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AMERICAN DOCUMENTARY, INC.

P.O.V.'S BORDERS | FOR EDUCATORS | LESSON PLAN 3: EARTH

INTRODUCTION

Humans are altering the earth's landscape at rates and in ways never seen in times past. Using a digital camera to document local landscapes as they are today, students will explore how changes in human land use are impacting local environments. Students will also explore some of the social impacts of various land uses in their area.

GRADE LEVEL

These activities are written for high school level students, but can be adapted to other grade levels. (See the Extension Ideas section, below).

SUBJECT AREAS

- Science
- Social Studies
- Mathematics

OBJECTIVES

At the end of this lesson, students will be able to:

- Identify the various ways in which land is used in their local community/environment,
- Discuss the environmental impact of the various land uses in their local environment, and
- Identify and discuss some social impacts of the different land uses.

ESTIMATED TIME

- Allowance for student representatives to take photos between home and school. The number of days/total time is dependent upon the number of digital cameras in use and the number of student photographers.
- In-Class Time = 2-3 class periods.

MATERIALS

- Digital Camera(s)
- Computer with printer and Internet access
- Map of the local area (to include all the communities that students come from) as appropriate
- Research materials (books, online access, etc.)

PROCEDURE

Teacher Preparation:

1. Identify five student photographers to take ten photos each between their home and the school. Ideally, teachers should select student photographers who travel to school from a variety of directions (north, south, east and west) in order to represent as wide a geographic area as possible in the "data" (photos) and to get the most variety of land uses in the local environment.

* Depending on each specific class structure, situation and teacher's relationship with the class, teachers may want to pre-select student photographers before introducing the activity to students. Conversely, some teachers may want to ask for student volunteers. Additionally, if the class situation/logistics prohibit the facilitation of students taking their own photographs, the teacher may want to consult with students on what they would photograph if given the chance, then the teacher may take the photos him/herself for the class. However, it should be noted that the ideal situation would allow the students to take their own photos, thus taking ownership over this study and its outcomes.

Introduction to Class Activity:

2. Introduce the lesson to students, explaining that the goals of this project/activity are to identify the different land uses in the community and to explore how those uses impact the local ecosystem and local communities.
3. Set schedule and have students take photographs according to the schedule. (This may be pre-determined by the teacher.)
4. Digital photographs should be uploaded from the camera to the computer and printed out for class discussion. This may be done after each consecutive student photographer takes his/her photos, or may be done all together at the end of the schedule.

Day One:

5. Teacher should facilitate small group discussions of the photos as follows:
 - Divide the class in to five groups — one for each set of photos.
 - For each photo set, have student groups discuss and answer the following questions:
 - a) How would you classify/name the land use in each of the photos in the set?
 - b) How many photos in the set are of this same land use classification?

- c) What is the percentage of the total for each land use classification? (Teacher may want to ask students to create a pie graph or other visual to represent how land is used in the area.)
- d) For each different land use classification, do the students themselves partake/participate in that activity (i.e. live there, shop there, work there)? If so, how? If the student does not participate/partake in that land use themselves, do they know someone who does (i.e. a family member works in the local factory)? If not, who does participate in that land use (i.e. people from other communities)?
- e) For each land use classification, do students think that it has an overall positive effect on the community? Why or why not?
- f) What is the environmental impact of each land use classification?
- g) What is the social impact of each land use classification?

* Research time may be needed in class or at home for environmental impacts of each land use. (See Resources section below for related websites.)

Day Two (or end of Day One if time permits):

- 6. Each group should present their photo set to the class, briefly overviewing the answers they came up with about the photos.
- 7. As a class, discuss how different or similar the photo sets are:
 - Are there any patterns that can be identified? Do the photo sets differ by direction traveled from (i.e. north, south, etc.)? If so, what is happening? Which land uses are in which areas? (* This part of the discussion may bring out some environmental justice issues. For more information on this topic, refer to the Resources section below.)
 - Are the differences in total travel time per student photographer great? Are they representative of the whole class?
 - Do the photo sets represent the rest of the class in terms of land uses along the home-to-school route? If not, what other land uses would need to be represented?

Day Three (or Personal Study or Extension Time):

- 8. Have students explore their personal impact on local environments by writing an essay, short story (day in the life) or poem, preparing a presentation or somehow expressing how their personal actions contribute to local land use practices. For example, if a local land use is dairy farming and they drink the milk from that farm, they are contributing to the impact of that farm (positive or negative). Conversely, if a local land use is business/commerce, how do their purchases (what they buy) impact the environment, both locally and globally? How do their purchases impact people/societies, both locally and globally?

ASSESSMENT SUGGESTIONS

- Have students prepare a photo exhibition with descriptive captions for each set/individual photo and invite other classes to a question and answer/discussion period.
- Have each student create a map of their home to school route with the various land uses depicted therein. Or create a map of land use in your area with the school at the center of the map with concentric circles around it.

EXTENSION IDEAS

For Younger Students:

- The teacher can bring in 4-5 photos of different land uses in the area (i.e. homes, farming, businesses, playgrounds, open space, etc.). Have groups of students classify the land use and present what goes on there to the class. Students may have to do research in order to give presentations.
- Have students explore as a whole group which types of land uses they prefer to be in. Which elements make a place ideal for play (i.e. built structures, hiding places, open space, etc.)? Where are their favorite play places in relation to home/school? Have students create maps of these places.

For special needs/second language students:

- Write a creative piece/story from the land's perspective about what happened to the land over time — i.e. a personal history of the land.

For classes that want to do more with this subject:

- What are the underlying geologic features of the land in your area? How does the local geology affect how the land can be used today?
- What is the economic value of the land in our area and how does this value affect land use?

RELATED NATIONAL SCIENCE EDUCATION STANDARDS, GRADES 9-12

Science as Inquiry

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

Science in Personal and Social Perspective

- Personal and community health
- Natural resources
- Environmental quality
- Natural and Human-induced hazards
- Science and technology in local, national and global challenges

INTERNET RESOURCES FOR TEACHERS AND STUDENTS

United States Environmental Protection Agency

<http://www.epa.gov/>

Includes information on land use and environmental impact, environmental justice, smart growth and sprawl, and many other related topics. Includes an alphabetical list of all topics contained on the site.

Natural Resources Defense Council

<http://www.nrdc.org/>

Includes information on land use and abuse, smart growth and sprawl, and other related topics. Also includes links to related sites/organizations.

United States Geological Survey

<http://www.usgs.gov/>

Site of the federal agency that is primarily concerned with the study and mapping of the earth and how it has changed over time. Includes information on land use history in North America and other land use change documentation. Includes index of topics.

National Sierra Club

<http://www.sierraclub.org/>

Site includes articles on various localities across the U.S. that are dealing with land use/abuse issues. Also includes the Land Use/1999 Sprawl Report (see how your state rates!).

Maptech.com

<http://www.maptech.com/mapserver/index.cfm>

Use USGS maps to create/save/print "My Map" with your own icons. Database of maps includes entire United States.

Topozone.com

<http://www.topozone.com/>

Free, downloadable topographical maps for the entire U.S.
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