



Science Unit: *Ecosystem Models*

Lesson 5: *Stanley Park and Aquarium Field Trip*

School year:	2006/2007
Developed for:	Nootka Elementary School, Vancouver School District
Developed by:	Louise Kuchel (scientist), Libby Covernton & Angela Stewart (teachers)
Grade level:	Presented to grades 6-7; Appropriate for grades 4-7 with appropriate modifications.
Duration of lesson:	All day field trip
Notes:	This is a full day activity, involving a field trip to Stanley Park in the morning and a visit to the Vancouver Aquarium in the afternoon. This lesson can be held independently or in conjunction with the following lesson (Ecosystem Models, Lesson 6, <i>Models as Tools for Ecosystem Management</i>).
Alternate site notes:	While there are several parks, such as the GVRD parks, that may be suitable alternatives to Stanley Park, there is no local alternate facility to the Aquarium.

Objectives – outdoor activity in Stanley Park

1. Experience and observe two natural outdoor ecosystems (beach and forest)
2. Compare and contrast two different ecosystems
3. Observe with ears and eyes
4. Identify both positive and negative changes to each ecosystem and their origin (human or nature)

Objectives – Vancouver Aquarium visit

1. These will vary depending on your choice of activity. We used the Aquarium run “Salmon Tales” activity for half of the students, and the self-tour activity for the remainder of the students.
2. Observe and learn about the variety of life and ecosystems that exist under the water.

Background information

Ecosystems constantly experience change. Some change is easily tolerated and not detrimental to the overall existence of an ecosystem (e.g., tidal erosion on a beach or fallen trees in a forest). Most changes have both a negative and a positive side to them e.g., a fallen tree means that birds and squirrels lose a home, but detritivores and ground dwelling animals now have food and shelter; or a human made pathway is negative because everything within the pathway is destroyed, but positive because it reduces widespread destruction by trampling and erosion by concentrating it in one area; litter may be detrimental to some creatures but provide homes or food for other creatures. Large changes to ecosystems can be very detrimental e.g., clearing a forest or introduction of a poison or giant windstorms or rainfall washing away top-soil. One of the problems humans face is that we need to use our environment to survive and in the process we destroy some ecosystems e.g., dredging a river, building a town or city, clearing trees to plant crops, digging holes to mine metals. The challenge we face is to manage these activities so that both human life and natural ecosystems can co-exist. This latter point is the focus of the next lesson in this series, but provides the context for this field trip. Getting students to recognize changes in their environment and that not all are bad (as is often portrayed in the media) and that we have a responsibility and can help to control or manage these changes is the first step.



Vocabulary

Word	Description
Positive change	A change that is helpful or beneficial or good
Negative change	A change that is detrimental or bad or damaging
Environment	Everything around us, can be natural or human made e.g., classroom
Ecosystem	Interaction between biotic things and their environment

Materials

- Duotang or something similar to act as a writing surface
- Worksheet – see accompanying file SRP_Ecosystem models_Lesson 5_Field trip worksheet_2007 R
- Pencil/pen
- Walking shoes and raincoats

Field trip preparation

- Activities in the Vancouver Aquarium, run by Aquarium staff, need to be booked well in advance as spaces fill up quickly.
- Transport must be arranged well in advance as well.

On the Field Trip

Outdoor environment activity:

1. Sit for 5 min with eyes closed – what can you hear? Plants animals biotic and abiotic – parts of the ecosystem/environment
2. Discuss what you heard with your classmates and write these down (individual or a class list? 5 min)
3. Sit for 5 min in one spot – what can you see? Plants animals biotic and abiotic – parts of the ecosystem/environment
4. Discuss what you heard with your classmates and write these down (individual or a class list? 5 min)
5. If this is the second environment, spend 5-10 min comparing and contrasting it to the previous ecosystem you visited
6. Briefly introduce how humans and nature can cause changes to an environment or an ecosystem (we saw this in our terrariums). These changes can be positive or negative ie, they can help to maintain or improve the environment or they damage the environment. Hand out worksheets.
7. Walk around your environment. Can you see and identify disturbances or recent changes in the ecosystem? Students to fill out the worksheets (see corresponding file SRP_Ecosystem Models_Lesson 5_Field Trip Worksheet_2007 R.doc).



