



BOY SCOUTS OF AMERICA
PATRIOTS' PATH COUNCIL

Forestry

Merit Badge

Home Workbook

Camp Somers....Winnebago S.R.....Sabattis

scout

Counselor notes:

This workbook is designed to help Scouts successfully complete the requirements for **Forestry Merit Badge** at Scout camp. It is strongly recommended that interested Scouts **complete the indicated requirements at home several weeks before attending camp.** This will allow the use of some resources not readily available at camp, will allow more time for counselor directed activities at camp, and will leave more time for Scouts to work on other merit badges or to enjoy selected camp activities.

A Scout is Trustworthy. Complete this workbook alone.

***Prepared by the PPC Conservation Committee and camp staffs 2013**



Prepared. For Life.™

Requirement 1: "...describe and identify the characteristics of leaf, twig, cone or fruiting bodies." (p. 12-22)

Tree and Forest Structure: Self-check quiz/cover the letter answers on the left side.

Answers

- | | | |
|----|---|--|
| d. | 1. These may spread out or be tap type. | a. conifers, evergreens |
| f. | 2. These tubes carry food molecules up or down the tree depending on the season. | |
| c. | 3. These tubes carry water up from the roots. | b. photosynthesis |
| a. | 4. These trees keep their leaves all year. | c. xylem cells/ tubes |
| c. | 5. Tree rings are made mostly of _____ cells/tubes which are dead hollow cells. | |
| j. | 6. These trees usually lose their leaves in the fall. | d. roots |
| a. | 7. Pines, firs, and spruces are examples of these. | e. bark |
| m. | 8. Fertilization of plant eggs by insects or wind is called ? | f. phloem cells/ tubes |
| i. | 9. The living growth tissue under a tree's bark. | g. chlorophyll |
| e. | 10. The protective outer covering on tree trunk or stems. | h. angiosperm |
| k. | 11. Tree parts that produce most food. | i. cambium |
| b. | 12. Chemical process that makes food from sunlight,
water, and carbon dioxide. | j. deciduous / broadleaf
K. leaves |
| a. | 13. These have cones not flowers to produce their seeds. | l. Nuts, seeds, fruits, cones, flowers |
| b. | 14. This word means "make something using light." | m. pollination |
| h. | 15. The scientific name for "flowering plant" is ? | |
| d. | 16. These support the tree keeping it upright. | |
| g. | 17. When this disappears in the fall many leaves change color. | |



Requirement 1: Field Notebook and Collection * This requirement may be completed at home or at camp.

Prepare a field notebook, make a collection, and identify 15 species of trees, wild shrubs, or vines in a local forested area. Write a description in which you identify and discuss the following:

- a. The characteristics of leaf, twig, cone, or fruiting bodies.
- b. The habitat in which these trees, shrubs or vines are found.
- c. The important ways each tree, shrub, or vine is used by humans or wildlife and whether the species is native or was introduced to the area. If it is not native, explain whether it is considered invasive or potentially invasive.

****This workbook has a page which may be reproduced and used as the field notebook.***

Requirement 2: *This requirement may be completed at home or at camp.

Do ONE of the following:

- a. Collect and identify wood samples of 10 species of trees. List several ways the wood of each species can be used.
- b. Find and examine three stumps, logs, or core samples that show variations in the growth rate of their ring patterns. In the field notebook you prepared for requirement 1, describe the location or origin of each example (including elevation, aspect, slope, and the position on the slope), and discuss possible reasons for the variations in growth rate. Photograph or sketch each example.
- c. Find and examine two types of animal, insect, or damage on trees. In the field notebook you prepared for requirement 1, identify the damage, explain how the damage was caused, and describe the effects of the damage on the trees. Photograph or sketch each example.

****It is suggested that Scouts start a collection at home if they choose to do choice a.***

Wood samples may be as small as 3" and may still have bark on them.

Requirement 3a : **Forest Contributions** (p.37-45)

1. Name one forest product from each of these groups. (p. 40-41)

- a. gum resin
- b. gum turpentine
- c. balsam
- d. spruce gum
- e. distillation





f. cellulose chemical products

g. cellulose fiber

h. lignin

i. mill waste

j. sap

k. bark

2. Name seven forms of recreation that forests can provide.

1)

2)

3)

4)

5)

6)

7)

8)

3. Describe how forests protect soil from erosion.

Describe how forests increase soil fertility.

4. Explain how each of these are ways forests help provide clean water.

a) storage and slow release

b) promoting infiltration into soil

c) equalize seasonal rainfall effects

5. Explain how forests help to provide clean air....

a) reducing erosion by wind and water

b) What four things does a forest provide as a habitat for wildlife? (p.44)

1)

2)

3)

4)



6. How may forests improve fisheries habitats?

7. What role do forests play in influencing the greenhouse effect and climate change?

8. What are "threatened species"?

Name 2 mammals, two birds and two reptiles that are threatened in New Jersey.

