



# Soil & Water Conservation

## Merit Badge Workbook

This workbook is not required but is designed to help you with this merit badge. No one can add or subtract from the Boy Scout Requirements #33215. Use page backs & add pages as needed. Please send comments to: [craig@craiglincoln.com](mailto:craig@craiglincoln.com). Requirements revised: 2005, Workbook updated: January 2005.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Ph #: \_\_\_\_\_

### 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.

Soil Type 1: \_\_\_\_\_

Difference \_\_\_\_\_

Soil Type 2: \_\_\_\_\_

Difference \_\_\_\_\_

Soil Type 3: \_\_\_\_\_

Difference \_\_\_\_\_

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.

\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

D) Take pictures or draw two kinds of soil erosion. *(Attach photos, separate page or use the back of a page.)*

**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. *(Attach photos, separate page or use the back of a page.)*

**4) Do the following:**

A) Explain what a watershed is. \_\_\_\_\_  
\_\_\_\_\_

B) Outline the smallest watershed that you can find on a contour map. *(Attach a page or use the back of a page for B & C.)*

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. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**5) Do the following:**

A) Make a drawing to show the hydrologic cycle. *(Hint: Attach a page or use the back of a page.)*

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." \_\_\_\_\_  
\_\_\_\_\_

D) Make a drawing showing the principles of complete waste treatment. *(Attach a page or use the back of a page.)*

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. *(Attach a page or use the back of a page.)*

- 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. *(Attach pages or use a back of a page.)*

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. *(Attach pages or use a back of a page.)*

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