SCIENTIST IN RESIDENCE PROGRAM

Timetable of activities

9 am Depart Nootka Elementary School

9:30 am Arrive Stanley Park – at Aquarium (walking distance to beach and forest)

Divide classes into two groups

9:30 – 10:30 am Group 1 walks to beach and does beach activity
Group 2 walks to forest and does forest activity
(Allows for 15 min travel time to and from field location)

10:30 – 11:30 am Groups 1 and 2 swap activities
(Allows for 15 min travel time to and from field location)

11:30 – 12:15 Lunch

12:15 – 12:30 Walk to and enter Aquarium

12:30 – 2:15 pm Group 1 (max 30 students) – Salmon Tales activity

12:30 – 2:15 pm Group 2 can attend the shows listed below and/or do one of the following self-directed activities (teachers to decide beforehand and print out relevant worksheets from Aquarium website)

<http://www.vanaqua.org/education/LessonPlansforSelfDirectedVisits.html>

- Aquarium count
- Home sweet home
- Food web
- The Amazing Amazon
- Amazing invertebrates

Shows held during our visit to the aquarium

- 12:30 Bird of Prey Talk
- 1:00 Lives of Dolphins
- 1:30 Otter Feed
- 1:30 Discover Reef Sharks
- 2:00 Environmental News (Weekdays)
- 2:00 Critter Corner
- 2:00 Beluga Show (Weekends)

2:30 pm Depart Aquarium for Nootka school

Extension Activities

- Bring hoops or skipping ropes to define an small area where students made detailed observations e.g. on an area the had plants, compost & insects or on the beach at low tide
- Bring paint chips (from paint store) to make colour observations of leaves, branches, & soil (see lesson 1-measurement)
- Key out plants in different area
- Bring magnifying glasses and/or a field microscope
- Observe animals: ducks, raccoons, coyotes, swans and discuss kingdom/phylum/class in the real world
- Encourage students to ask and write down questions that they have during the day-during the 'silent sit' in the aquarium etc. Remind them that Good Scientists ask questions. Those questions can be collected and investigated back in the classroom

Resources

Vancouver Aquarium - <http://www.vanaqua.org/home/>

Vancouver Parks Board - Stanley Park <http://www.city.vancouver.bc.ca/Parks/parks/stanley/>

Changes in your Ecosystem

What type of ecosystem are you standing in? _____

Remember: An ecosystem is a community of living things (biotic factors) that interact with their physical environment (abiotic factors). Recall parts of the food web and environment that we have discussed in class previously.

Changes made by humans

Below you will write down 10 examples of how humans have changed or disturbed this ecosystem. Some of these changes are positive and help to maintain or improve the environment; other changes are negative and cause damage the environment.

Positive human changes

Name the change caused or made by humans	Explain how this change has a positive effect
1.	
2.	
3.	
4.	
5.	

Negative human changes

Name the change caused or made by humans	Explain how this change has a positive effect
1.	
2.	
3.	
4.	
5.	

Changes in your Ecosystem

What type of ecosystem are you standing in? _____

Remember: An ecosystem is a community of living things (biotic factors) that interact with their physical environment (abiotic factors). Recall parts of the food web and environment that we have discussed in class previously.

Changes made by nature

Below you will write down 10 examples of how nature has changed or disturbed this ecosystem. Some of these changes are positive and help to maintain or improve the environment; other changes are negative and cause damage the environment.

Positive natural changes

Name the change caused or made by nature	Explain how this change has a positive effect
1.	
2.	
3.	
4.	
5.	

Negative natural changes

Name the change caused or made by nature	Explain how this change has a positive effect
1.	
2.	
3.	
4.	
5.	