

2010

SOIL and WATER
CONSERVATION
PROGRAM OVERVIEW
& WORKBOOK



STUHR MUSEUM

MERIT BADGE UNIVERSITY

OVERLAND TRAILS COUNCIL

7/31/2010



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MERIT BADGE REQUIREMENTS

*(PRE-REQUISITE REQUIREMENTS IN **BOLD RED UNDERLINED ITALICS**)*

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(COMPLETE BEFORE ATTENDING MBU)

WORKBOOK PART TWO

(WILL BE COMPLETED DURING CLASS)

ADDITIONAL RESOURCES

APPLICATION for MERIT BADGE

(MUST HAVE UNIT LEADER SIGNATURE PRIOR TO CLASS)



FEBRUARY 2010

Information in this booklet was accurate at the time of publishing.
Boy Scouts Requirements 2010, Copyrighted Boy Scouts of America
Program Overview & Workbook was reviewed by
MBU Staff/Committee.

SOIL and WATER CONSERVATION PROGRAM OVERVIEW

COUNSELOR: tba

C/O: Overland Trails Council
PO Box 1361
Grand Island, NE 68802-1361

LOCATION: Stuhr Museum

TRANSPORTATION: Transportation is provided

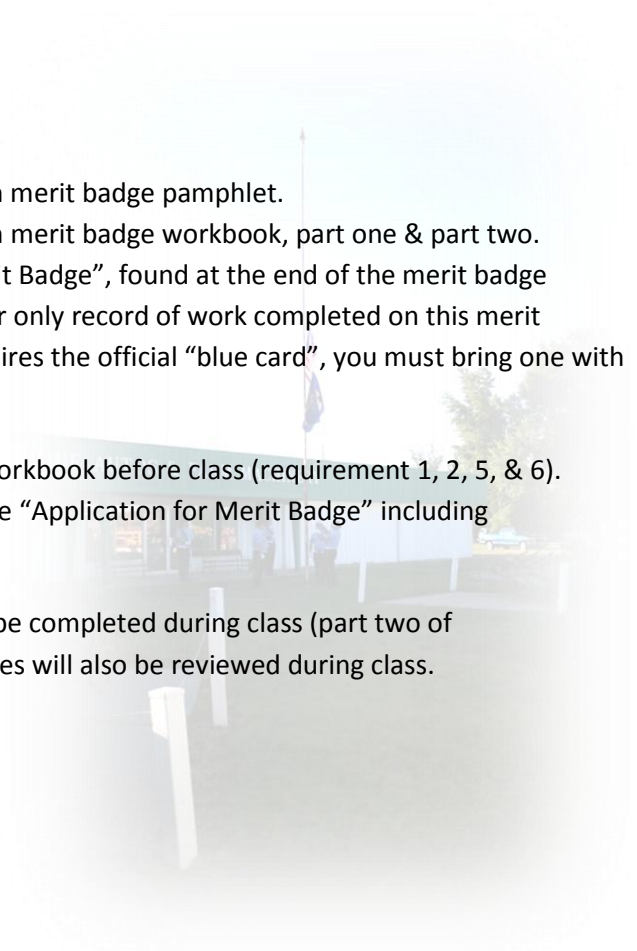
ADDITIONAL COSTS: None

CLASS SIZE: 10

BRING TO CLASS: Soil and Water Conservation merit badge pamphlet.
Soil and Water Conservation merit badge workbook, part one & part two.
Signed "Application for Merit Badge", found at the end of the merit badge workbook. (This will be your only record of work completed on this merit badge.) If your Council requires the official "blue card", you must bring one with you to class.

PRE-REQUISITES: Complete Part One of the workbook before class (requirement 1, 2, 5, & 6).
Complete information on the "Application for Merit Badge" including Scoutmasters signature.

CURRICULUM: Requirements 3, 4, & 7 will be completed during class (part two of the workbook). Pre-requisites will also be reviewed during class.



SOIL and WATER CONSERVATION

Boy Scouts Requirements 2010



PRE-REQUISITE REQUIREMENTS ARE PRINTED IN **ITALICS &**
MUST BE COMPLETED BEFORE CLASS.

