

**Focus:**

Students recognize that human activity can have long term, devastating effects on the plant life, animal life, birds and insects.

Students recognize that when we cause damage to the land or water, or cause harm to other living beings, we ultimately harm ourselves.

**Curriculum Connection:****6.8.9.**

- Recognize evidence of human activity, and recognize evidence of animal activity in a natural outdoor setting
- Investigate evidence and link it to a possible source

**Materials and Resources Required:**

- » DVD/Online Video "Mirror Lake" [www.sacredrelationship.ca](http://www.sacredrelationship.ca)
- » Mirror Lake Identification Worksheet
- » Balloons (approximately 1-2 for each student in class)
- » Fine tipped, permanent Sharpie markers
- » Strips of recycled paper (approximately 6 cm x 20 cm)

**Key Learnings:**

- » Aboriginal people have experienced enormous impacts on their ways of living caused by environmental destruction from human activity
- » Aboriginal Science employs the use of observation through all of the senses to collect evidence about the impact of human activity on animal activity and the environment
- » In an Indigenous worldview, the responsibility is on each of us to tell stories and pass on teachings that will contribute to the repair of damage done to the earth

## Teacher Preparation:

Until very recently Aboriginal people have survived on the natural gifts of their environments; a way of life that has been intact since the beginning of time. In the video, Mirror Lake, an example of this is presented: the case of the people of the First Nations people living on Wabamun Lake and the impacts from the coal fueled power plants that have been built on the lake within the lifetime of the Elders that still live there.

The Elder speaking in the video, Violet, tells about the way that Mother Earth provided for her family during her childhood (baseline information for her investigation). She presents information including:

- » Her parents depended on the lake for everything.
- » First Nation people came from all over to live near this lake. They were told "There's fish there. There's life there. Go over there."
- » They could get fish in the winter and the summer. In the summer you could dry fish.
- » There was an abundance of ducks and many species of ducks that nested along the bay.
- » People could go from nest to nest and they'd have a whole pail full of eggs to eat.
- » Evidence of the devastating impacts of industry on the lake is everywhere and the Violet shares what she sees and hears with the other Elders in the group. Some of the evidence that Violet brings forth is:
- » The First Nations people tried to resist the building of the power plants and the dams on the creeks.
- » The water that is released from the plant is higher in temperature; therefore the ice doesn't form on the lake in the winter. The geese don't fly south and it has caused total confusion.
- » Fish are not big anymore (because of the increased temperature of the lake).
- » Minnows use to be in big schools and they are starting to disappear.
- » In the past the people could see a great deal of life along the lake ('everything') and there's nothing now.
- » When you go to the lake now the silence will deafen you. (George talked about the same thing in Lesson plan 1.)
- » The plants that used to grow along the lakeshore were used by First Nations people for medicine; now the Elders don't feel the plants are safe to use as medicine.

Once Indigenous Scientists investigate a situation through the gathering of evidence through full sensorial observation and link the impacts to the source, there is a moral obligation and commitment to make positive change in the best interest of future generations. On this point Violet states:

- » We have to say something.... We have to tell stories so that even the unborn ones can rely on what we say.
- » We need to tell young people, "Don't do that to our lakes. Don't do that to our rivers. Don't do that to Mother Earth. Don't take things out of the earth."
- » There must be other ways to accommodate the future, the public, the modern world instead of destroying what Creator has given us.

## Launch:



Remind students that in the previous lessons they learned that from an Indigenous perspective:

- » Indigenous Scientists conduct investigations by observing everything in the environment around them, focusing on the changes that occur and the impacts on plant and animal life due to changes to the land and water.
- » The baseline used by Indigenous Scientists is the state of an environment or eco-system when nature is in balance (the natural order of things; following natural law).
- » Environmental impacts are measured in terms of quality and quantity of plants, animals, birds, fish and other forms of life that are indigenous to the environment. Indigenous people observed changes to the ecosystem and draw conclusions about why and how the changes are happening.
- » The sole purpose for investigations, observations and assessment of environmental changes is to identify the source and take action to restore environmental health and to maintain it for sustainability of future generations, not only of human beings but of all life.

