You Can't Escape the Land

Grade 9-12 Lesson Plan

Purpose

The purpose of this lesson is for learners to explore the relationship between population density, land development, transportation, environment, hydrologic cycle, temperature, water and soil degradation, deforestation and impervious surfaces.

Duration

Two 50-minute class periods

Learner Objectives

- Describe and interpret pictures of the environment.
- Analyze and interpret population density data.
- Analyze the relationship between land development and the environment.
- Identify the role that rights and responsibilities play in the interchange between individual freedoms and civic virtue in sustaining and improving life for the common good.

Materials

- Pictures of the city or school or neighborhoods where learners live. Teacher's Note: These pictures can be obtained from Community Governmental Agencies and/or the local Chamber of Commerce.
- Pictures of surface temperature (hot spots) of the city or school or neighborhoods where learners live. (See Internet Options under Biographical References.)
- Map of population density of the city or neighborhood where learners live. Teacher's Note: Population maps can be obtained from Community Governmental Agencies and/or the local Chamber of Commerce.
- One copy of Earth Bio Poem (See Attachment One) for each learner.

Teacher Preparation

Prior to the start of this class period, obtain some fruits and vegetables from a local food store (celery, carrots, apples, bananas, etc.). Purchase two of each item--one organic, one non organic. Keep price tags on or record the purchase price of each item.

Instructional Procedures

Ask the learners to imagine that they are in a hot air balloon over their city or town. Make a list of what they see in the landscape. Record their ideas and put them into categories. Label the categories, for example: farmland, roads, houses, water, lawns, buildings, parking lots. Ask the learners to predict what percentage of the landscape is part of the natural environment and the percentage that is human made.

Place learners into groups of three. Be sure that each group and individuals in the group have the same resources. Include aerial pictures of the community, surface heat and population density

maps.

Teacher's Note: These web sites will prove very useful as well: USDA Geospatial Data Gateway http://datagateway.nrcs.usda.gov/GatewayHome.html

Have each group examine an aerial picture of the community, describe what they see in terms of the percentage of the community that is in a natural state and the percentage that is human made. Then have each group describe the surface temperature and speculate what caused it. Finally, have each group examine a population density map and speculate on the human-environment interaction that results from high density.

As a whole class, have each group report out their conclusions. Discuss their findings and compare these to the predictions from anticipatory set. During the discussion, provide information on a needs-to-know basis about the relationship between population density, land development, and environmental degradation.

Review the definition of impervious surfaces. What it is, how it relates to land development and impacts the environment. Have each group construct a concept map (general outline of their community) with an accompanying written explanation of the relationship that their group sees between the environment, population density, and land development. Allow them to share this construct with the class.

Each learner will then write an individual Earth Bio-Poem (See Attachment One) that expresses the relationship between the environment, population density and land development as well as the role that rights and responsibilities play in the interchange between individual freedoms and civic virtue in sustaining and improving life as it is presently known. Emphasize the use of proper spelling and neatness.

Teacher's Note: Typically Bio-Poems are written with a person or animal as the subject, however for this Bio-Poem use the Earth as the subject.

Conclude this lesson by having the learners share their poems with each other, and then display these poems in a designated display area.

Assessment

Teacher observation of group participation and individual contributions along with the development of the concept map and Bio Poem form the basis of assessment for this lesson.

Bibliographical References

- www.learningtogive.org, (Unit Title: Defining Philanthropy (9-12), Attachment One, Lesson Two, Bio Poem)

Impervious - Impermeable Surfaces

- Center for Watershed Protection: http://www.cwp.org
- Council of Environmental Quality: http://www.whitehouse.gov/CEQ/
- Environmental Literacy Council: http://www.enviroliteracy.org
- Hands on the Land: http://handsontheland.org
- National Geographic: http://www.nationalgeographic.com
- National Oceanic and Atmospheric Agency: http://www.noaa.gov (Search: impermeable surfaces)
- United States Department of Energy: http://www.energy.gov (Search "impermeable surfaces")

Maps and Data

- Geographic Information System: http://www.gisportal.com/gis3k.htm
- Landslides Aerial Photography: http://www.landslides.com/
- National Atlas: http://nationalatlas.gov
- Make your own maps using the Map Maker and population density information
- Federal Geographic Data Committee: http://www.fgdc.gov/dataandservices

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Common Core Standard Suggestions

CCSS.ELA-LITERACY.RST.11-12.9
CCSS.ELA-LITERACY.CCRA.W.2
CCSS.ELA-LITERACY.CCRA.W.4
CCSS.ELA-LITERACY.RST.9-10.4
CCSS.ELA-LITERACY.RST.11-12.4

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