

Environment and Society: Deforestation and Industrial Growth in the United States

Created by: Meredith Woolard, 2014

This project is funded in part by a grant from the National Geographic Society Education Foundation.

Grade Level: 5

Time Frame: 1.5 hours, or broken up into two 45 minute sessions

Learning Outcomes:

Upon completion of this lesson, students will be able to:

- Analyze sets of maps to form conclusions
- Identify historical and current positive and negative consequences of human modification of the environment.

Connection to the Curriculum:

This lesson will introduce students on how to analyze geographical data portrayed on maps to better understand human's historical impact on the environment. Students will evaluate data that shows the deforestation of the United States' land and the growth of the railroad and cotton industries. Graphic organizers are provided to help students identify or speculate positive and negative consequences to the environment due to deforestation and industrial growth. Finally, students will draw final conclusions about the impact on the environment.

TEKS Strand(s) Objective(s):

(9) Geography. The student understands how people adapt to and modify their environment. The student is expected to:

(B) analyze the positive and negative consequences of human modification of the environment in the United States, past and present

(24) Social studies skills: The student applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology. The student is expected to:

(B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;

(C) organize and interpret information in outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps

Materials:

For Student Use:	
Copy of graphic organizer	Attached to the end of the lesson
Pencil	
One piece of notebook paper	
Blank piece of computer paper	
Markers/colored pencils/crayons	
For Teacher Use:	
Computer and projector/smart board	
Internet access	
White board and marker or chart paper and marker	

Strategies:

Graphic organizer for note-taking and image analysis.

Environment and Society: Deforestation and Industrial Growth in the United States

Questions:

1. What role have humans played in the modification of the environment?
2. What conclusions can you form about how humans have modified the environment in the United States over time?
3. What are the positive and negative consequences of human modification of the environment?
4. What is the overall impact of the environmental change?

Procedures to conduct the lesson:

Introduction: 5 minutes

Asking Geographic Questions: First, ask students to think about what they see on their way to school each morning (different buildings; highways; cars; fields; etc.). Second, instruct students to turn and talk to the person next to them about the different things they see on their trip to school each morning. After one minute, ask students to share what they see. As students share, make a list on the white board. Once you have 10-15 items, ask students “How can we categorize what you see on the way to school?” (Guide them to classify the as either man-made or naturally occurring). Tell students that today we are going to talk about how humans have changed (modified) the way the land (environment) looks since the beginning of U.S. history.

The Lesson:

Acquiring Geographic Information: Tell students that they are going to look at several sets of maps, each showing different ways humans interact with the environment. Inform students that they will use a graphic organizer to identify characteristics about the data shown on the maps. Give students a copy of the note-taking chart and instruct them to fill it in as they examine each set of maps.

Organizing Geographic Information: Note: Sets of maps illustrating deforestation and industrial growth in the United States are provided by the links below. Teachers can project these maps individually onto the screen for the students to view as a class or print them to create stations for students to analyze historical patterns human-environment interaction. These map sets are examples. Feel free to use maps from your text or curriculum.

- Map Set 1—Deforestation: This map set shows the area of virgin forest in the U.S. at three different time periods. (<http://www.endgame.org/gtt-oldgrowth-map-us.html>)
- Map Set 2—Growth of the Eastern Railroad Industry: This map set shows the growth of the railroads in the eastern region of the United States over a 20-year period. (http://cpr.org/Museum/RR_Development.html)

Map Set 3—Growth of the Southern Cotton Industry: This set of maps shows cotton production in the southern United States in 1820 and 1860. To locate the correct map, teachers should scroll down halfway and click on the map set to enlarge it. (<http://users.humboldt.edu/ogayle/hist110/unit4/SectionalIssues.html>)

Teacher Notes:

Tell students that today they are going to think like a geographer. Ask students, “How do you suppose a geographer thinks?” Guide their answers to include that they observe their surroundings, ask questions, wonders (why, why/where, etc.), uses observations to answer questions, etc. What tools do geographers use to answer these questions? (globes, maps, etc.) Are all maps the same? (Guide them to know that maps show different types of information.) Show students the Deforestation map. Ask students to think like a geographer. Ask them: What do they observe? What modifications to the environment do they think occurred? What do they wonder? (Ask students to finish the sentence “I wonder why...”) This could be a think-pair-share

**Environment and Society:
Deforestation and Industrial Growth in the United States**

with a quick call out answer. Follow the same process for the other two sets of maps. Ask students if they have noticed any patterns, for geographers look for patterns to understand why things happen. Tell students that these patterns will help them understand the possible positive and negative impact of human modification to their environment. Show students the map of deforestation in the U.S. again. Ask them to identify patterns. Individually (or in groups of 2 – 3 students), instruct students to complete the graphic organizer. Follow this process with the other two sets of maps. After students have completed the graphic organizer, ask them to share their answers with the class.

(Note: This lesson could be extended by asking students to compare these special purpose or thematic maps with a physical map of the United States to look for patterns and to speculate as to the reasons for those patterns.)

Analyzing Geographic Information: Instruct students to look carefully at each set of maps to determine what they are showing, and complete their graphic organizer. Then, have students create a cartoon that demonstrates their understanding of the positive and negative consequences of human modification of the environment. Students may use their graphic organizers to help them identify key ideas to draw

Conclusion:

Closing product: Exit Ticket

Answering Geographic Questions: Ask students: What patterns did they see? How did the data on the maps help them draw conclusions; and see these patterns?

Evaluation/Assessment:

	Not There Yet	Satisfactory	Clearly Outstanding
Content	<p align="center">1 Point</p> <ul style="list-style-type: none"> Cartoon does not show positive and negative consequences of human modification of the environment. 	<p align="center">2 Points</p> <ul style="list-style-type: none"> Cartoon attempts to show positive and negative consequences of human modification of the environment but lacks detail. 	<p align="center">3 Points</p> <ul style="list-style-type: none"> Cartoon shows positive and negative consequences of human modification of the environment in great detail.
Appearance	<p align="center">0.75 Points</p> <ul style="list-style-type: none"> Cartoon features are not clear and are difficult to read. Cartoon shows minimal effort. 	<p align="center">1.25 Points</p> <ul style="list-style-type: none"> Cartoon features are clear and legible. Cartoon shows effort and attention to detail. 	<p align="center">2 Points</p> <ul style="list-style-type: none"> Cartoon features are clear, legible and attractively drawn. Cartoon shows great effort and attention to detail.

**Environment and Society:
Deforestation and Industrial Growth in the United States**

Changes in the Physical Environment

Directions: As you analyze three sets of maps, fill in the chart below with your observations and conclusions.

	What is the title? What do the labels say?	What modification of the environment is this set of maps showing?	What is one positive consequence of this human modification of the environment?	What is one negative consequence of this human modification of the environment?
Map Set #1				
Map Set #2				
Map Set #3				