

Soil and Water Conservation

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 September 19, 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. Do the following:

(a) Tell what soil is. Tell how it is formed.

Scouting America resources: The Dirt on Soil (video) · Formation of Soil (video)

What soil is

How soil is formed

(b) Describe three kinds of soil. Tell how they are different.

Scouting America resources: Types of Soil (video)

Three kinds of soil

Kind of soil	What it is like	How it is different from the others

(c) Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.

Scouting America resources: The Three Most Important Nutrients for Plant Growth (video)

The three main plant nutrients in fertile soil

Nutrient	How it can be put back when used up

Requirement 1 completed on _____ counselor initials _____

2. Do the following:

(a) Define soil erosion.

Scouting America resources: Soil Basics: Erosion (video)

Soil erosion in my own words

(b) Tell why soil erosion is important and how it affects you.

Scouting America resources: Why Soil Conservation is Important to Human Agriculture? (video)

Why soil erosion is important, and how it affects me

(c) Name three kinds of soil erosion. Describe each.

Three kinds of soil erosion

Kind of erosion	What it is and how it happens

(d) Take pictures of or draw two kinds of soil erosion.

Scouting America resources: Soil Erosion: Causes, Impacts, and Sustainable Solutions (website)

First kind of erosion _____ Second kind of erosion _____

My pictures or drawings (draw here or attach)

Requirement 2 completed on _____ counselor initials _____

3. Do the following:

Scouting America resources: What is Soil Conservation (video)

(a) Tell what is meant by conservation practices.

What conservation practices means

(b) Describe the effect of three kinds of erosion-control practices.

Three erosion-control practices

Practice	Its effect on erosion

(c) Take pictures of or draw three kinds of erosion-control practices.

Scouting America resources: Soil Erosion: Causes, Impacts and Sustainable Solutions (website)

My pictures or drawings of three erosion-control practices (draw here or attach)

Requirement 3 completed on _____ counselor initials _____

4. Do the following:

(a) Explain what a watershed is.

Scouting America resources: What is a Watershed (video) · Watersheds, Rivers and Floodplains (video) How (and Why) to Find Your Watershed (video)

What a watershed is

(b) Outline the smallest watershed that you can find on a contour map.

Contour map I used | Smallest watershed I found

Attach my outlined map, or sketch the outline here

(c) Outline, as far as the map will allow, the next larger watershed that also has the smallest one in it.

Next larger watershed | Outlined on my map on (date)

(d) Explain what a river basin is. Tell why all people living in a river basin should be concerned about land and water use in the basin.

Scouting America resources: River Basins (video)

What a river basin is

Why everyone living in a river basin should care about land and water use there

(e) Explain what an aquifer is and why it can be important to communities.

Scouting America resources: What is an Aquifer (video)

What an aquifer is, and why it can be important to communities

Requirement 4 completed on | counselor initials

5. Do the following:

(a) Make a drawing to show the hydrologic cycle.

Scouting America resources: The Water (Hydrologic) Cycle (video)

My drawing of the hydrologic cycle (draw here or attach)

(b) Demonstrate at least two of the following actions of water in relation to soil: percolation, capillary action, precipitation, evaporation, and transpiration.

Scouting America resources: Capillary Rise (video) · Soil Capillary Action Demonstration (video) · Soil Percolation Experiment (video)

My demonstrations (at least two)

Action of water	Date	How I demonstrated it

(c) Explain how removal of vegetation will affect the way water runs off a watershed.

Scouting America resources: How Vegetation Protects Soil (video)

How removing vegetation changes the way water runs off a watershed

(d) Tell how uses of forest, range, and farmland affect usable water supply.

Scouting America resources: Rangeland Management and Water Supply (video)

Land use and usable water supply

Land use	How it affects usable water supply
Forest	
Range	
Farmland	

(e) Explain how industrial use affects water supply.

Scouting America resources: Reimagining Industrial Water for Sustainable Impact (video)

How industrial use affects water supply

Requirement 5 completed on _____ counselor initials _____

6. Do the following:

Scouting America resources: Water Pollution and How We Can Reduce It (video) · H2-Oh No! Water Pollution 101 (video)

(a) Tell what is meant by water pollution.

What water pollution means

(b) Describe common sources of water pollution and explain the effects of each.

Common sources of water pollution

Source	Its effects

(c) Explain the terms: primary water treatment, secondary waste treatment, and biochemical oxygen demand.

Scouting America resources: How Does Wastewater Treatment Work? (video)

Water treatment terms

Term	What it means
Primary water treatment	
Secondary waste treatment	
Biochemical oxygen demand	

(d) Make a drawing showing the principles of complete waste treatment.

My drawing of the principles of complete waste treatment (draw here or attach)

Requirement 6 completed on _____ counselor initials _____

7. Do TWO of the following:

☐ **(a)** Make a trip to TWO of the following places. Write a report of more than 500 words about the soil and water and energy conservation practices you saw.

- ☐ **(1)** An agricultural experiment
  Scouting America resources: Alabama's "Old Rotation" Experiment (website)
- ☐ **(2)** A managed forest or woodlot, range, or pasture
  Scouting America resources: Visit to Managed International Paper Forest (video)
- ☐ **(3)** A wildlife refuge or a fish or game management area
  Scouting America resources: Visit to Tennessee National Wildlfe Refuge (video)
- ☐ **(4)** A conservation-managed farm or ranch
- ☐ **(5)** A managed watershed
  Scouting America resources: Watershed Forestry (Massachusetts) (video)

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☐ **(6)** A waste-treatment plant
Scouting America resources: How Chicago Cleans 1.4 Billion Gallons Of Wastewater Every Day (video)

☐ **(7)** A public drinking water treatment plant

☐ **(8)** An industry water use installation
Scouting America resources: Water Use in the Paper Industry (video)
How Data Centers Optimize Energy and Water for Cooling Solutions (video)

☐ **(9)** A desalinization plant
Scouting America resources: Carlsbad Desalinization Plant Tour (video)

My two trips

Place I visited	Date	Conservation practices I saw

Notes for my report (attach the full report of more than 500 words)

☐ **(b)** Plant 100 trees, bushes, and/or vines for a good purpose.

My planting log

Date	What I planted	How many	Where, and the purpose

Total planted

☐ **(c)** Seed an area of at least one-fifth acre for some worthwhile conservation purposes, using suitable grasses or legumes alone or in a mixture.

Area I seeded Size Date

Grasses or legumes I used, and the conservation purpose

☐ **(d)** Study a soil survey report. Describe the things in it. Using tracing paper and a pen, trace over any of the soil maps, and outline an area with three or more different kinds of soil. List each kind of soil by full name and map symbol.

Scouting America resources: Web Soil Survey Tutorial (video)

Soil survey report I studied

What is in the report

Kinds of soil in the area I outlined (attach my tracing)

Full name of the soil	Map symbol

☐ **(e)** Make a list of places in your neighborhood, camps, school ground, or park that have erosion, sedimentation, or pollution problems. Describe how these could be corrected through individual or group action.

Places with erosion, sedimentation or pollution problems

Place	Problem	How it could be corrected by individual or group action

☐ **(f)** Carry out any other soil and water conservation project approved by your counselor.

My project | Counselor approved on

What I did and what it accomplished

Requirement 7 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: Soil and Water Conservation merit badge page (requirements and resources)
Soil and Water Conservation merit badge pamphlet (free PDF) · All merit badges

Made by Cole at ScoutSmarts.com, an Eagle Scout who loves helping Scouts.
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