

Lesson Title: Then and Now: How Society Alters Topography and Vegetation

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Lesson Description: This lesson is a comparative study in which students construct theories regarding influences of land use decisions. Historical and modern aerial and surface photography is the vehicle by which comparison will be made. Students will apply knowledge of land use in their local community to the content of this lesson in order to encourage student ownership in the lesson.

Grade Level: 4-5

End of Cluster Expectations (Benchmarks): Students will apply knowledge of topography, climate, soils, and vegetation of Delaware and the United States to understand how human society alters, and is affected by, the physical environment.

Essential Question: What might be the results or impacts of human activities that alter or change the physical environment?

Assessments: Two DSTP-type assessment items (one constructed response and one multiple choice) are included on the attached Assessment sheet.

Focus Questions:

1. What changes to the physical environment can be noted in the comparison of historic and modern aerial and surface photographs of various locations?
2. What observations and predictions can be made concerning the impact of these changes on society and the physical environment over time?

Objective(s): Students will:

1. Compare historic and modern aerial and surface photographs to determine what factors influenced land use decisions.
2. Evaluate the impact of different land uses in various physical environments.
3. Consider future changes in land use and their effects on society.

Link to Additional Standards: Geography 1 (Uses of Maps); History 1 (Chronology)

Prior Knowledge and Skills: Students should enter this lesson with a firm grasp of map reading. A basic knowledge of identifying map landmarks in small scale is also important, as students will compare changes in topography and vegetation over time. Students should have a working knowledge of how their local community's physical environment has changed within the last three years.

Time to Complete: Three to four 45-minute class periods

Materials/Resources Needed:

- List of geography terms and definitions used in this lesson
- Handout 1 – “How My Community’s Physical Environment Has Changed”
- Computer with internet access for each student or pair of students

- Handout 2 – “How Society Has Altered the Physical Environment”
- Notebook paper
- Visuals 1a, 1b, 2
- Handout 3 – “Comparing Coventry and Lexington”
- Assessment Items 1 and 2

Please Note: This lesson may be facilitated by the classroom teacher if the aforementioned materials are reproduced as transparencies and shared with the entire class.

Procedural Steps:

1. Introduce or review the list of geography terms and definitions that pertain to Geography Standard 2.
2. Allow students to view several examples of topographical maps. This will reinforce the terms and definitions mentioned in step 1, and it will also help students to visualize possible topography in forthcoming activities within the whole of this lesson.
3. Initiate a class discussion concerning physical changes in the class’s local community. The discussion may include such topics as clearing of wooded land, new building construction, land which was previously used for farming, newly established housing developments, and new roadways, railways, or waterways. Students may also mention changes in roadway patterns, roadway expansion, or new bridges.
4. Students will work in pairs to complete Handout 1 – “How My Community’s Physical Environment Has Changed.” Once ample time has been given for most of the students to complete the handout, openly discuss the information that was recorded by students.
5. Assign students individually or in pairs to work at computers with internet access. Two websites (listed on Handout 2) will be visited which contain various historic and modern aerial and surface photographs. Students will compare each location’s historic and modern photos in order to denote changes to the physical environment by society over time. While visiting each website, each student will complete Handout 2 – “How Society Has Altered the Physical Environment.”
6. Guide students to verbally share noticeable changes for each location visited on the internet. Discuss the following questions with the entire class:
 1. Did you see any changes that are similar to those we discovered in our own community?
 2. Do you think the changes have improved the communities we have visited, including our own?
 3. Have the changes in topography and vegetation harmed the environment in the communities we have visited, including our own?
 4. Could anything have been done to allow change while also preserving topography and vegetation in the communities we have visited, including our own?
7. Students will work in pairs to compare changes in topography and vegetation for both Coventry and Lexington using Handout 3 – “Comparing Coventry and Lexington.”
8. Have students make generalizations concerning changes in topography and vegetation in their local community and the communities visited on the internet. Possible responses could include:
 1. As the population increased in an area, the topography was changed, such as the addition of new roads to accommodate an increase in traffic.

