



Environmental Science

Merit Badge Workbook

Requirements current as of 2026

Unofficial study aid • Not affiliated with or endorsed by Scouting America



This workbook can help you, but you still need to read the merit badge pamphlet. It can help you organize your thoughts as you prepare to meet with your merit badge counselor.

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

You still must satisfy your counselor that you can demonstrate each skill and have learned the information. Use the space provided for each requirement to keep track of what you have completed and to make notes for discussing it with your counselor, not for providing full and complete answers. Where a requirement says to discuss, explain, describe, or tell, that is what you must do.

No one may add or subtract from the official requirements found in Scouts BSA Requirements (Pub. 33216) and on [Scouting.org](https://www.scouting.org).

The requirements were last revised January 1, 2025 • This workbook was updated in October 2026.

Scout's Name: Unit: Date Started:

Counselor's Name: Phone No.: Email:

Made by Cole at [ScoutSmarts.com](https://scoutsmarts.com), an Eagle Scout who loves helping Scouts. Spot an error? Tell me at scoutsmarts.com/contact.

1. Describe the meaning of environmental science in your own words. Explain how you think we can use science to understand, conserve, and improve our environment.

Scouting America resources: [What Is Environmental Science? \(video\)](#)

2. **Ecology.** Do the following and discuss with your counselor:

Scouting America resources: [Merlin Bird App Description \(app\)](#) • [iNaturalist App Description \(app\)](#) • [Observing Nature Through SMELL \(video\)](#)

Tip: Take a photo of every plant, animal, and rock you notice on both days. Your photos make the notes for 2b easier to write and give you something to show your counselor.

- ☐ a. Choose an area approved by your counselor and observe (sight, sound, and smell) its ecosystem over a two-day period.

Scouting America resources: [Observe Nature Like a Scientist! \(video\)](#) • [Observing Nature \(video\)](#) • [Backyard Nature \(video\)](#)

Area I observed: Counselor approved on:

	Date	What I saw	What I heard	What I smelled
Day 1				
Day 2				

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- ☐ b. Make notes about the living, nonliving (e.g. rocks) and formerly living components. Include information about interactions among the components, including the food chain, predators, native species, and invasive species, and identify how human activities have affected the ecosystem.

Ecosystem Notes

	My notes
Living components	
Nonliving components (e.g. rocks)	
Formerly living components	
Food chain	
Predators	
Native species	
Invasive species	
How human activities have affected the ecosystem	

3. **Air Pollution.** Do ONE of the following and discuss with your counselor:

Scouting America resources: [Air Pollution \(video\)](#)

- ☐ a. Learn what Particulate Matter (PM) is, how PM gets into the air, what the harmful effects of PM are, and what is being done to reduce PM in the air. Then, perform an experiment to test for particulates that contribute to air pollution.

Scouting America resources: [Particulate Matter \(video\)](#)

Particulate Matter: what it is, how it gets into the air, its effects, and what is being done:

My experiment and what I found:

- ☐ b. Discuss how air pollution and transportation affect each other by giving at least three examples. Then, compare two modes of transportation (e.g., gasoline-powered vs. electric vehicles, gasoline-powered car vs. bicycle, etc.).

Scouting America resources: [Your Car's Exhaust \(video\)](#) • [Air Quality and Transportation \(video\)](#)

Three Examples

	How air pollution and transportation affect each other
Example 1	
Example 2	
Example 3	

Comparing Two Modes of Transportation

	Mode 1	Mode 2
Mode of transportation		
Effect on air pollution		
Other pros		
Other cons		

- ☐ c. Learn about the Clean Air Act. Make notes on when it was passed, its environmental goals, what progress has been made and what remains to be done to achieve the law's goals. Describe the impact, benefits, and costs of the law as well as what is required to implement and enforce the law.

Scouting America resources: [Clean Air Act \(video\)](#)

Clean Air Act

	My notes
When it was passed	
Environmental goals	
Progress made	
What remains to be done	
Impact	
Benefits	
Costs	
What is required to implement and enforce it	

4. Water Pollution. Do ONE of the following and discuss with your counselor:Scouting America resources: [Hydrologic Cycle \(video\)](#)

- ☐ a. Identify where your community sources water, how it is treated, and disposed. Obtain and review a water quality report from your area.

Scouting America resources: [Understanding a Drinking Water Quality Report \(video\)](#) • [Drinking Water Treatment \(video\)](#) • [Waste Water Treatment \(video\)](#)**My Community's Water**

	My notes
Where our water comes from	
How it is treated	
How it is disposed of	

Water quality report I reviewed (name and year): **What I learned from the report:**

- ☐ b. Identify a local or regional area that experiences periodic flooding and/or drought. Collect facts on prior event(s) and investigate the environmental impacts of these extreme events.

Scouting America resources: [How to Use FEMA's Flood Search Tool \(video\)](#) • [Watersheds! \(video\)](#) • [US Drought Map \(video\)](#)Area: Flooding, drought, or both: **Facts on prior event(s):**

Environmental impacts of these extreme events:

- ☐ c. Learn about the Clean Water Act. Make notes on when it was passed, its environmental goals, what progress has been made and what remains to be done to achieve the law's goals. Describe the impact, benefits, and costs of the law as well as what is required to implement and enforce the law.