1. **Do the following:**
 - a) **Tell what soil is. Tell how it is formed.**
 - b) **Describe three kinds of soil. Tell how they are different.**
 - c) **Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.**
2. **Do the following:**
 - a) **Define soil erosion.**
 - b) **Tell why it is important. Tell how it affects you.**
 - c) **Name three kinds of soil erosion. Describe each.**
 - d) **Take pictures or draw two kinds of soil erosion.**
3. Do the following:
 - a) Tell what is meant by conservation practices.
 - b) Describe the effect of three kinds of erosion-control practices.
 - c) Take pictures or draw three kinds of erosion-control practices.
4. Do the following:
 - a) Explain what a watershed is.
 - b) Outline the smallest watershed that you can find on a contour map.
 - c) Then outline on your map, as far as possible, the next larger watershed which also has the smallest in it.
 - 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 it.
5. **Do the following:**
 - a) **Make a drawing to show the hydrologic cycle.**
 - b) **Show by demonstration at least two of the following actions of water in relation to soil: percolation, capillary action, precipitation, evaporation, transpiration.**
 - c) **Explain how removal of vegetation will affect the way water runs off a watershed.**
 - d) **Tell how uses of forest, range, and farm land affect usable water supply.**
 - e) **Explain how industrial use affects water supply.**
6. **Do the following:**
 - a) **Tell what is meant by "water pollution."**
 - b) **Describe common sources of water pollution and explain the effects of each.**
 - c) **Tell what is meant by "primary water treatment," "secondary waste treatment" and "biochemical oxygen demand."**
 - d) **Make a drawing showing the principles of complete waste treatment.**
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
 - 2) A managed forest or woodlot, range, or pasture
 - 3) A wildlife refuge or a fish or game management area
 - 4) A conservation-managed farm or ranch
 - 5) A managed watershed
 - 6) A waste-treatment plant
 - 7) A public drinking water treatment plant
 - 8) An industry water use installation
 - 9) A desalinization plant
- b) Plant 100 trees, bushes, and/or vines for a good purpose.
 - c) Seed an area of at least 1/5 acre for some worthwhile conservation purpose, using suitable grasses or legumes alone or in a mixture.
 - d) Study a soil survey report. Describe the things in it. On tracing paper over any of the soil maps, outline an area with three or more different kinds of soil. List each kind of soil by full name and 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.
 - f) Carry out any other soil and water conservation project approved by your merit badge counselor.

SOIL and WATER CONSERVATION WORKBOOK

PART ONE, PRE-REQUISITIES



Name _____
 Unit # _____ District _____
 Council _____

Part One of the workbook must be completed before class.

Bring the entire workbook (part one and part two) with you to class.

Also bring the "Application for Merit Badge" signed by your scoutmaster (included at the end of the workbook).

<input type="checkbox"/> 1. Do the following:	
<input type="checkbox"/> a) Tell what soil is. Tell how it is formed.	
<i>Soil:</i>	<input style="width: 100%;" type="text"/>
<i>How is it formed:</i>	<input style="width: 100%;" type="text"/> <input style="width: 100%;" type="text"/> <input style="width: 100%;" type="text"/>
<input type="checkbox"/> b) Describe three kinds of soil. Tell how they are different.	
<i>Describe three kinds of soil:</i>	<i>How are they different:</i>
1	<input style="width: 100%;" type="text"/>
2	<input style="width: 100%;" type="text"/>
3	<input style="width: 100%;" type="text"/>
<input type="checkbox"/> c) Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.	
<i>Name the three main plant nutrients:</i>	
1	<input style="width: 100%;" type="text"/>
2	<input style="width: 100%;" type="text"/>
3	<input style="width: 100%;" type="text"/>
<i>How can they be put back when used up:</i>	
<input style="width: 100%;" type="text"/>	
<input style="width: 100%;" type="text"/>	
<input style="width: 100%;" type="text"/>	

SOIL and WATER CONSERVATION WORKBOOK, PART ONE, p.2

Name _____

- 2. Do the following:
 - a) Define soil erosion.

Define soil erosion:

- b) Tell why it is important. Tell how it affects you.

Why is it important:

How it affects you:

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

Name three kinds of soil erosion:

