Soil and Water Conservation

Merit Badge Workbook

This workbook can help you but you still need to read the merit badge pamphlet.
This Workbook 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.
You should use the work space provided for each requirement to keep track of which requirements have been completed,
and to make notes for discussing the item with your counselor, not for providing full and complete answers.
If a requirement says that you must take an action using words such as "discuss", "show",
"tell", "explain", "demonstrate", "identify", etc, that is what you must do.
No one may add or subtract from the official requirements found on Scouting.org.

The requirements were last issued or revised in 2017 • This workbook was updated in October 2021.

Scout's Name:_____ Unit: _____

Counselor's Name: _____ Phone No.:_____ Email: _____

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

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1. Do the following:
   a. Tell what soil is.

Tell how it is formed.

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

1.		
2.		
3.		

c. Describe the three main plant nutrients in fertile soil.

1.		
2.		
3.		

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.

1.		
2.		
3.		

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

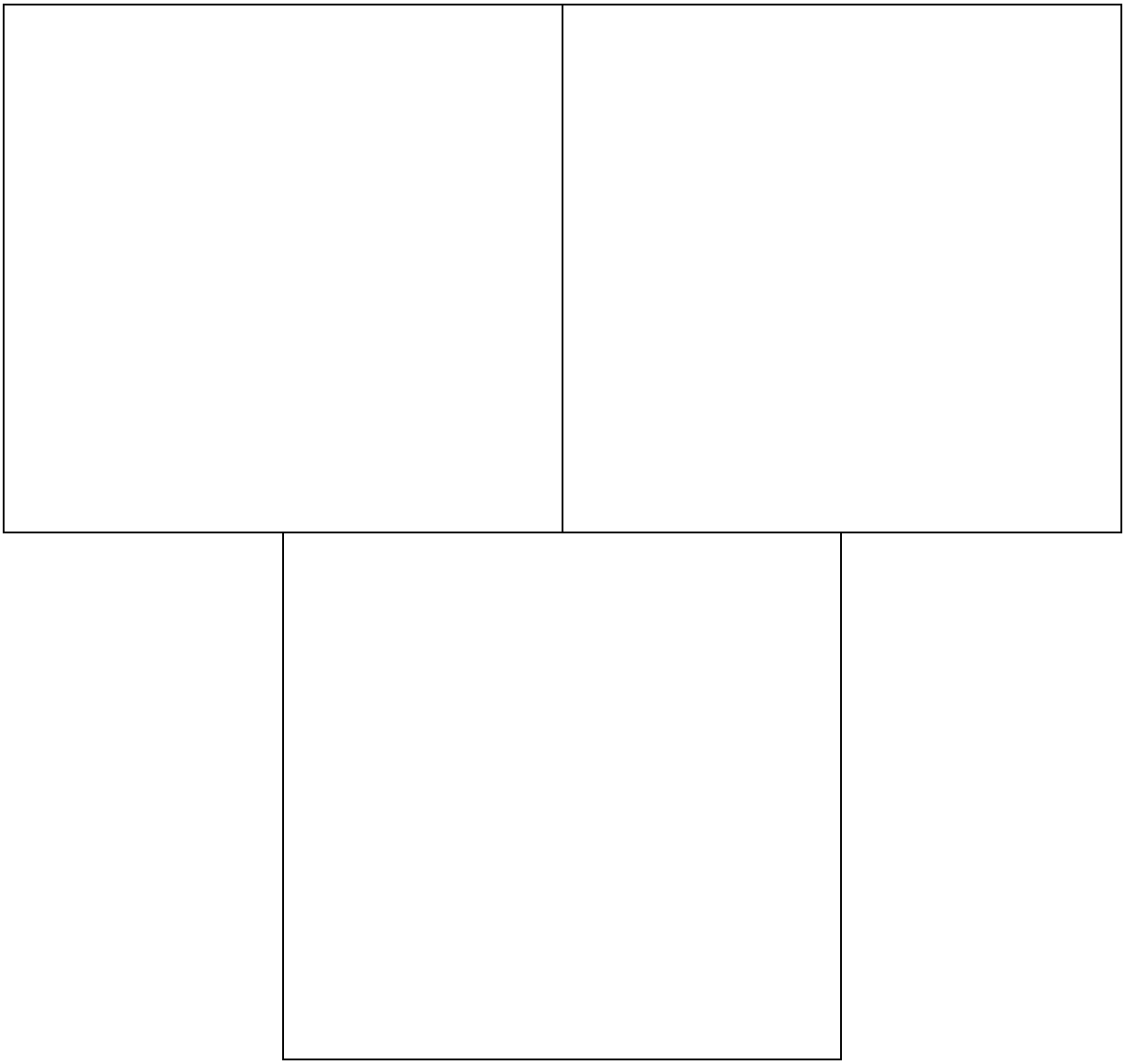
3. Do the following:

a. Tell what is meant by conservation practices.

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

1.		
2.		
3.		

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 it should be concerned about land and water use in it.

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

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, and 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.

Water Pollution Source	Effects

c. Tell what is meant by "primary water treatment," "secondary waste treatment," and "biochemical oxygen demand."

Primary water treatment	

secondary waste treatment	
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. Industry water use installation.
  - ☐ 9. 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.

When working on merit badges, Scouts and Scouters should be aware of some vital information in the current edition of the *Guide to Advancement* (BSA publication 33088).Important excerpts from that publication can be downloaded from http://usscouts.org/advance/docs/GTA-Excerpts-meritbadges.pdf.
You can download a complete copy of the *Guide to Advancement* from http://www.scouting.org/filestore/pdf/33088.pdf.