



Healthy Grizzlies, Healthy Park

Grade 9 Lesson Plan

Lesson #3: Healthy Grizzlies, Healthy Park

Duration: 80 mins

Subject: Social Studies

Topic: Species Loss in the TRUGG

Overview

In this lesson, students investigate the importance of maintaining healthy populations of key wildlife species through a study of grizzly bears and wolves in the Tumbler Ridge UNESCO Global Geopark (TRUGG) and Northeast British Columbia.

Lesson Objectives

Students will be able to:

- Interpret information and data from a variety of maps, graphs, and tables
- Identify and clarify a problem or issue
- Make connections between events and their causes, consequences, and implications
- Assess information sources for selected topics in terms of bias and point of view
- Make real life connections to local environmental concerns in the TRUGG to protect flora and fauna

Curriculum Connections

Please see the *TRUGG Education Toolkit Curriculum Connections Matrix* for specific connections of this lesson to the B.C. Curriculum for Grade 9.

Materials

- *Grizzly Bear Inquiry Report* Student Handout
- Computers/laptops and other resources to support student research
- Internet access to the following resources:
 - *BC Ministry of Environment – Environment Reporting BC’s BC Grizzly Bear Population Status* website: <http://www.env.gov.bc.ca/soe/indicators/plants-and-animals/grizzly-bears.html>
 - YouTube video: *How Wolves Change Rivers*

Teacher Prep

- Review and print a class set of the *Grizzly Bear Inquiry Report Student Handout*.
- Preview the YouTube video, *How Wolves Change Rivers*.
- Choose a safe, large outdoor space to play the game (for the Lesson Hook).
- Ensure access to computers, the Internet and other resources to support student research.
- Review the *Tumbler Ridge UNESCO Global Geopark Teacher Backgrounder*.

Background Information

Two key animal species residing within the boundaries of the Tumbler Ridge UNESCO Global Geopark (TRUGG), the grizzly bear and the woodland caribou, are considered endangered in B.C. according to the Conservation Database Centre, our provincial species at-risk agency.

Both the grizzly bear and woodland caribou populations in the Tumbler Ridge region are facing increasing pressure due to habitat loss, habitat degradation, a loss of food sources and many other human-related disturbances. Finding solutions to remediate or alleviate the pressure felt on these species is an important part of restoring balance in the local ecology of the TRUGG.

Encourage students to think critically and communicate effectively about biodiversity in B.C., and how some key species are critically important to the health of ecosystems across the province. Students can work in partners or groups on this assignment, as desired, and will need to have access to the Internet and/or the library.

Please see the *Tumbler Ridge UNESCO Global Geopark Teacher Backgrounder* for more background information and details on the Geopark.

Lesson Activities

Introduction/Hook:

1. Present the following video on YouTube: *How Wolves Change Rivers*. During the video, pause at the points below, ask the class the related question and facilitate a brief discussion before continuing:
 - 0:33 - What might a trophic cascade be?
 - 1:24 - What was the issue with too many deer in Yellowstone? What suffered as a result of lack of predation?
 - 3:05 - Provide one example of an animal that experienced benefits in terms of food availability or habitat development because of the reintroduction of the wolves.
2. At the end of the video ask the students to explain how the physical geography/rivers were altered as a result of the reintroduction of the wolves to Yellowstone National Park.

Activity 1:

1. Take the students outside to a large open area with set boundaries. Ensure students are dressed appropriately for the weather, and are wearing good footwear that they are comfortable running around in.
2. Introduce the game “Extinction Tag”:
 - a. Assign two thirds of the students in the class to be grizzly bears. The other one third will be woodland caribou (with these ratios, by the end of the first round, there should be a near or complete loss of caribou).
 - b. The normal rules of tag apply: grizzly bears are ‘it’ and once tagged, caribou are out and can sit on the ground (or stand outside of the boundary) until the next round. Once all the caribou are out, gather the students back together.
 - c. Ask students to reflect on the game, particularly the threat this ratio poses to the lives of the grizzlies once there is no longer any prey.
 - d. Adjust the game by reversing the ratios so that two thirds are woodland caribou and one third are grizzly bears. Play a second round with this starting ratio.
 - e. Each successive round, continue adjusting the ratio by decreasing the number of grizzly bears until the game goes on for at least five minutes – at that point, end the game.
 - f. After the game, have a class discussion reflecting on how the last ratio ensured that both predator and prey were healthy. Then, ask the following reflection questions:
 - i. *What would happen if there were an over-abundance of prey but a lack of a keystone predator?*
 - ii. *Would the abundance of prey pose a threat to the local ecology? How?*

Activity 2:

1. Distribute and review the *Grizzly Bear Inquiry Report Student Handout*. Have students work independently or in partners with access to the Internet and other resources.
2. Once logged on, have students find the *Grizzly Bear Population Status Interactive Map* on the Ministry of Environment’s Environmental Reporting website [search for “BC Grizzly Bear Population Status”].
3. Have students use the interactive map and other information on the BC Grizzly Bear Population Status website to complete their *Grizzly Bear Inquiry Report Student Handout*.

Closure:

1. Have students complete an “Exit Slip” on a scrap piece of paper, where they respond to the following questions:
 - a. *How can a top predator affect an entire ecosystem? What are examples of ecosystems where this occurs?*
 - b. *What changes in our daily lives could help limit our impact upon the grizzly bears?*
 - c. *Why is it important to care about ecosystem health? How does it relate to our own lives?*

Assessment/Evaluation

- Observe the students during Activities 1 and 2, and assess their ability to work in groups to make observations and conduct an investigation.
- Review and assess student’s *Grizzly Bear Inquiry Report Student Handout*.
- Review and assess student’s Exit Slips from the closure activity.

Extensions

- Students can create a drawing or other graphic that shows how alienating a species from prey, predation, water or mates can lead to extirpation and or/ extinction from an area.
- Students can develop an action plan or campaign to help the grizzly bear populations in Northeastern British Columbia. Use the suggestions that students came up with in their *Grizzly Bear Inquiry Report Student Handout*, have a class vote on which actions to take, and carry out your campaign!