ENVIRONMENTAL SCIENCE

Prepared by:

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Target Group:

Second year campers and older

Time Allotted:

Two, one-hour blocks

Pre-Requisites:

None

Materials Needed – Staff:

Necessary supplies for each of six different experiments in the six areas of study

Materials Needed – Scout:

Pencil and Paper

Instructional Goal:

Upon completion of this activity the scout will possess a good introductory base of knowledge in environmental science. This includes understanding of basic environmental science concepts, knowledge of the causes and effects of pollution, and the interrelation of all parts of the environment to one another. The scout will further be familiar with observation and recording techniques used in studying an area. The scout should also be introduced to possible careers in the area of environmental science.

MONDAY

1. Describe the meaning of environmental science in your own words. Explain how you think we can use science to understand, conserve, and improve our environment.

- ***Resource:*** **What Is Environmental Science? (video)**

2. Ecology. Do the following and discuss with your counselor:

(a) Choose an area approved by your counselor and observe (sight, sound, and smell) its ecosystem over a two-day period.

Resources: Observe Nature Like a Scientist! (video)

Observing Nature (video)

Backyard Nature (video)

(b) Make notes about the living, nonliving (e.g. rocks) and formerly living components. Include information about interactions among the components, including the food chain, predators, native species, and invasive species) and identify how human activities have affected the ecosystem.

Tuesday

3. Air Pollution. **Do ONE of the following and discuss with your counselor:**

- ***Resource:*** **Air Pollution (video)**
- (a) Learn what Particulate Matter (PM) is, how PM gets into the air, what the harmful effects of PM are, and what is being done to reduce PM in the air. Then, perform an experiment to test for particulates that contribute to air pollution.

  Resource: Particulate Matter (video)

4. Water Pollution. **Do ONE of the following and discuss with your counselor:**

- ***Resource:*** **Hydrologic Cycle (video)**
- (c) Learn about the Clean Water Act. Make notes on when it was passed, its environmental goals, what progress has been made and what remains to be done to achieve the law's goals. Describe the impact, benefits, and costs of the law as well as what is required to implement and enforce the law.

  Resources: Clean Water Act (video)

  Clean Water Act & the Chesapeake Bay (video)

Wednesday

5. Land Pollution. Do ONE of the following and discuss with your counselor:

- (b) Learn about the erosion process and identify an example of where erosion occurs. Determine where the eroded material ends up and how erosion can be minimized.
  Resources: Soil Erosion | Causes, Effects, and Solutions (video)
  How Was the Grand Canyon Formed? (video)

6. Rare, Threatened, or Endangered Species. Do ONE of the following and discuss with your counselor:

(a) Do research on one endangered species found in your state. Learn about its natural habitat, why it is endangered, what is being done to preserve it, and how many individual species are left in the wild. Prepare a 100-word report about the species and include a drawing or photo. Present your report.

7. Pollution Prevention, Resource Recovery, and Conservation. Do ONE of the following and discuss with your counselor:

(a) Determine five ways to conserve resources or use resources more efficiently in your home, school, or camp. Practice at least two of these methods for at least one week.
Resources: 10 Ways to Take Care of the Environment (video)
Scouts and LNT (video)
10 Easy Ways to Save Water at Home and Help the Planet (video)
The Leave No Trace Basics (video)

Thursday

8. Pollination. Do ONE of the following and discuss with your counselor:

(c) Learn about the importance of pollination to agriculture, including the economic costs and benefits. Identify four crop-pollinator pairs. Explain the relationship of pollinators to agriculture.
Resources: Pollinators and Agriculture (video)
Honey Bee Pollinator Contract Hives (video)
Almond Pollination (video)

9. Invasive Species. In your community or camp, investigate two invasive plant or animal species. Learn where the species originated, how they were transported to this ecosystem, their life history, how they are spread, how they impact the native ecosystem, and the recommended

means to eradicate or control their spread. Discuss what you learned with your counselor.

Resources: The Threat of Invasive Species (video)

Why We Don't Kill Off Invasive Species (video)

Friday

10. Identify the environmental impact topics that would need to be addressed for a construction project such as building a house, adding a new building to your Scout camp, or one you create on your own that is approved by your counselor. Evaluate the purpose and benefit of the proposed project, alternatives (including a no-action alternative), and any environmental consequences. Discuss with your counselor.

Resources: What Is an EIA? (video)

EIA issues (video)

EIAs-Key to Sustainable Development (video)

11. Identify three career opportunities that would use skills and knowledge in the environmental science field. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

Resources: EnvSci Future Careers (video)

What Do Environmental Engineers Do? (video)

What Do Environmental Scientists Do? (video)