2. As the population increased in an area, farmland was used to supply society with housing.
 3. Land was used for commercial sites such as shopping malls or strip malls.
 4. Road patterns were changed.
 5. Old buildings were replaced with new buildings.
9. Administer Assessment Items 1 and 2. Students will work individually to complete the assessment pieces.

Extension of Lesson or Concepts:

1. Plan a classroom visit by the city manager of the school's local community to explain how the city or town council makes decisions regarding land use.
2. Contact the Department of Natural Resources (DNREC) to obtain information regarding land use restrictions and the preservation of topography and vegetation.

Tips for the Teacher:

1. Review the geography terms and definitions as often as is necessary. For students in fourth grade, many of the terms may be unfamiliar and/or new.
2. Be sure to emphasize the importance of identifying markers such as road bends, waterways, and coastlines when comparing historic and modern aerial photos. This idea also applies to surface photos. Buildings and roadways make good markers in such photos.

Citations for Graphics, Information, Adapted Lessons, Etc.:

<http://homepage.ntlworld.com/robert.orland/cov/nowandthen/nowandthen.html>
http://www.kygs.org/archives/lexington_1937/index.htm
<http://www.uvm.edu/oakledge/today.html>

Name: _____ Date: _____

How My Community's Physical Environment Has Changed

1. Identify several places in our local community that have been altered by society.

2. Circle the name of the place in part 1 that you think has been altered most by society. On the lines below, write the changes that have been made to the location's topography and/or vegetation.

Changes in Topography: _____

Changes in Vegetation: _____

3. Write two reasons why you think society has altered the topography and/or vegetation of the location.

Reason 1: _____

Reason 2: _____

Name: _____ Date: _____

How Society Has Altered the Physical Environment

View each of the following websites:

http://www.kygs.org/archives/lexington_1937/index.htm

<http://homepage.ntlworld.com/robert.orland/cov/nowandthen/nowandthen.html>

While viewing each of the sites, answer the following questions on a separate sheet of paper.

1. What were the major changes in topography and vegetation?
2. What types of topography and vegetation were lost or removed? Why do you think these changes were made?
3. What changes may have occurred in transportation routes?
4. What are the positive and negative effects that may have occurred because of changes in the topography and vegetation?

My Name: _____ My Partner's Name: _____

Comparing Coventry and Lexington

Complete the T-chart to record information concerning how the physical environment has been changed in the photographs from both websites that you have viewed.

Coventry	Lexington



1930



1941

Coventry (<http://homepage.ntlworld.com/robert.orland/cov/nowandthen/nowandthen.html>)

Visual 1b



1974



2003

Coventry (homepage.ntlworld.com/robert.orland/cov/nowandthen/nowandthen.html)