9. What are "endangered species"?

Name 2 mammals, two birds and two reptiles that are endangered in New Jersey.

Requirement 3b: Watersheds and Forests (p. 42-43)

1. Draw or label a water cycle diagram. Be prepared to discuss how it relates to forests and watersheds.

(Precipitation, surface runoff, percolation, evaporation, transpiration, ground water, condensation)

2. Describe which watershed or other source your home community relies on for its water supply.

3. If your community uses surface water, what is the name of your home watershed? _____

(Usually the name of the largest river supplying the reservoir)

4. Your camp counselor will discuss the camp's water supply and watershed.

Requirement 4: Forest Management Techniques (p.52- 56)

1. What is meant by "sustainable" forest management?
2. What is meant by "multiple use" forest management?
3. What is meant by "even aged and uneven aged" forest management?
4. What is clear cutting?
 - a) What are some potential environmental problems associated with clear cutting?
 - b) What is a buffer zone?
5. Describe the "seed tree" system.
6. Describe the shelterwood system.
7. Describe the single tree selection system.
8. What is an advantage of the group selection system?

Requirement 5: Forestry Stewardship

5a. "Visit a managed public or private forest area with the manager or a forester who is familiar with it. Write a brief report describing the type of forest, the management objectives, and the forestry techniques used to achieve the objectives."

*As our Patriot's Path Council has a Forestry Stewardship program for each Scout camp, **it is recommended that this requirement be completed at Scout camp with the counselors.**



Forest Management : Self check quiz/ cover the letter answers on the left side. **ANSWERS BELOW**

- | | | |
|----|---|-----------------------------|
| e. | 1. Resembles a miniature clear-cut. | a. pioneer plants and trees |
| h. | 2. Managing a forest for use by present and future generations. | b. seed tree system |
| g. | 3. Creates the greatest danger of soil erosion. | c. even aged |
| o. | 4. Best system to use within established camp sites. | d. uneven aged |
| j. | 5. Creates small forest openings. | e. intermediate cuttings |
| o. | 6. This system preserves and stabilizes a forest area
at a desired successional level. | f. sanitation cuttings |
| g. | 7. Harvesting almost all the trees in an area. | g. clear cutting |
| c. | 8. Does clear cutting produce even or uneven aged forest growth? | h. sustainable management |
| i. | 9. A protected area bordering a sensitive ecological area. | i. buffer zone |
| m. | 10. Harvesting trees damaged by weather, fire or insect infection. | j. group selection |
| f. | 11. Removing diseased trees | K. reseedling |
| k. | 12. The fastest way to replant a destroyed forest | l. succession |
| b. | 13. Leaving mature tree or trees to reseed a harvested area. | m. salvage cutting |
| p. | 14. The percentage of seeds in a package that are expected to grow. | n. fertilizer |
| n. | 15. Adding these nutrients to soil may increase a tree's growth rate. | o. improvement cutting |
| l. | 16. The changes occurring as a forest develops and matures. | p. germination rate |
| q. | 17. The stable final stage of forest development. | q. climax stage |
| a. | 18. The first plants and trees that naturally grow in a forest that has been destroyed. | |



Requirement 6: Damage to Forests From Natural and Human Causes (p. 50-51 and 66-70)

Consult the merit badge book and fill in the table below.....

<u>Source of Damage</u>	<u>Consequences</u>	<u>Management Options</u>
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<u>Wildfire</u>		
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<u>Absence of fire</u>		
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<u>Insects</u>		
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<u>Tree disease</u>		
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<u>Air pollution</u>		
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<u>Overgrazing</u>		
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<u>Deer overpopulation</u>		
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<u>Urbanization *(probably the biggest factor in New Jersey)</u>		
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Requirement 7: Forestry as a Career

Write a short report about a forester's occupation including the education, qualifications, career opportunities, and duties related to forestry. Attach to workbook.

Find out about forestry occupations in your town, county and state. Attach to workbook.



Duplicate this page for requirement #1.

Mount leaf or drawing here

Place collected or observed:

Actual size?

Habitat Type:

Pioneer trees

Dry forest Wet forest

Swamp Rocky

Sloped

Sun Exposure %

Soil: Thin Rocky

Bare Litter present

Eroded Sandy

Dark humus

Notes:

Common name: _____ **Scientific name:** _____ (optional)

*Note: not all responses needed native non-native invasive

Human uses: _____ Tree diameter _____ Fruit/ Seeds

Lenticels

Twigs

Bark

Value to Wildlife: _____ Nearby Plants _____ Insect Damage

