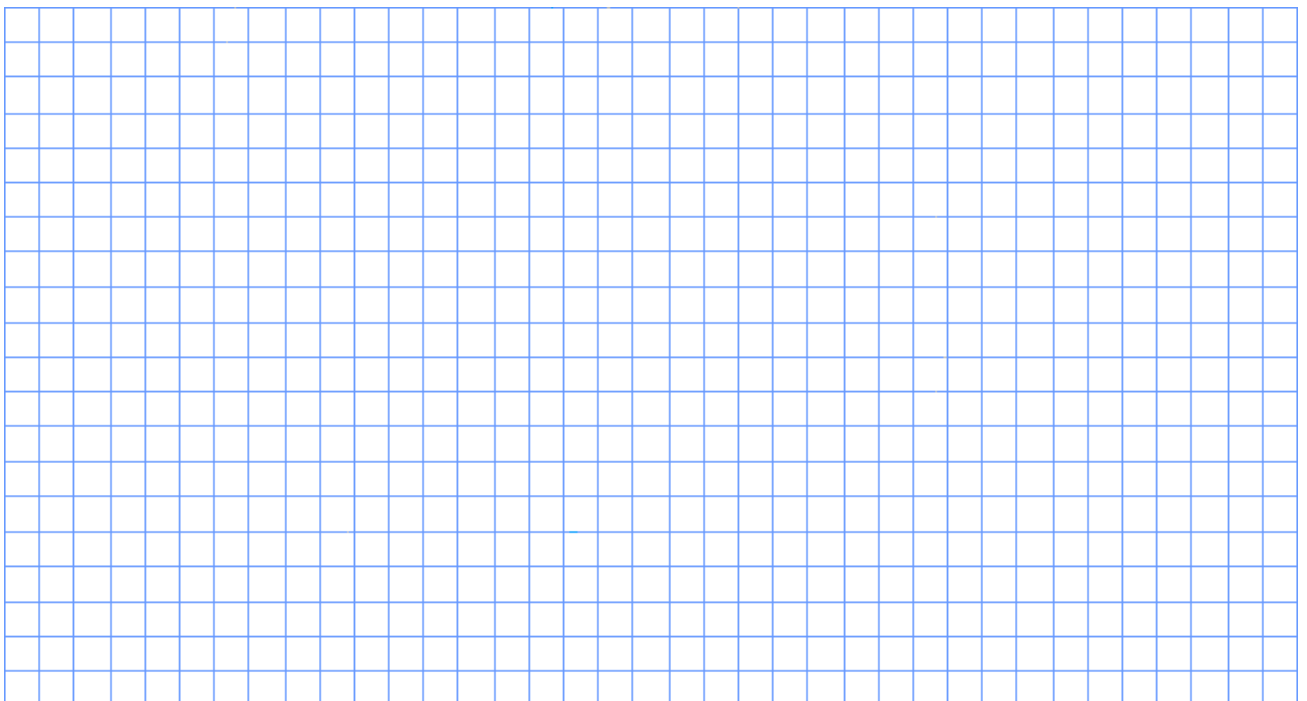
Dehydration: _____

Explain to your counselor why a surveyor should be able to identify the poisonous plants and poisonous animals that are found in your area. _____

- 2. Find and mark the corners of a five-sided lot that has been laid out by your counselor to fit the land available.
 - Set an instrument over each of the corners and record the angle turned between each line and the distance measured between each corner.
Corner 1 Angle: _____ Corner 1 to Corner 2 Distance: _____
Corner 2 Angle: _____ Corner 2 to Corner 3 Distance: _____
Corner 3 Angle: _____ Corner 3 to Corner 4 Distance: _____
Corner 4 Angle: _____ Corner 4 to Corner 5 Distance: _____
Corner 5 Angle: _____ Corner 5 to Corner 1 Distance: _____
 - With the assistance of the counselor, compute the error of closure from the recorded notes. The error of closure must not be more than 5 feet.

- From the corners, take compass readings or turn angles to trees, shrubs, and rocks, and measure to them. All measurements should be made using instruments, methods, and accuracies consistent with current technology. _____

- 3. From the field notes gathered for requirement 2, draw to scale a map of your survey. Submit a neatly drawn copy.



4. Write a metes and bounds description for the five-sided lot in requirement 2.

5. Use one of the corner markers from requirement 2 as a benchmark with an assumed elevation of 100 feet. Using a level and rod, determine the elevation of the other four corner markers.

Corner 1 assumed elevation: 100 feet
 Corner 2 elevation: _____ feet
 Corner 3 elevation: _____ feet
 Corner 4 elevation: _____ feet
 Corner 5 elevation: _____ feet

6. Get a copy of the deed to your property, or a piece of property assigned by your counselor, from the local courthouse or title agency.

7. Tell what GPS is; discuss with your counselor the importance of GPS and how it is changing the field of surveying. _____

8. Discuss the importance of surveying with a licensed surveyor. _____

Also discuss the various types of surveying and mapping, and applications of surveying technology to other fields. _____

Discuss career opportunities in surveying and related fields. _____

Discuss the qualifications and preparation for such a career. _____

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