Introduce the video “Mirror Lake” to the students as a case in which a natural environment for First Nations people in central Alberta is examined by the Elders (Aboriginal Scientists) who identify baseline information, present evidence of change/destruction and present approaches to rectify the situation.



Distribute the “Mirror Lake” worksheet to students and review it briefly with students prior to viewing the film. Let students know that the worksheet is designed to help them record some of the information given by the Elder in the video.



View “Mirror Lake” with the entire class. Ask students to fill in the worksheet while watching the video.

**Activate:**

When the video is finished, give students a few minutes to fill in as many responses as they can. Then, facilitate the sharing of their responses and a class discussion. Invite students to share their responses and encourage students to fill in responses that they may have missed as the class shares. The discussion should include student's thoughts, personal experiences and previous learning as it relates to the information from the video.

Have students work in pairs or small groups to complete this task. Each group will require 3 strips of paper, a fine tipped permanent marker, pens and 3 balloons.

Each group will print one of the following categories on the outside of each of the 3 balloons with a fine tipped, permanent marker, so that there is one balloon labeled for each category:

1. Baseline Information
2. Evidence Observed
3. Proposed Action for Reparation

The students will then choose one of the responses from question 1 on the worksheet to print on one of the strips of paper, fold it up as small as possible and insert it into the balloon labeled "Baseline Information". The students will then blow the balloon up and tie it for use in the Connect activity.

The students will then choose one of the responses from question 2 on the worksheet to print on one of the strips of paper, fold it up as small as possible and insert it into the balloon labeled "Evidence Observed". The students will then blow the balloon up and tie it for use in the Connect activity.

The students will then choose one of the responses from question 3 on the worksheet to print on one of the strips of paper, fold it up as small as possible and insert it into the balloon labeled "Proposed Action for Reparation". The students will then blow the balloon up and tie it for use in the Connect activity.

### Connect:



Divide the class into 2 or 3 groups so that they can visit 2-3

other classrooms, present to a parent group, a staff group or other audience that you believe is appropriate for the students to present their information to through the activity "Breaking the Silence on Eco-Destruction". Be sure that you establish the groups so that information is not repeated in 2 or more balloons in the same presenter group.

Explain to students that they will have the opportunity to share their learning about the evidence that they have been presented in the video "Mirror Lake". Explain that each larger group will take the balloons that they created in their smaller groups to do an activity with another class or audience. Tell the students that the activity is called "Breaking the Silence on Eco-Destruction". Present the instructions as follows and remind students that they must pay attention as they will be explaining the activity to the group that they visit.

**Step 1:** Distribute balloons to the students or other audience members that volunteer to take them but be sure to explain that if they take a balloon they are required to read some information from within the balloon (as some students will not be comfortable reading out loud to the rest of the group).

**Step 2:** One member of the presenting group will have to explain what "Baseline Information" is while another member will explain what "Evidence Observed" is and that it can include what we see, hear, smell, and the changes in any or all of these. A third group member will explain that is meant by "Proposed Action for Reparation" in terms of investigation outcomes and purpose for conducting investigations.

**Step 3:** Explain to the audience that each balloon is labeled with one of the 3 titles and that during an investigation we first consider baseline information, secondly examine evidence observed and finally propose action for reparation of the environment. Explain that the game "Breaking the Silence on Eco-Destruction" will follow these steps. Indicate that volunteers holding balloons will be asked to stand up when their category is called upon, break their balloon (thus the term breaking the silence as the balloon pops exposing the information from within) and read out the paper from within the balloon.

**Step 4:** Group members will take turns calling out 'Baseline Information', 'Evidence Observed', and "Proposed Action for Reparation" and having a volunteer with the appropriately labeled balloon stand, break it and read the information. (This step will be repeated until all balloons have been popped).