Scouting America resources: [Clean Water Act \(video\)](#) • [Clean Water Act & the Chesapeake Bay \(video\)](#)

Clean Water Act

	My notes
When it was passed	
Environmental goals	
Progress made	
What remains to be done	
Impact	
Benefits	
Costs	
What is required to implement and enforce it	

5. Land Pollution. Do ONE of the following and discuss with your counselor:

- ☐ a. In an area (yard, park, golf course, farm, etc.) approved by your counselor, make a list of the pesticides, herbicides, and fertilizers used and how often they are applied. Identify the benefits of their use and the environmental impact, including effects on non-target species (including humans), what happens if the chemicals infiltrate into the groundwater, and what happens to any runoff of the chemicals.

Scouting America resources: [Do We Really Need Pesticides? \(video\)](#) • [Bald Eagle Study \(video\)](#)

Area (approved by my counselor):

Chemicals Used

	Product	Pesticide, herbicide, or fertilizer?	How often it is applied
1			
2			
3			
4			
5			

Benefits of their use:

Environmental impact (non-target species, groundwater, runoff):

- ☐ b. Learn about the erosion process and identify an example of where erosion occurs. Determine where the eroded material ends up and how erosion can be minimized.

Scouting America resources: [Soil Erosion | Causes, Effects, and Solutions \(video\)](#) • [How Was the Grand Canyon Formed? \(video\)](#)

The erosion process:

Example of erosion I identified:

Where the eroded material ends up and how erosion can be minimized:

- ☐ c. Learn about a land pollution incident that led to a site being listed on Environmental Protection Agency's Superfund National Priority List. Identify what caused the incident, what the effects were on the environment, what remediation has been done, and the current condition of the site.

Scouting America resources: [Introduction to Superfund \(video\)](#)

Superfund site:

	My notes
What caused the incident	
Effects on the environment	
Remediation done	
Current condition of the site	

6. Rare, Threatened, or Endangered Species. Do ONE of the following and discuss with your counselor:

Tip: The bald eagle is a good pick for 6b. It came back from the brink of extinction, and there's plenty of reliable information on how it recovered.

- ☐ a. Do research on one endangered species found in your state. Learn about its natural habitat, why it is endangered, what is being done to preserve it, and how many individual species are left in the wild. Prepare a 100-word report about the species and include a drawing or photo. Present your report to your patrol or troop.

Scouting America resources: [Endangered Species by US State \(video\)](#) • [Are Endangered Species Worth Saving? \(video\)](#) • [Saving Threatened Plants \(video\)](#)

Endangered species:

My 100-word report (attach a drawing or photo):

Presented to my patrol or troop on:

- ☐ b. Do research on one species that was endangered or threatened but that has now recovered. Learn about how the species recovered, and what its new status is. Prepare a 100-word report on the species and include a drawing or photo. Present your report to your patrol or troop.

Scouting America resources: [10 Success Stories \(video\)](#) • [Condor Saved! \(video\)](#) • [Whooping Cranes Saved! \(video\)](#) • [World Wildlife Fund \(website\)](#)

Recovered species: New status: **My 100-word report (attach a drawing or photo):**

Presented to my patrol or troop on:

- ☐ c. With your parent or guardian and counselor's approval, work with a natural resource professional to identify a completed project that has been designed to improve the habitat for a threatened or endangered species in your area. Visit the site and report on what you saw to your patrol or troop.

Scouting America resources: [Butterfly Habitat Restoration \(video\)](#) • [Fisheries Habitat Restoration \(video\)](#) • [Everglades Restoration \(video\)](#)

Natural resource professional: Project and site: Date I visited: **What I saw:**

Reported to my patrol or troop on:

7. Pollution Prevention, Resource Recovery, and Conservation. Do ONE of the following and discuss with your counselor:

Tip: Reduce, reuse, and recycle are listed in order of importance. Buying less does the most good, so lead with reduce ideas when you talk with your counselor.

- ☐ a. Determine five ways to conserve resources or use resources more efficiently in your home, school, or camp. Practice at least two of these methods for at least one week.

Scouting America resources: [10 Ways to Take Care of the Environment \(video\)](#) • [Scouts and LNT \(video\)](#) • [10 Easy Ways to Save Water at Home and Help the Planet \(video\)](#) • [The Leave No Trace Basics \(video\)](#)

Five Ways to Conserve Resources

	Way to conserve or use resources more efficiently	Practiced for one week? (dates)
1		
2		
3		
4		
5		

What I learned:

- ☐ b. Explain Resource Recovery and why it is important to reduce pollution. Collect samples or take photos of 10 items that can demonstrate the principle of Reduce, Reuse, Recycle. Explain your collection, how these materials are currently handled, and potential improvements.

