

How People Have Used Soils, How Soils Have Affected U.S. History

Introduction

This lesson investigates the social aspects of the land and the soils and how we use these resources. Students learn how Native Americans in their region used the soils years ago. Students contrast this use with our present use. Students research how soils have influenced the history of the United States.

Connection to the Curriculum

Grades 5-12 Earth Science, Ecology, American History, Sociology.

Time

The time required is two class periods 45-55 minutes each or as long as a week or two.

Materials and Equipment

Handout sheets and reference materials.

Objectives

How People Have Used Soils

1. Students will discover the relationship of early Native Americans to the environment, the land, and the soils.
2. Students will describe ways that modern technology can alter the land and the soils in both beneficial and detrimental ways.
3. Students will state why we should carefully examine our land use decisions before we act on them.

How Soils Have Affected U.S. History

1. Students will conduct research to list the reasons Americans continually moved west during the colonial period and the first one-hundred years of our nation's history.
2. Students will evaluate the critical role that land in general and soils in particular had in this westward migration.
3. Students will contrast this historical perspective with our current dependence upon the soils.

Procedure

How People Have Used Soils—Part I

1. Introduce the soils unit with information on soil formation, soil horizons, and different soil types.
2. Have students read the first part of the activity sheet, then ask them to brainstorm sources of information to answer the

questions. List their answers on the board. Possible sources include: Native Americans still living in the area, school and public libraries, state and local historical societies, museums of natural history, anthropology departments of local colleges, local conservation district or the Soil Conservation Service office.

3. You should divide the class into small groups and have each group answer the five questions using a different source of information. Help students determine the best method of gathering the information from outside sources.
4. Compare each group's answers.

How People Have Used Soils—Part II

These answers will be based upon opinions since the terms helpful and harmful are relative and vary in meaning from one person to another. Furthermore, there is no correct answer to question 3. It should stimulate your students to think critically about how we use the land and apply technology. See handout #1.

How Soils Have Affected U.S. History

1. Several days before the activity, contact your school librarian to obtain reference material on the topics. This will help students get started.
2. Since students will be working in small groups on a report, a key to this activity is organization. You may want to present this action plan to your students to help them organize.
 - a. Select one of the questions for research.
 - b. Conduct preliminary research on the topic.
 - c. Create an outline.
 - d. Determine what information you need to complete the outline.
 - e. Conduct research.
 - f. Decide how to present the information.
 - g. Select visual aids that can be used to help your presentation.
3. Divide the class into small groups and discuss the interrelationships that exist among the land, soils, water, plants, animals, and minerals. Then ask your students to read the activity sheet, have them select or assign a topic to each group, and have them get started. Let your students know whether the end result should be an oral or written report, or a more creative expression such as a skit, play, or newscast.

Also set a deadline for the presentation. See handout #2.

Teacher's Information: How People Have Used Soils

People have always used the plant and animal resources of the land to supply themselves with food and shelter. This is just as true today as it was when the land now designated the United States was inhabited by American Indians.

The Indian cultures were diverse, and their effects on local environments varied, in part because hunting technology and farming technology affect nature differently. In general, their cultures evolved to fit the environment. For instance, in areas of favorable climate and soils, local tribes established a stable agrarian culture with organized villages. Some tribes even irrigated their fields. In harsher locations, for example Alaska and the Great Plains, a nomadic lifestyle usually developed. Individual tribes followed the primary food sources of seal and whale in Alaska and bison on the Plains. Agriculture in both areas was difficult. These nomadic cultures affected the land with fire and in other ways, but they lacked the technology to make larger alterations in the environment.

In contrast, modern technology can alter the land and the soil in both beneficial and detrimental ways on a massive scale. For example, large-scale, intensive monoculture of grain crops and extensive urbanization can be detrimental. These practices increase the erosion potential and can deplete the soil, or remove large acreages from farming. Conservationists have learned much about soil erosion and flood control and have made advances in reducing these problems. However, for various reasons, erosion is still a severe problem.

With our tremendous technological ability to alter land and soil comes a responsibility. This responsibility must be seriously considered to balance the benefits of technology with its possible detriments. See handout #3.

Teacher's Information: How Soils Affected U.S. History

The environment is the surface of the earth and all its natural resources: the plants, the animals, the underlying minerals, and most important, the soils. Plants grow in soil and ultimately animals depend upon the nourishment of these plants. Thus, the plants, animals, and minerals are products of the soil: a more basic resource than any of the others.