2002



1937

Name: _____ Date: _____

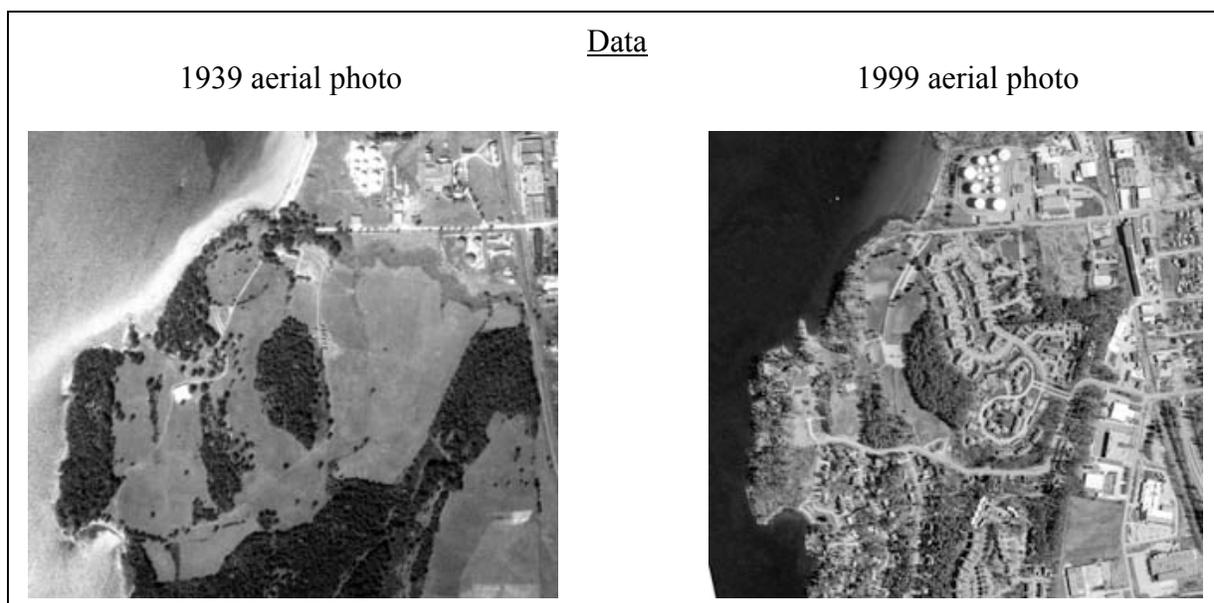
Assessment 1

Standard Geo 2

Lesson: Then and Now: How Society Alters Topography and Vegetation

Benchmark 4-5

Benchmark Statement: This student work will give evidence of the student's ability to analyze the effects of altering the topography of a physical environment over time by society.



(<http://www.uvm.edu/oakledge/today.html>)

Prompt: Compare the two aerial photographs of Oakledge. How has society altered the topography and vegetation of Oakledge? Predict what a 2059 aerial photograph of Oakledge might look like topographically.

Rubric

- 2 – This response gives a valid analysis with an accurate and relevant example.
- 1 – This response gives a valid analysis with an inaccurate, irrelevant or no example.
- 0 – Inaccurate response.

Name: _____ Date: _____

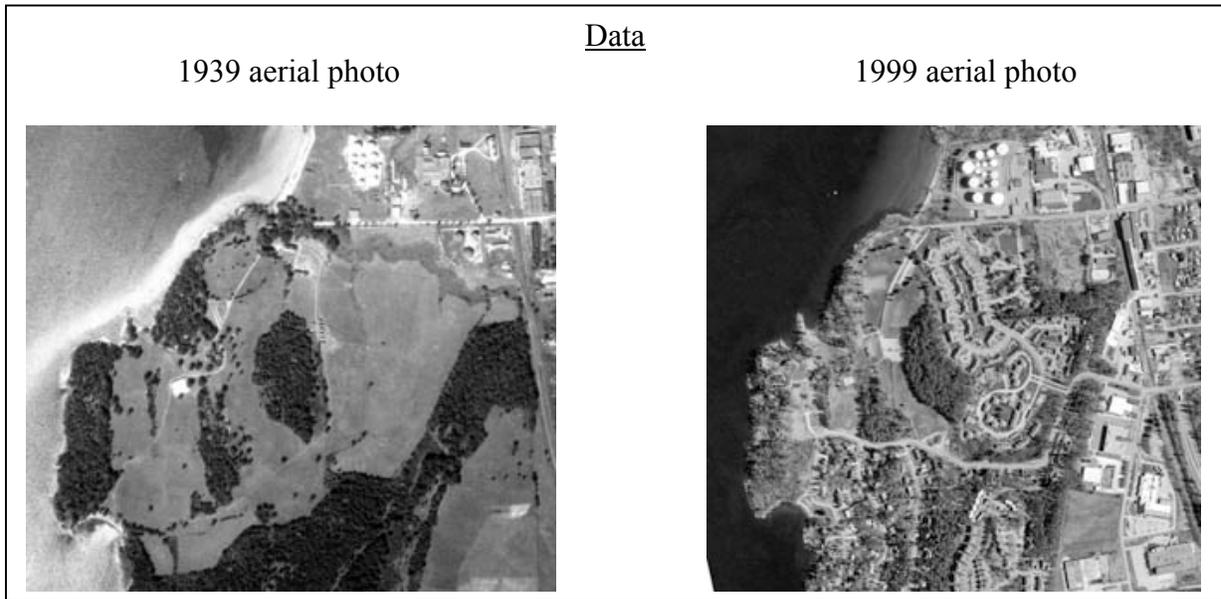
Assessment 2

Standard Geo 2

Lesson: Then and Now: How Society Alters Topography and Vegetation

Benchmark 4-5

Benchmark Statement: This student work will give evidence of the student's ability to analyze the effects of altering the vegetation of a physical environment over time by society.



