

Surveying

Merit Badge Workbook



Merit badges are earned by doing: reading the pamphlet, practicing the skills, and showing your counselor what you have learned.
This workbook gives you a place to organize your notes and track your progress along the way.
Merit badge counselors may not require the use of this or any similar workbook.
You still must satisfy your counselor that you can demonstrate each skill and have learned the information.
Use the space under each requirement to note what you have done and what you want to talk about, not to write out full answers.
When a requirement says discuss, show, tell, explain, or demonstrate, that is what you must do.
No one may add to or subtract from the official requirements found on scouting.org (Guide to Advancement 7.0.4.8).
Scouting America last updated this badge's requirements page on December 31, 2025.
Requirements change from time to time. Double-check scouting.org before you start.

Scout's name: _____ Unit: _____ Date started: _____

Counselor's name: _____ Phone no.: _____ Email: _____

Links marked "Scouting America resources" are the ones Scouting America shares on its official badge page.
This workbook is unofficial and not endorsed by Scouting America.

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1. Show that you know first aid for the types of injuries that could occur while surveying, including cuts, scratches, snake bite, insect stings, tick bites, heat- and cold-related reactions, and dehydration. Explain to your counselor why a surveyor should be able to identify the poisonous plants and animals found in your area.

Scouting America resources: How To Treat Cuts & Scrapes (video) · Snake Bites (website)
Bites or Stings of Insects and Arachnids (video) · Heat and Cold Emergencies—How To Treat Dehydration (video)
First Aid Training (video)

First aid for surveying injuries

Injury	First aid I would give
cuts	
scratches	
snake bite	
insect stings	
tick bites	
heat- and cold-related reactions	
dehydration	

Why a surveyor should be able to identify the poisonous plants and animals in my area

Requirement 1 completed on _____ counselor initials _____

2. Do the following:

(a) Set an instrument over one of the corners of a five-sided lot laid out by your counselor and sighting one of the other corners for reference and, using radial measurement methods, record the angle turned and the distance measured to each of the remaining corners, as directed by your counselor. Record the angle and distance to five topographic features (trees, shrubs, rocks, etc.) near your work area.

Scouting America resources: Total Station Basic Setup | 3 Minute Surveying Tips with Tony (video)

Date _____ Instrument set over corner _____ Reference corner sighted _____

Radial measurements to the remaining corners

Corner	Angle turned	Distance measured	Notes

Five topographic features

Feature (tree, shrub, rock...)	Angle turned	Distance measured

(b) Measure to three of the same points with GPS measurement and compare the distances between the points measured.

Scouting America resources: GPS Surveying for Beginners - the Easy Land Surveying (video)

GPS measurements to three of the same points

Point	GPS reading

Comparing the distances

Between points	Distance from my instrument survey	Distance from GPS	Difference

Requirement 2 completed on _____ counselor initials _____

3. From the field notes gathered for requirement 2, and using a protractor and scale, plot the points you measured and draw to scale a map of your survey which includes a north arrow, scale bar, title, date, and a diagram of the lot you measured. Submit a neatly drawn copy.

Scouting America resources: Drawing Diagrams of Legal Descriptions (Basic Example) (video)

- ☐ North arrow
- ☐ Scale bar
- ☐ Title
- ☐ Date
- ☐ Diagram of the lot I measured

Draw my scale map here, or attach a neatly drawn copy

Requirement 3 completed on _____ counselor initials _____

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

Scouting America resources: Calculate Elevation & Grade with a Builders Level (video)

Date _____ Benchmark corner (assumed elevation 100 feet) _____

My level notes

Point	Backsight	Height of instrument	Foresight	Elevation

Requirement 4 completed on _____ counselor initials _____

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5. Get a copy of the deed to a piece of property approved by your counselor, from the local courthouse or title agency. Discuss with your counselor the different parts of the deed and their importance.

Property _____ Where I got the deed _____

Parts of the deed

Part of the deed	What it says	Why it is important

Requirement 5 completed on _____ counselor initials _____

6. Discuss emerging surveying technology such as drones and laser scanning and the strengths and weaknesses of each.

Scouting America resources: Photogrammetry vs LiDAR - Which Is BETTER? (video)

Emerging surveying technology

Technology	Strengths	Weaknesses
drones		
laser scanning		

Requirement 6 completed on _____ counselor initials _____

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

Scouting America resources: How GPS Is Revolutionizing Surveying Accuracy (website)
How Does GPS Work? | The Secret Genius of Modern Life | BBC Earth Science (video)

What GPS is

Why GPS is important, and how it is changing surveying

Requirement 7 completed on _____ counselor initials _____

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8. Identify three career opportunities that would use skills and knowledge in surveying. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

Scouting America resources: Careers in Surveying and Mapping (video)

Three careers that use surveying skills

Career	Surveying skills and knowledge it uses

The career I picked

What I found out about this career

Topic	What I learned
Training	
Education	
Certification requirements	
Experience	
Expenses	
Prospects for employment	
Starting salary	
Advancement opportunities	
Career goals	

Whether I might be interested in this career, and why

Requirement 8 completed on counselor initials

Counselor sign-off

Your counselor signs your blue card or approves the badge in Scoutbook, and your unit records it. This line is for your own records.

Counselor's signature Date completed

Official Scouting America resources

Scouting America resources: Surveying merit badge page (requirements and resources) · Surveying merit badge pamphlet (free PDF)
All merit badges

Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
Spot an error or a requirement change? Tell me at scoutsmarts.com/contact.
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