The land and the soil have had a dramatic effect upon United States history. In the 1500s and the 1600s the New World was viewed as a utopia, a land of abundance. This was due primarily to reports of rich, fertile soils and vast amounts of timber, fur pelts, and other resources that could be obtained from the land and the soil. This perception of abundance continued throughout our very early period of settlement and expansion when many nations claimed large tracts of American land. The perception of abundance and plenty lasted through the Revolutionary War period and culminated in the nineteenth century.

Many, including our government officials, believed it was our nation's right and duty to expand and to reap the benefits of the land and the rich soils of the West. The expansion was judged essential to meet the needs of a young, growing nation. Pioneers

moved west seeking flat, fertile land at little or no cost.

Although the trip was rough and the life on the Plains difficult, land rushes, the Homestead Act, and several inventions urged settlers ever westward. The key inventions during this period were the steel plow, barbed wire, and the windmill. Barbed wire helped control the grazing of cattle on cropland and windmills provided the water for parched soil and livestock. But the steel plow, which made it possible to break up the tough matting of the prairie grasses, is the invention that did more than anything else to spread the intensive agriculture that has been practiced on the Plains ever since. During this period agriculture changed. It was no longer subsistence level because farmers were selling crops. This was the beginning of modern agribusiness.

Railroads venturing west of the Mississippi River carried the products of western soils—cattle and grain—to markets in the rapidly industrializing East. Clearly, the land and its rich soils have had a remarkable impact on U.S. history. See handout #3.

Additional Activity #1

Your students could produce a slide program or a videotape on the Native American cultures that existed in your area. The presentation should highlight the interaction of the Native Americans with the regional environment.

Additional Activity #2

Inform your students that they are stranded on an island and can have only 10 items with which to survive indefinitely. In small groups, have the students select the items and rank them in order of importance. Discuss the lists and the reasons for selecting the items. Several of the items should enable the students to establish agriculture on the island.

Addresses

The *Soil Conservation Service* (SCS) helps landowners conserve the soil and water resources of the United States. The SCS has published environmental education materials on soil and water conservation. Contact your local SCS office, or write: Educational Relations, P.O. Box 2890, Washington, D.C. 20013.

The *Soil Conservation Society of America* (SCSA) has a variety of environmental education materials concerning many aspects of conservation. Contact them for a publication list: 7515 Northwest Ankeny RD, Ankeny, Iowa 50021.

Bibliography

- Billard, Jules B., ed. *The World of the American Indian*. Washington, DC: National Geographic Society, 1974.
- Mazwell, James A., ed. *America's Fascinating Indian Heritage*. Pleasantville, N.Y.: Reader's Digest Association, 1978.
- Webb, Walter Prescott. *The Great Plains*. New York: Grosset and Dunlap, 1931.

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Handout #1

How People Have Used Soils

We have always needed food, water, and materials to build shelter. The land and its soils have always provided these resources. This was especially true with the early Native Americans.

Native Americans worked closely with the land. They could not farm large areas or dig large mines. Native-American cultures were greatly affected by the climate, the soils, and the vegetation. For instance, only a few of the Native Americans in the Great Plains established farming villages. In many areas of the Great Plains the climate and soils made farming difficult. These Indians could not grow enough food like those living in the Southwest and the Ohio Valley. Most moved from place to place living in temporary camps and following their primary food source—the American bison.

Find out which Native Americans lived in your area many years ago. Read about them and find the answer to these questions.

1. Which Native Americans lived in your area?
2. What types of food did they use?
3. How did they get food, water, and shelter?
4. Did they live in villages or travel from place to place?
5. Could they farm large areas for food?

Handout #3

How People Have Used Soils

Below is a list of questions about these two periods of U.S. history. Get together in small groups with your classmates. Research the topics. Later, share the information that you find with your class in an oral or written report, in a play or other creative expressions.

1. Why did Europeans move to the Americas during the 1600s and 1700s?
2. Describe the life of a typical family during the 1600s or 1700s.
3. What were land rushes? How did they originate?
4. What was the Homestead Act of 1862? Why was it important?
5. Why did pioneers move into the Great Plains?
6. Describe the life of a pioneer family during the 1850s.

Handout #3 (continued)

How People Have Used Soils

7. What is the history of inventions such as the steel plow, barbed wire, and windmills?
8. What difficulties did railroads have in the westward expansion?
9. What advantages did railroads bring to the western pioneers?
10. Describe farming practices during the 1700s and 1800s, and compare them with modern practices.
11. How did this westward movement affect the Native Americans, their agricultural practices, and their use of the land?
12. How did ethnic groups influence the settlement of the United States? What has been their impact of American agriculture?