



Science Unit: *Marine Critters and Communities*
Lesson 11: *Intertidal Field Trip to Stanley Park*

School Year:	2011/2012
Developed for:	Tecumseh Elementary School, Vancouver School District
Developed by:	Kathy Heise (scientist); Teresa Harris, Stephanie Pearce, and Chuck McNicholl (teachers)
Grade level:	Presented to grade 7; appropriate for grades 4 – 7 with age appropriate modifications
Duration of lesson:	All day field trip (follow up Extension Lesson on comparing Jericho Beach with Stanley Park to be done during a science class at school)
Notes:	<p>This lesson is similar to Lesson 4, Intertidal Field Trip in Biodiversity and Extreme Environments science unit, Scientist in Residence Program. http://scientistinresidence.ca/science-lesson-plans/biodiversity-and-extreme-environments/</p> <p>It is also linked with Lesson 10, Intertidal Field Trip to Jericho Beach in Marine Critters and Communities science unit, Scientist in Residence Program. http://scientistinresidence.ca/science-lesson-plans/marine-critters-communities/</p> <p>Data collected from both field trips will be compared as a Lesson Extension Exercise.</p> <p>This lesson uses circular plots of 1 m² area.</p> <p>Waterproof paper for the worksheets can be purchased at Western Technical Supply in North Vancouver. Other sources can be found at www.riteintherain.com. When it is raining, pencils must be used to write on waterproof paper.</p> <p>Staples is a source of plastic sleeves that can be used to enclose the Spring Beach Walk field guide pages. These sleeves have a flap at the top that keep the pages inside and do not allow rain to enter. The pages of each copy of the field guide can be secured together using paper clips.</p> <p>The location of the survey is between the Mermaid statue on the large rock, and the Empress of Japan, not far from the Vancouver Aquarium and local transit.</p> <p>The 1 m² study circle-plots are made of ½ inch poly line and the ends are secured with zap straps- supplies that are readily available at most hardware stores.</p>

Objectives

1. Explore a real intertidal zone
2. Replicate how ecologists collect ecological data in the field.
3. Practice species identification of intertidal organisms.

Background Information

The field trips should be timed to take advantage of the lowest part of the tidal cycles in the spring. On site, students will work in groups of 3-4 students to apply what they learned in lesson 9 and 10 to collect ecological data that will help them to appreciate the differences between two different intertidal areas in



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the Vancouver area: Jericho Beach and Stanley Park. Ideally there will be at least one adult per two groups.

Materials

- Study plots (1 per group of 3-4 students)
- Field Guide: 'Explore the Rocky Shore at Stanley Park' (1 per group)
- Field Guide: Spring Beach Walks- Quick Reference Identification Guide
- Clipboards (2 per group)
- Worksheets- Intertidal Data Collection Sheets (2 pages, 1 per group) printed on waterproof paper
- Worksheet- Observational Skills at Stanley Park (1 per student) printed on waterproof paper
- Magnifying glasses
- Buckets to put specimens in, to share with the class
- Garbage bags for beach clean-up if necessary

In the Field

Before the students begin, once again review intertidal etiquette.

- Leave animals where you found them.
- Carefully return rocks to their original position.
- Avoid walking on animals and plants whenever possible.
- Leave the beach cleaner than you found it.
- **Safety Concern: Step carefully and don't run. Barnacles are sharp!**

Each group of 3-4 should have 1-1m² study plot rope, one Stanley Park field guide, one Spring Beach Walk field guide, a magnifying glass, 2 clipboards, copies of the 2 page intertidal data collection sheets (printed one side only), 1 copy per person of the Observational Skills worksheet.

Allow the students to choose their study plot. Suggest that they move low enough down the intertidal to observe as many different creatures as possible, but high enough that their plot won't be covered by a rising tide. Estimate the distance from shore in meters. Ask one student to sketch the study plot while the other students are making species observations.

Closure Discussion

1. How did this study area compare with Jericho Beach?
2. What was the most interesting thing you saw today?
3. Do you think we left the area better or worse than we found it?

Extension of Lesson Plan

1. Once the surveys and question sheets are completed, the class is encouraged to explore, and if time permits, walk as a group towards Siwash Rock, to see signs of First Nations occupation of the area.
2. In class, take up the results of the study plots as a group, using the Excel spreadsheet 'Recording our Results'. Compare the results with those obtained from Lesson 10, Intertidal field trip to Jericho Beach, in Marine Critters and Communities science unit.



References

1. Sheldon, Ian. 1998. Seashore life of British Columbia. Lone Pine Publishing.
2. Sept, Duane J. 1999. The Beachcomber's Guide to Seashore Life in the Pacific Northwest. Harbour Publishing.
3. <http://naturevancouver.ca/sites/naturevancouver.ca/VNHS%20files/4/Nature_Vancouver_Intertidal_Pamphlet.pdf> Explore the Rocky Shore at Stanley Park. Nature Vancouver. Accessed May 30 2012.
4. Harbo, R. 2011. Whelks to Whales: Coastal Marine Life of the Pacific Northwest. Harbour Publishing.
5. Harbo, R. 1988. Guide to the Western Seashore: Introductory Marinelifelife Guide to the Pacific Coast. Harbour Publishing.



Intertidal Data Collection Sheet

Students: _____

Location: _____ Date: _____

Survey Start Time: _____ Tides for the day: ___m @ _____ ___m @ _____ ___m @ _____

Weather: _____

Study Plot Location: (Distance to shore) _____

Study Plot Description: Sketch your study plot, including any big rocks, and major clumps of animals and plants below. Please label them neatly.



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ANIMALS

Species name	Number of individuals (estimate if necessary)

PLANTS

Seaweed type	% cover (estimate)

NON-LIVING SUBSTRATE

Substrate type (solid rock, cobble, sand, mud, etc.)	% cover (estimate)

Other observations:



Observational Skills at Stanley Park

Group Members: _____

Look around at the general setting of this beach. How does what you see compare with what you saw at Jericho Beach? What differences do you see between the two locations? List at least 3 differences.

What species dominate the appearance of the high intertidal? (Hint, look at the rock walls)

Notice the 'dead' crabs? Are they really dead? Why or why not? What do you see if you open up a 'dead' crab?

What are some of the vertebrate predators you saw today?

There are storm drains at various locations along the shoreline. What do you notice about the species that grow in the immediate area of the storm drains?

Find the sandstone rocks to the west of the maidenhead (hint- large flat area with very few rocks on it). How do the number of species compare with what you are seeing on the cobble/rocky beach?

Try to observe a foraging giant acorn barnacle, or foraging acorn barnacles, in a tide pool. How long are the feeding appendages (cirri)?

Species observed _____ Length of cirri (estimate in mm) _____

Take a closer look at the mussel shells. What do you think the white spots are? Did you see these spots on the mussels at Jericho beach?
