



# SCIENTIST IN RESIDENCE PROGRAM™

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**Science Unit:** *Local Habitats*  
**Lesson 13:** *Field Trip to Jericho Pond*

**Summary:** Students visit the **pond**, **observe** birds and other wildlife, and use dip nets to **collect insects**. Students observe the use a **dichotomous key** (printable included) to identify the collected insects.

**School Year:** 2013/2014

**Developed for:** Sir William Osler Elementary School, Vancouver School District

**Developed by:** Linda Herbert (scientist); Jessica Rosenblatt and Carol Tam (teachers)

**Grade level:** Presented to grade 2/3/4; appropriate for grades 1 – 7 with age appropriate modifications

**Duration of lesson:** 1 hour and 20 minutes

- Notes:**
- This lesson is a modification and update of “Water” Unit, Lesson 4: Pond Ecosystem Fieldtrip
  - Nets, bug viewers and waterproof paper can be purchased from Dynamic Aqua Supply Ltd. in Surrey: <http://www.dynamicaqua.com/>. Supplies can be picked up or delivered.
  - Thank you to Karen Needham the curator of the Spencer Entomological Collection at the Beaty Biodiversity Museum (UBC) for providing assistance and materials for bug identification.
  - Displays of aquatic/pond organisms can be borrowed from the museum for classroom use prior to the fieldtrip. Contact <http://beatymuseum.ubc.ca/collections/entomological>.
  - Students must handle all live animals with the utmost care.
  - Insects collected should only be contained for short periods of time and should be kept in containers away from direct sunlight. All animals should be carefully released as close as possible to the place they were collected.
  - Ponds bugs are fun to find and observe! However, students (and scientists!) handling pond water must always wash their hands before touching their faces or eating, and immediately after they finish their work.
  - Students *must* wear rubber boots if they will be wading in the pond.

## Objectives

### Students will:

1. Learn about a pond ecosystem and collect, examine and identify pond organisms.
2. Use a dichotomous key to identify pond organism they collect.



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## Background Information

(For more, see original lesson: “Water” Unit, Lesson 4: Pond Ecosystem Fieldtrip)

### Information on Jericho Pond

#### *Location:*

Point Grey neighbourhood – West Point Grey Road at Wallace Street.

- Access to this pond is easy.
- There are several suitable locations for the students to collect insects: During this lesson, we used a large open area on the western edge of the pond with lots of access points and good visibility to oversee a large group of students.

#### *Amenities:*

- The parking lot between Point Grey Road and West 2<sup>nd</sup> Avenue is the closest parking area to the pond and provides ample parking space for cars or a drop off point for a school bus.
- Washroom facilities are available nearby and the concession is open on a seasonal basis
- Website: <http://vancouver.ca/parks-recreation-culture/parks-gardens-and-beaches.aspx>

## Materials

- Organism checklist (handout)
- Dichotomous key (handout)
- Pencils
- Waterproof paper
- Bug jars (item #0353)
- Clipboards – 1 per pair
- 6” by 8” aquarium nets – 1 per pair of students (item #DN8)
- White, plastic dishpan type tubs (1 for each group of 4-6 students)
- 5 gallon plastic bucket with handle
- Field guides (optional) see references
- Students should wear boots and weather appropriate clothing

## Vocabulary

<u>Pond:</u>	A small body of fresh water (smaller than a lake) shallow enough for sunlight to reach the bottom and for rooted plants to grow.
<u>Invertebrate:</u>	Animal without a backbone.
<u>Aquatic invertebrate:</u>	Animals such as insects, crustaceans, and worms that spend part or all of their life cycles in water.
<u>Insect:</u>	A class of invertebrates with (among other characteristics) an exoskeleton, six legs, a three-part body and one pair of antennae
<u>Exoskeleton :</u>	An external skeleton. A hard outer shell possessed by insects and some other invertebrates instead of a skeleton.
<u>Endoskeleton:</u>	an internal skeleton, such as that possessed by people and other mammals.