Describe

<i>1</i>	<i>Describe</i>
<i>2</i>	
<i>3</i>	

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

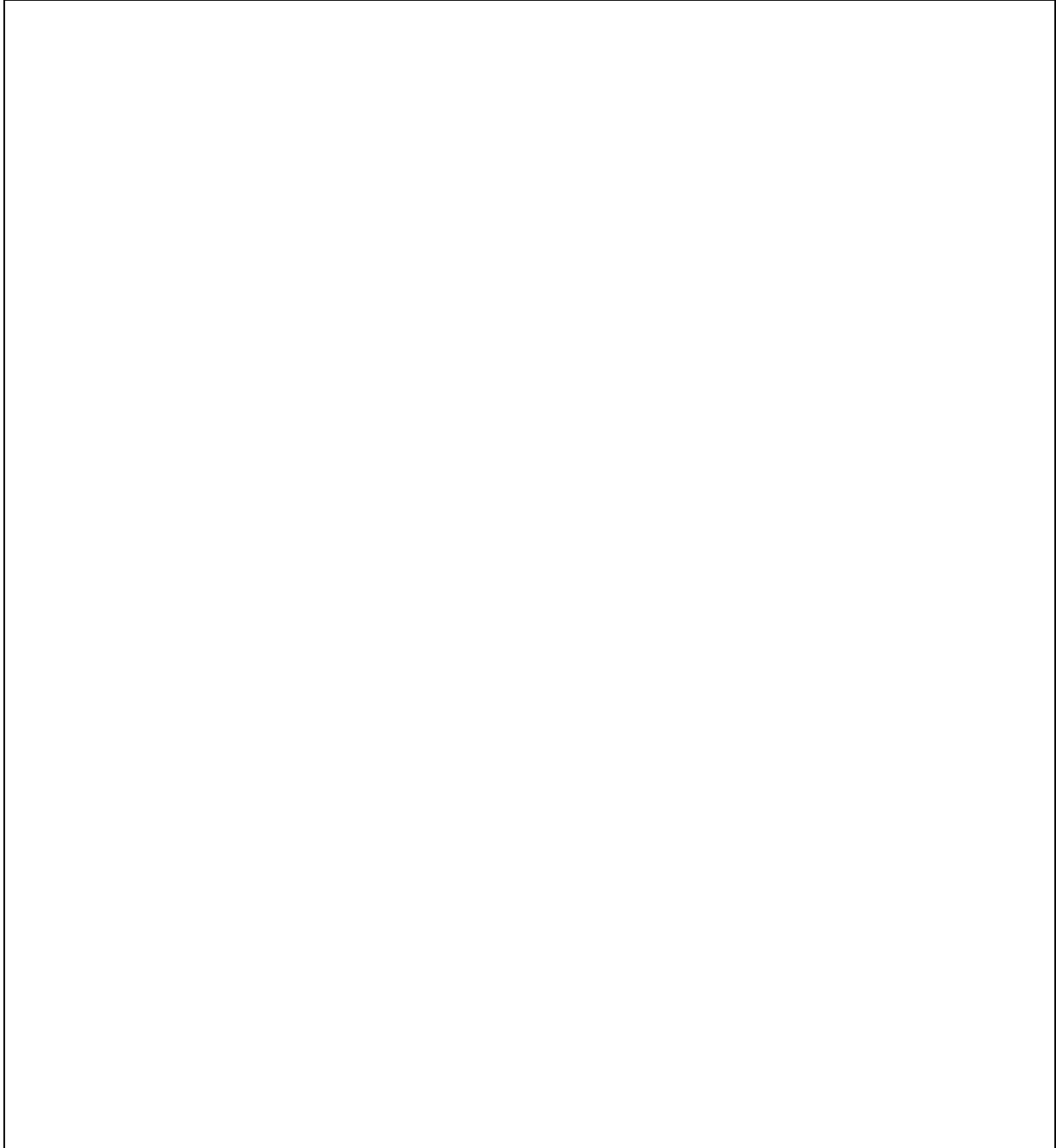
Take pictures or draw two kinds of soil erosion:

--	--

Name _____

- 5. Do the following:
 - a) Make a drawing to show the hydrologic cycle.

Hydrologic cycle:



Name _____

5. continued

- b) Show by demonstration at least two of the following actions of water in relation to soil: percolation, capillary action, precipitation, evaporation, transpiration.

Demonstrate two of the following:

Percolation:

--

Capillary action:

--

Precipitation:

--

Evaporation:

--

Transpiration:

--

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

How removal of vegetation will affect the way water runs off a watershed:

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- d) Tell how uses of forest, range, and farm land affect usable water supply.

How uses of forest, range, and farm land affects usable water supply:

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- e) Explain how industrial use affects water supply.

How industrial use affects water supply:

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Name _____

- 6. Do the following:
- a) Tell what is meant by “water pollution.”

What is meant by “water pollution”

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

Common sources of water pollution:

Explain effects:

<i>Common sources of water pollution:</i>	<i>Explain effects:</i>

- c) Tell what is meant by “primary water treatment,” “secondary waste treatment” and “biochemical oxygen demand.”