Scouting America resources: [Reduce, Reuse, Recycle \(video\)](#) • [Upcycling Hacks \(video\)](#) • [The 3Rs \(video\)](#)

What Resource Recovery is and why it's important to reduce pollution:

My Reduce, Reuse, Recycle Collection

	Item	Reduce, reuse, or recycle?	How it is handled now	Potential improvement
1				
2				
3				
4				
5				
6				

My Reduce, Reuse, Recycle Collection (continued)

	Item	Reduce, reuse, or recycle?	How it is handled now	Potential improvement
7				
8				
9				
10				

- ☐ c. Identify five items in your household that will become hazardous waste. Explain how they should be properly stored, what special care is needed for disposal, and proper disposal options available in your area.

Scouting America resources: [Household Hazardous Waste Disposal \(video\)](#)

Household Hazardous Waste

	Item	How to store it	Special care for disposal	Disposal options in my area
1				
2				
3				
4				
5				

8. **Pollination.** Do ONE of the following and discuss with your counselor:

- ☐ a. Investigate pollination and its importance to our environment and ecosystems. Make a list of five pollinators and the plants that attract them in your region. Explain the importance of pollinators and what Scouts can do to support pollinators in their area.

Scouting America resources: [Is It a Bee, a Wasp, a Fly, or a Moth? \(video\)](#) • [The Power of Pollinators \(video\)](#) • [How Pollination Works \(video\)](#)

Five Pollinators in My Region

	Pollinator	Plants that attract it
1		
2		
3		
4		
5		

Why pollinators are important and what Scouts can do to support them:

- ☐ b. Visit an area with flowering plants during pollination season for an hour to observe pollination. Record which pollinators are attracted to which plant. Explain the importance of pollinators and what Scouts can do to support pollinators in their area.

Scouting America resources: [The Beauty of Pollination \(video\)](#) • [Animal Pollinators! \(video\)](#)

Area I visited:

Date:

Time:

Pollination Observation

	Pollinator	Plant it visited
1		
2		
3		
4		
5		
6		

Why pollinators are important and what Scouts can do to support them:

- ☐ c. Learn about the importance of pollination to agriculture, including the economic costs and benefits. Identify four crop-pollinator pairs. Explain the relationship of pollinators to agriculture.

Scouting America resources: [Pollinators and Agriculture \(video\)](#) • [Honey Bee Pollinator Contract Hives \(video\)](#) • [Almond Pollination \(video\)](#)

Importance of pollination to agriculture, including economic costs and benefits:

Four Crop-Pollinator Pairs

	Crop	Pollinator
1		
2		
3		
4		

The relationship of pollinators to agriculture:

9. **Invasive Species.** In your community or camp, investigate two invasive plant or animal species. Learn where the species originated, how they were transported to this ecosystem, their life history, how they are spread, how they impact the native ecosystem, and the recommended means to eradicate or control their spread. Discuss what you learned with your counselor.

Scouting America resources: [The Threat of Invasive Species \(video\)](#) • [Why We Don't Kill Off Invasive Species \(video\)](#)

Tip: Search "invasive species" plus your city or state and look for a .gov result. Then ask your counselor if the two species you pick grow in your community or camp.

Two Invasive Species

	Species 1	Species 2
Name		
Where it originated		
How it was transported to this ecosystem		
Life history		
How it is spread		
How it impacts the native ecosystem		
Recommended means to eradicate or control its spread		

10. Identify the environmental impact topics that would need to be addressed for a construction project such as building a house, adding a new building to your Scout camp, or one you create on your own that is approved by your counselor. Evaluate the purpose and benefit of the proposed project, alternatives (including a no-action alternative), and any environmental consequences. Discuss with your counselor.

Scouting America resources: [What Is an EIA? \(video\)](#) • [EIA issues \(video\)](#) • [EIAs-Key to Sustainable Development \(video\)](#)

Tip: Star Scout or above? Ask your counselor if you can use your Eagle project idea as the construction project. It gives you a head start on planning it.

Environmental Impact Review

	My notes
Construction project	
Environmental impact topics to address	
Purpose and benefit of the project	
Alternatives (including a no-action alternative)	
Environmental consequences	

11. Identify three career opportunities that would use skills and knowledge in the environmental science field. 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: [EnvSci Future Careers \(video\)](#) • [What Do Environmental Engineers Do? \(video\)](#) • [What Do Environmental Scientists Do? \(video\)](#)

1. 2. 3.

Career I picked:

Researching My Career

	My notes
Training	
Education	
Certification requirements	
Experience	
Expenses to enter the field	

Researching My Career (continued)

	My notes
Prospects for employment	
Starting salary	
Advancement opportunities	
Career goals	

Might I be interested in this career? Why or why not:

Counselor Sign-Off

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

Counselor's Signature:

Date Completed:

Official Scouting America Resources

- [Environmental Science merit badge pamphlet \(free PDF\)](#)
- [Environmental Science requirements and resources \(Scouting.org\)](#)
- [All merit badges \(Scouting.org\)](#)

More help: [Environmental Science Merit Badge Guide](#) (ScoutSmarts.com)