**Step 5:** Provide time for the audience to make comments or ask questions of the presenting group following the activity.

**Step 6:** Ensure that all broken balloons are picked up and disposed of properly and that all paper is recycled.

Once students are clear on the directions each group will take time to organize their roles within the presentation of the activity. When ready, the group will visit the other class or group and facilitate "Breaking the Silence on Eco-Destruction".



**Note to Teacher :**

This lesson will likely take 2-3 class periods to complete. It is suggested that the Launch and Activate steps be completed in one longer class period or 2 shorter ones, and that the Connect step be undertaken in a separate class period.

Visitation to one or more other classes in the school will have to be pre-arranged for the Connect step of this lesson.

**DID YOU KNOW :**

MANY ELDERS AND TRADITIONAL KNOWLEDGE KEEPERS HAVE GARNERED INTERGENERATIONAL, LONGITUDINAL INFORMATION ABOUT THE LOCAL, NATURAL WORLD FROM ADULTS IN THEIR LIVES, WHO HAVE PASSED THE INFORMATION DOWN IN STORIES. INDIGENOUS PEOPLE WHO HAVE LIVED ON THE LAND ARE ABLE TO COMBINE THIS INFORMATION WITH THEIR OBSERVATIONS OVER A LIFETIME TO DRAW POWERFUL CONCLUSIONS ABOUT THE CHANGES THEY ARE WITNESSING IN THE WATER AND THE LAND.

IN THE INDIGENOUS WORLDVIEW, KNOWLEDGE IS GAINED THROUGH A SACRED RELATIONSHIP WITH THE ENVIRONMENT; THIS KNOWLEDGE IS SIMULTANEOUSLY HISTORICAL, FAMILIAL, EMOTIONAL AND INTELLECTUAL, REVEALING DATA THAT IS GROUNDED IN HIS UNDERSTANDING OF NATURAL LAW. THE FINDINGS FROM INDIGENOUS SCIENCE CAN BE COMBINED WITH THE FINDING OF WESTERN SCIENCE TO RESOLVE COMPLEX WATER ISSUES.

## Mirror Lake

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

1. List 4 things that the Elder tell us about the lake from when she was young:

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2. List 5 pieces of evidence that the Elder presents as indicators that there is damage to the lake from the power plants:

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3. What does Violet tell the other Elders about what she thinks that they need to do to help the future generations and the make positive changes regarding this situation?

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## Mirror Lake

### answer key

1. List 4 things that the Elder tell us about the lake from when she was young:
  - Her parents depended on the lake for everything.
  - First Nation people came from all over to live near this lake. They were told "There's fish there. There's life there. Go over there."
  - They could get fish in the winter and the summer. In the summer you could dry fish.
  - There was an abundance of ducks and many species of ducks that nested along the bay.
  - People could go from nest to nest and they'd have a whole pail full of eggs to eat.
2. List 5 pieces of evidence that the Elder presents as indicators that there is damage to the lake from the power plants:
  - Since there is no ice on some spots on the lake, the geese don't fly south and it has caused total confusion. (The water was boiling all winter long -from the power plants.. not actually boiling but hot from the water injected back into the lake).
  - Fish are not big anymore (because of the increased temperature of the lake)
  - Minnows used to be in big schools and they are starting to disappear.
  - Insects, birds, plants; there used to be everything along the lake and there's nothing now.
  - When you go to the lake now the silence will deafen you. (George talked about the same thing in Lesson plan 1.)
  - The plants that use to grow that were used for medicine; now the Elders don't feel the plants are safe to use as medicine.
3. What does Violet tell the other Elders about what she thinks that they need to do to help the future generations and the make positive changes regarding this situation?
  - We have to say something.... We have to tell stories so that even the unborn ones can rely on what we say.
  - We need to tell young people, "Don't do that to our lakes. Don't do that to our rivers. Don't do that to Mother Earth. Don't take things out of the earth."
  - There must be other ways to accommodate the future, the public, the modern world instead of destroying what Creator has given us.