<http://www.uvm.edu/oakledge/today.html>

Prompt: As society continues to inhabit Oakledge and alter its physical environment, which of the following will be true concerning the vegetation in Oakledge?

- A. Vegetation will not be affected at all in Oakledge.
- B. The amount of vegetation will decrease in Oakledge.
- C. A wider variety of vegetation will be found in Oakledge.
- D. Trees will be the only type of vegetation found in Oakledge.

The best response is _____.

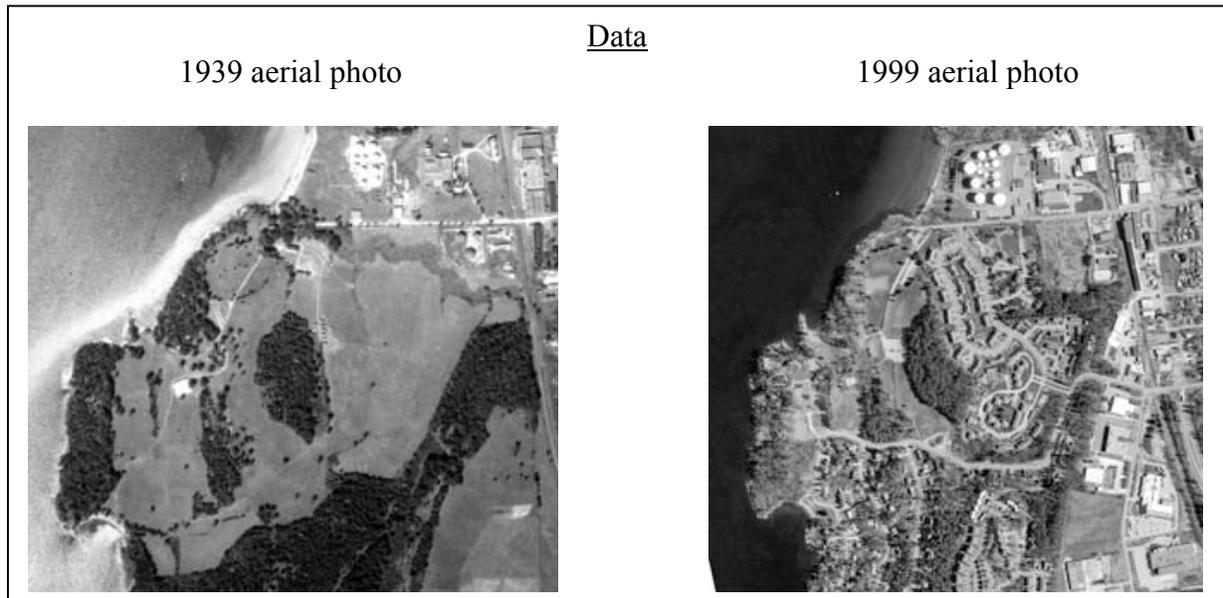
Rubric

2 – This response gives a valid analysis with an accurate and relevant example.

1 – This response gives a valid analysis with an inaccurate, irrelevant or no example.

0 – Inaccurate response.

Benchmark Statement: This student work will give evidence of the student's ability to analyze the effects of altering the vegetation of a physical environment over time by society.



<http://www.uvm.edu/oakledge/today.html>

Assessment 1:

(Possible Desired Response)

The topography of Oakledge has changed in many ways from 1939 to 1999. The surface of the land has been leveled to allow a much greater amount of housing for society. Most of the land has become inhabited, so much of the physical environment has been altered. Many new roadways have been added. It looks as though more business or industry has moved into Oakledge.

Assessment 2:

The correct response is B.



Geography Terms and Definitions

Topography – the surface features (rivers, lakes, mountains, hills, canals, bridges, roads, etc.) or the description of physical features of an area

Vegetation – plant life

Society – all people; a group of persons regarded as forming a single community

Alter – to change or modify

Physical Environment – the natural features and processes of the Earth

Location – a position or specific place on Earth