Explain “primary water treatment”:

Explain “secondary waste treatment”:

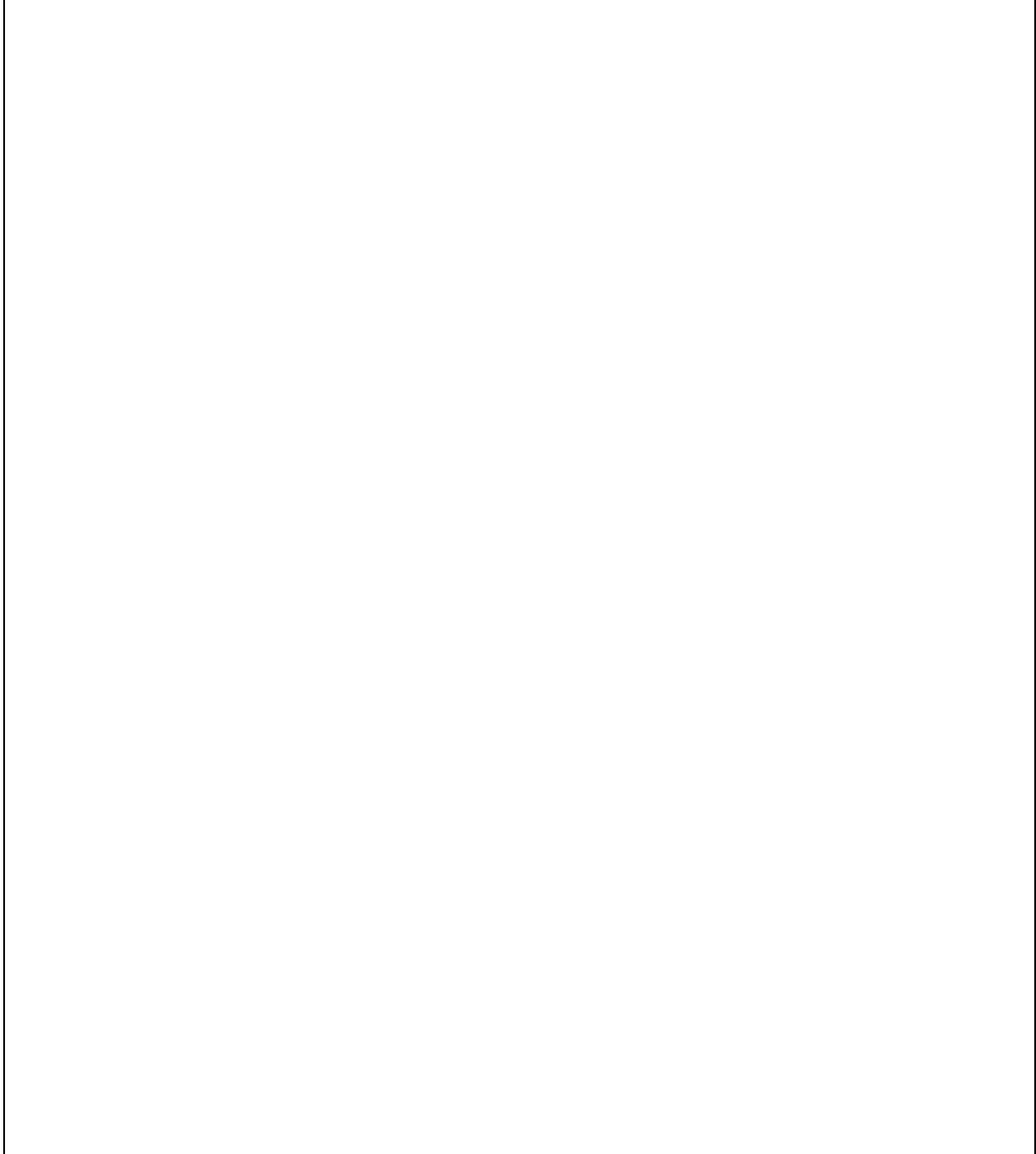
Explain “biochemical oxygen demand”:

Name _____

6. continued

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

Drawing showing principles of complete waste treatment:

A large empty rectangular box with a black border, intended for a drawing showing the principles of complete waste treatment.



SOIL and WATER CONSERVATION WORKBOOK PART TWO, CLASS CURRICULUM

Name _____
 Unit # _____ District _____
 Council _____

Part Two of the workbook will be completed during class.

