



My Community – The Ecological Design

Curriculum Connection

***Note: This activity can easily be adapted to meet the curriculum of many grades and units by focusing on specific issues or topics and altering the depth of the research.*

- *Grade 4 Science: Waste and our World. SLE 2,3,6,7,11*
- *Grade 4 Social Studies: Alberta: Its Geography and People*
- *Grade 4 Social Studies: Alberta: a Sense of Land. SO 4.1.1, 4.1.2, 4.1.4*
- *Grade 5 Social Studies: Canada: Its Geography and People*
- *Grade 5 Social Studies: Physical Geography of Canada. SO 5.1.1, 5.1.3*
- *Grade 6 Science: Trees and Forests. SLE 1,2,8,9,10*
- *Grade 7 Science: Interactions and Ecosystems. STS 1,3,4*
- *Grade 7 Science: Plants for Food and Fibre. STS 1,2,4*
- *Grade 8 Science: Fresh and Salt Water Systems. STS 4*
- *Grade 9 Science: Biological Diversity. STS 1,4*
- *Biology 20: Energy and Matter Exchange in Ecosystems. STS 1,2*
- *Science 16: Understanding our Environment*

Objectives

- *Students will identify components of the natural ecosystem in their community.*
- *Students will identify how human activities and development effect ecosystems.*
- *Students will explore ways in which humans can have a lesser impact on natural ecosystems.*

Lesson/Activity Duration

Several class periods

Materials Needed

White paper

Pencil crayons or felt pens

Additional materials will be needed if students decide to make dioramas

Research material – library or Internet access

Background Information

Human developments largely impact the natural ecosystem. They can cut through migration paths, increase pollution, contaminate water systems, change the natural vegetation, and make the landscape inhospitable to wildlife.

Many communities were developed with little consideration to these aspects. However, in more recent years emphasis has been placed on lower-impact living and the consideration of the wants and needs of various stakeholders, including the environment.

In this activity students will have the opportunity to explore how human settlement has affected the community they live in and how community planning with an emphasis on integrated landscape management can reduce ecological disturbance. This will be done through the creation of three inventories – an inventory of the local ecosystem prior to human settlement, a



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survival needs inventory of an animal that was native to the land but no longer able to exist there and an inventory of the sites and services that are necessary for the human population. Students will then work with these inventories to redesign their communities in a way that addresses as many requirements as possible to maintain a healthy ecosystem and meet the needs of the human population.

Procedure

1. Have students carry out a study focusing on the following question: “What would the community you live in have looked like prior to humans moving into the area?” Students will then compose an inventory of the native plants, water systems and animals that would have lived on the land.
2. Pick one native animal that lived on the land but is no longer able to survive there. Create an inventory of the needs of that animal. This should include habitat requirements, food and water sources, and space requirements. Why is that animal not able to survive on the land now? List additional factors that could affect this animal’s ability to survive in this habitat alongside humans. For example, roadways affect animals as many are killed by cars and domestic animals, such as cats and dogs, sometimes prey on small animals that are native to the area.
3. Make an inventory of the services and sites that are important in your community. Consider such things as transportation, housing, schools, retail, waste management and water. What things do you think could be eliminated in your community without having a large effect on quality of life?
4. Using the three inventories, redesign for your community in a way that would meet the human needs and have a reduced impact on the natural environment. Include as many of the things from the three inventories as you can. You may want to do some research about new technologies that have been developed for green communities, waste management and integrated land use.
5. Design an accompanying diorama, poster, power point presentation or map of your redesigned community.
6. As a class, discuss the following:
 - a. Challenges that you came across in developing a new community that would meet the needs of humans and the natural environment.
 - b. Would there be any changes that could easily be made in your community to make it more ecologically friendly?
 - c. Why is the natural environment sometimes overlooked in the development of communities?
 - d. What things/activities besides communities have impact on the natural landscape?

Extension

1. Implement some of the ideas that you were able come up with in your discussion in your community.
2. Develop and carry out a schoolyard naturalization project
3. Determine a plant or bird that would naturally be found in your area. In your schoolyard create a safe sanctuary for this plant/animal (e.g. a garden of native plants, birdfeeders/houses)



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4. Invite a community planner into your class to discuss how communities are planned and the changes in developments over the years.
5. Make a list of career areas where it is important to take into account human land use and the natural environment.