



**Science Unit: *Discovering Life in Local Habitats***

**Lesson 8: *Bears***

School Year: 2010/2011

Developed for: McBride Elementary School, Vancouver School District

Developed by: Ingrid Sulston (scientist); Christy Wong and Kecia Boecking (teachers)

Grade level: Presented to grades K and 1; appropriate for grades K – 7 with age appropriate modifications

Duration of lesson: 1 hour and 20 minutes

Notes: One adult is required for each of the stations that are run simultaneously. (There are 3 stations).

**Objectives**

1. Gain knowledge of and appreciation for black bears, which often interact with humans in the Lower Mainland.
2. Gain experience in measuring length with rulers and weight with scales.
3. Touch real bear artifacts, and learn how to handle them carefully to preserve them.

**Background Information**

Black bears are common in the Lower Mainland, yet there are many misconceptions about their lives and the best way for humans to live alongside them. This lesson was created from a collaboration between the Scientist in Residence Program and Christine Miller from the North Shore Black Bear Society (ref 1).

**Vocabulary**

black bear One of two bears native to British Columbia. Their colour varies from black, through dark and light brown, to the rare white variants.

**Materials**

- worksheets and pencils
- life size black bear silhouette
- metre stick per student
- bear print and claws, if available
- bear pelt, if available, or pieces of bear fur
- magnifiers
- rulers
- bear food: bags of bulk food that add up to 5kg. Include nuts, berries (can use dried fruits), plants (use spinach or other plants), fish (use plastic fish), insects (use plastic insects)
- unnatural foods that bears should not eat (human food and garbage tainted with food)
- bear skull, if available



## **In the Classroom**

### **Introductory Discussion**

1. Introduce bears:

Ask students what they know about bears. There will be many comments, that can lead to discussions of what kinds of bears live near here and an introduction to their lives

2. Introduce what we will do today:

There are three stations, each about bears and how they live. Students will record their findings on a separate worksheet for each station.

Brief description of science activities.

- How big is a black bear? Students will use a metre stick to measure a life-size silhouette of a black bear, and compare it to their own size.
- How does a bear stay warm? Students will feel and examine real bear fur, and use a ruler to measure how long bear fur is.
- What and how much does a black bear eat? Students will look at the foods that black bears eat, and weigh out the amount of food that a bear eats in one “meal”.

Processes of science that the students will focus on: collecting data (measuring length and weight), comparison, close observation, recording results.

### **Science Activities**

(1) Activity Title: How big is a black bear?

Purpose of Activity: Use measuring to appreciate how large a black bear is compared to us.

Methods and Instructions:

Set-up prior to experiment: life size silhouette of a black bear taped to a wall, with its feet on the ground.

Students work individually.

1. Students will use a metre stick to measure the height and width of a black bear silhouette. (2m long and 1m high). Record results on their worksheet.
2. Students will stand next to the bear template to compare their own height to that of the bear (“shorter/taller/longer”). Able students can measure their own height and record it.
3. The North Shore Black Bear Society (ref 1) provided a black bear paw print mold, which students could fit their own foot into, to compare their foot size to that of a bear.
4. The North Shore Black Bear Society provided models of bear claws, which students could compare to their own nails.



## SCIENTIST IN RESIDENCE PROGRAM

(2) Activity Title: How does a bear stay warm?

Purpose of Activity: To feel real bear fur and learn about the types of hair in it.

Methods and Instructions:

Set-up prior to experiment: none

Students work individually.

1. Students gently touch real bear fur. A black bear pelt was available for this activity, provided by the North Shore Black Bear Society (ref 1). Alternatively, use scraps of bear or other animal hair.
2. Students are asked to find the soft underfur that keeps the bear warm, and the longer, stiffer guard hairs that keep off rain and dirt.
3. Students use magnifiers to look at the bear fur and their own arm hair closely. They make drawings of bear fur and human hair on their worksheet.
4. Students measure the length of the long guard hairs of the bear fur in cm, and record their result on their worksheet.
5. Discuss how we stay warm in the winter, without fur.

(3) Activity Title: What and how much does a black bear eat?

Purpose of Activity: To learn what black bears eat, how much they eat compared to us, and what they should not eat.

Methods and Instructions:

Students work individually.

1. Students look at the foods that a black bear eats (nuts, berries, plants, fish, insects) and draw one of these on their worksheet.
2. Students add the bear foods to the scale until they weigh 5 kg, and record this amount on their worksheet. This is the amount of food that a black bear eats in one "meal". (They actually mostly graze, but to compare to how we eat, a third of what they can eat in a day is about 5kg). Weigh a student's lunch on the scale to compare its weight to a bear "meal".
3. Students look at unnatural foods that a bear should not eat (e.g. human food that is not in a bear diet, and garbage tainted with food). Discuss why it is important for bears' health to eat a natural diet.
4. If available, look at a bear skull, and observe the teeth and how they are adapted for a bear diet.

### **Closure Discussion**

Review what students measured and learned at each station.

Listen to bear vocalizations (ref 2) and discuss what they mean.

Discussion and review of what to do if students see a bear.

### **References**

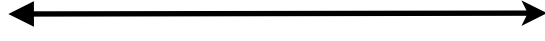
1. North Shore Black Bear Society. c/o 355 Queen's Road, North Vancouver, BC V7N 4N5. Education Coordinator: Christine Miller. Webpage: <<http://www.northshorebears.ca/>> Accessed May 25 2011.
2. <<http://www.bear.org/website/bear-pages/black-bear/communication/29-vocalizations-a-body-language.html>> Audio files of black bear vocalizations from the North American Bear Center website. Accessed May 25, 2011.

How big is a black bear?

\_\_\_ metres long



\_\_\_ metres high



How does a black bear stay warm?

Bear fur

My hair

Bear fur is \_\_\_ cm long!

# What does a black bear eat?

Green leaves

Berries

Nuts

Insects

Fish

A bear eats \_\_\_ kg of food in one meal!