<input type="checkbox"/> 3. Do the following:							
<input type="checkbox"/> a) Tell what is meant by conservation practices.							
<p><i>What is meant by conservation practices:</i></p> <table border="1" style="width: 100%; height: 40px;"> <tr><td style="height: 15px;"></td></tr> <tr><td style="height: 15px;"></td></tr> <tr><td style="height: 15px;"></td></tr> <tr><td style="height: 15px;"></td></tr> </table>							
<input type="checkbox"/> b) Describe the effect of three kinds of erosion-control practices.							
<p><i>Erosion-control practices:</i></p> <table border="1" style="width: 100%; height: 100px;"> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> </table>				<p><i>The effect:</i></p> <table border="1" style="width: 100%; height: 100px;"> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> <tr><td style="height: 30px;"></td></tr> </table>			

Name _____

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

Take pictures or draw three kinds of erosion-control practices:

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Name _____

- 4. Do the following:
 - a) Explain what a watershed is.

Watershed:

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

Smallest watershed on a contour map:

- c) Then outline on your map, as far as possible, the next larger watershed which also has the smallest in it.

Outline next larger watershed with the smallest in it:

- 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 it.

Explain river basin:

Why people living in a river basin should be concerned about land and water use:

Name _____

7. continued

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

Plant 100 trees, bushes, and/or vines:

- c) Seed an area of at least 1/5 acre for some worthwhile conservation purpose, using suitable grasses or legumes alone or in a mixture.

Seed at least 1/5 acre:

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

Study a soil survey report:

--

Describe the things in it:

Outline an area with three or more different kinds of soil:

--

List each kind of soil by full name:

and map symbol:

1	
2	
3	

Name _____

7. continued

- 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.

Make a list that have erosion:

- f) Carry out any other soil and water conservation project approved by your merit badge counselor.

Soil and water conservation project:

ORGANIZATIONS and WEB SITES

(Whenever you go online, be sure you have your parent's permission first.)

Chesapeake Bay Program

<http://www.chesapeakebay.net>

EnviroLink Network

<http://www.envirolink.org>

Environmental Protection Agency

<http://www.epa.gov>

Natural Resources Conservation Service

<http://www.nrcs.usda.gov>

<http://websoilsurvey.nrcs.usda.gov/app>

Soil and Water Conservation Society

<http://www.swcs.org>

SOIL and WATER CONSERVATION WORKBOOK

Notes



APPLICATION FOR MERIT BADGE

Name: _____

Address: _____

City: _____

State: _____

Is a registered _____ Boy Scout,
 _____ Varsity Scout,
 _____ Venturer,

of _____ No. _____
Troop, team, crew, ship

District: _____

Council: _____

MERIT BADGE UNIVERISTY

Merit Badge: **Soil & Water Conservation**

Counselor: _____

Address: Overland Trails Council

PO Box 1361

2808 O'Flannagan

Grand Island, NE 68802-1361

Phone: 308-382-3717

email: mbuotc@yahoo.com

and is qualified to begin working for this merit badge and has completed the following pre-requisite requirements:

SECTION A PRE-REQUISITE REQUIREMENTS

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
1			7a,b,c,e, or f		
2					
5					
6					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has met all pre-requisites requirements for the above stated merit badge and is ready to attend his assigned MBU class.

Signature of Unit Leader _____ Date _____

SECTION B APPLICANTS RECORD

Requirement No. and letter	Date of Approval	Counselor Initial	Requirement No. and letter	Date of Approval	Counselor Initial
3					
4					
7d					

The applicant has personally appeared before me and demonstrated to my satisfaction that he has completed all requirements in **SECTION B** above for the

Merit Badge: **Soil & Water Conservation**

Name of Counselor: _____

Signature of Counselor _____ Date _____

SCOUT INSTRUCTIONS

- Complete your name, address, city, unit type & number, district, & council on the Application for Merit Badge.
- Your unit leader must sign the Application for Merit Badge before attending class.
- All other information is already printed on the Application for Merit Badge; please make sure all information is correct.
- The merit badge counselor is registered & approved for this merit badge and is on the MBU Counselor's List.
- Read the merit badge pamphlet.
- Attend the merit badge class.
- Always meet with your counselor along with a buddy (a Scout, friend, or parent)
- Have your merit badge worksheet with you when you attend class.
- **If the merit badge pre-requisites are not completed before class, you will not be able to complete the merit badge during this weekend event, you will have to follow up with your Unit's Advancement Chair when you return home**
- **PLEASE BE AWARE THAT SOME COUNSELORS WILL NOT ALLOW YOU TO ATTEND THEIR CLASS WITHOUT PRE-REQUISITES COMPLETED—CLASS CURRICULUM IS DEPENDENT ON PRE-REQUISITE WORK BEING COMPLETED!**

COUNSELOR INSTRUCTIONS

- Never meet alone with a Scout.
- Verify all information & merit badge name on Application for Merit Badge is correct.
- Sign your name on the line at the bottom of **"SECTION B APPLICANTS RECORD"**.