

Boy Scout Merit Badge Requirements



ENVIRONMENTAL SCIENCE

1. Make a timeline of the history of environmental science in America. Identify the contribution made by the Boy Scouts of America to environmental science. Include dates, names of people or organizations, and important events.
2. Define the following terms and describe the relationships among them: population, community, ecosystem, biosphere, symbiosis, niche, habitat, conservation, threatened species, endangered species, extinction.
3. Do ONE activity in EACH of the following categories (using the activities in this pamphlet as the basis for planning and carrying out your projects):
 - a. *Ecology*
 1. Conduct an experiment to find out how living things respond to changes in their environments. Discuss your observations with your counselor.
 2. Conduct an experiment illustrating the greenhouse effect. Keep a journal of your data and observations. Discuss your conclusions with your counselor.
 - b. *Air Pollution*
 1. Perform an experiment to test for particulates that contribute to air pollution. Discuss your findings with your counselor.
 2. Conduct a study to test the effects of acid rain on plants. Discuss your findings with your counselor.
 - c. *Water Pollution*
 1. Conduct an experiment to show how living things react to thermal pollution. Discuss your observations with your counselor.
 2. Conduct an experiment to identify the methods that could be used to mediate (reduce) the effects of an oil spill on waterfowl. Discuss your results with your counselor.
 - d. *Land Pollution*
 1. Conduct an experiment to illustrate soil erosion by water. Take photographs or make a drawing of the soil before and after your experiment, and make a poster showing your results. Present your poster to your patrol or troop.
 2. Perform an experiment to determine the effect of an oil spill on land. Share your journal and discuss your conclusions with your counselor.
 - e. *Endangered Species*
 1. Do research on one endangered species found in your state. Find out what its natural habitat is, why it is endangered, what is being done to preserve it, and how many individual organisms are left in the wild. Prepare a 100-word report about the organism, including a drawing. Present your report to your patrol or troop.
 2. Do research on one species that was endangered or threatened but which has now recovered. Find out how the organism recovered, and what its new status is. Write a 100-word report on the species and discuss it with your counselor.
 - f. *Resource Recovery*
 1. Perform an experiment on packaging materials to find out which ones are biodegradable. Discuss your conclusions with your counselor.

2. Find out if your local community has a recycling program in effect. If it does, find out what items are recycled, and who pays for recycling. If your community does not have a recycling program, write questions for and conduct a survey on recycling. Include questions about attitudes toward recycling, what should be recycled, and your community's willingness to support a recycling program. Discuss your findings with your counselor.
4. Build an ecosystem in a bottle. Include soil, plants, fungi, and small animals found in your local environment. Maintain the ecosystem for at least seven days after completing construction of the ecosystem. Observe it daily, and keep a record of your observations. Discuss your observations with your counselor.
5. Choose an outdoor area to study. In your study area, do ONE of the following:
 - a. Mark off three study plots of four square yards each, and count the number of species found there. Then estimate how much space is occupied by each species found in the plots. Make a chart, graph, or table to compare the plots. Write a report that adequately discusses the biodiversity and population density of your study area. Discuss your report with your counselor.
 - b. Make four visits to the study area, staying for at least 30 minutes each time, to observe the living and nonliving parts of the ecosystem. Keep a journal of your observations, including a discussion of differences noted during the four visits. Write a report on your observations and discuss it with your counselor.
6. Propose a hypothetical construction project in your community and prepare a limited environmental impact statement for the project. Study the area to see what the impact of the project might be upon the living and nonliving parts of the ecosystem.
7. Develop a plan that would help solve an environmental problem, reduce an environmental impact, or affect environmental awareness in your community. Include plans for a specific project that could be done by your patrol or troop.
8. Discuss three possible careers in the field of environmental science. Identify the education that you would need to pursue ONE of these careers.

BSA Advancement ID#: 7

Source: *Boy Scout Requirements*, #33215D, revised 2001

DEDICATED WEB SITES

Pending

TOPICAL LINKS

[EnviroLink](#) - online environmental information

[Midcontinent Ecological Science Center Home Page](#)

[CIESIN Thematic Guides on the Human Dimensions of Global Environmental Change](#)

includes global changes affecting Agriculture, Human Health,

Land Use, Ozone Depletion, etc

[Introduction to Terrarium & Vivarium Keeping](#)

[A Carnivorous Plant Terrarium -a builder's guide-](#)

[Our Ecosystems](#)

[The Internet Consumer Recycling Guide](#)

[MAPS](#) - Measurement of Air Pollution from Satellites

[Earth Awareness Educational Resources](#)

[1-800-CLEANUP](#) - The Environmental Hotline, Earth's 911

[Factsheets on Nonpoint Source Pollution - The Nation's Largest Water Quality Problem](#)

[GLOBE - Global Learning and Observations to Benefit the Environment](#)

a worldwide network of students, teachers, and scientists working together to study and understand the

global environment.

[Green Peace](#)

[Endangered Species Home Page](#)

[CRC Endangered or Threatened Species](#) - from the Smithsonian

[EE-Link: Endangered Species](#)

[EnviroInfo](#)

[WWW Virtual Library: Earth Sciences](#)

[WWW Virtual Library: Ecology, Biodiversity and the Environment](#)

[WWW Virtual Library: Environment](#)

[WWW Virtual Library: Environmental Law](#)

CONSERVATION MERIT BADGE GROUP

[Environmental Science](#)

[Fish and Wildlife Management](#)

[Forestry](#)

[Soil and Water Conservation](#)

MERIT BADGE HELPERS

No Notes

No Outline

[Learning Worksheet](#)

No Examination

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