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## Field Trip

### Preparation:

1. **Pre-teaching:** Students should be familiar with the use of dichotomous keys (Lesson 3). They should also be able to identify some local pond animals (Lessons 2 and 3) and/or have access to an adult with a field guide, as appropriate. (Note: the dichotomous key used for this field trip contains additional aquatic organisms that were not on the one used in Lesson 3.)
2. **Worksheets:** Print checklists and dichotomous keys on waterproof paper (print double sided so that each sheet of paper has the checklist on one side and the key on the other).
3. **What to wear:** Students must wear rubber boots (especially if they want to wade in the pond when collecting insects) and wear appropriate clothing (e.g., hats, layers, sunscreen, gloves...)
4. **Equipment:**  
Collect materials so that each *pair* of students will have a:
  - a. Clipboard
  - b. Pencil
  - c. Double-sided worksheet
  - d. Net
  - e. Bug jar

And each *group* of students (2-3 sets of pairs) will have a:

- White tub for bug collection
- Field guide (optional)

## Introductory Discussion

1. Discuss the characteristics of Jericho pond. As the class is walking to the pond location students can be looking for other animals on their worksheet/checklist.
2. Review use of dichotomous key if necessary (depends on time elapsed since previous lesson).
3. Review behaviour and safety expectations for the fieldtrip – listen to instructions from the teacher, scientist and parent volunteers at all times and be respectful of other park users.
4. Review guidelines for handling and respecting living organisms. Students should handle aquatic organisms with care and gently tip them from the net into a bug jar or tub for viewing. The water in the tub or bug jar should be changed regularly. Organisms should only be kept briefly and then returned to the pond after observations are completed.
5. Demonstrate how to use the nets to collect aquatic organisms.
6. TIP: Students will tend to be most successful if they wade into the water and dip the net near the base of aquatic vegetation or under overhanging banks or vegetation.

## Safety Guidelines

- Remind students of basic safety rules – especially safety near the water.
- Students should not go into the pond without rubber boots (Jericho pond has small leeches).
- Remind students that the water in Jericho Pond contains duck feces and that they should wash their hands before touching their face and before eating.



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## Science Activity

Activity Title: Pond Organism Identification

Purpose of Activity: To collect and identify common pond bugs using a dichotomous key and to indicate observed organisms, both pond bugs and other animals, on the worksheet provided.

### Methods and Instructions:

1. Students will work in pairs and will take turns using the net to catch pond bugs.
2. 2-3 sets of partners will form a group. Each group will share one white tub for aquatic bug collection and containment (total of 4-6 tubs per class).
3. Each group can also have a field guide to assist with identification if desired. The field guide can be the responsibility of the adult in charge of each group.
4. Individual bugs can be transferred from the white tub into the bug jars for closer observation. (The bug jars used for this lesson had built in magnification and air holes).
5. Organisms should only be kept in the jars for a short period, particularly if it is a warm day as the water temperature will increase quickly.
6. Students will identify and record the organisms they find on the checklist provided. Additional space has been provided to add other species observed.
7. When students want a break from catching and identifying pond bugs, the groups can spend some time observing ducks, songbirds and other animals found in the pond habitat.

## Closure Discussion

What pond bugs did you find? Which were the most numerous? Most rare?

What microhabitats seemed to have the most bugs? Why do you think this is the case?

What animals did you observe? Did you observe anything unexpected about their behaviour?

What was the most interesting organism you saw today?

## References

1. Acorn, John. 2001. Bugs of British Columbia. Lone Pine Publishing.
2. Campbell, Wayne et al. 2005. British Columbia Birds. Lone Pine Publishing.
3. Eder, Tamara and Don Pattie. Mammals of British Columbia. Lone Pine Publishing.
4. McCloskey, Erin and Gregory Kennedy. British Columbia Nature Guide. Lone Pine Publishing.
5. St. John, Alan. Reptiles of British Columbia. Lone Pine Publishing.
6. <<http://www.allaboutbirds.org>> The Cornell Lab of Ornithology. All About Birds. [Excellent resource for bird pictures, identification guides and bird calls.] Accessed June 1, 2014.

## Extension of Lesson Plan

1. Following the pond activity, students can conduct an exploration of Jericho beach and intertidal area.
2. Students can choose an individual organism to research further.
3. Students can make posters to hang in the school that teach other students how to identify local pond birds and animals.