

Lesson #4

Lesson designed by Stefan Superina

Grades: 4-5

Content Focus:

- a) Students identify and discuss in writing which human activities have the greatest potential to damage the environment.

Lesson Plan:

Through this lesson, students will gain the ability to differentiate between renewable and un-renewable resources and the effects of human induced activities on the environment. This lesson is structured as a writing activity whereby students will be required to complete three journal entries.

Lesson Instructions:

1. Start the lesson by showing your students the image below. This is a picture of the Ekati Diamond Mine on Lac De Gras in the Northwest Territories. For a reference point, please follow to the next page to see where the expedition route passed relative to the mine's location in the Northwest Territories.

Ekati Diamond Mine



Image Source: <http://norj.ca/2013/04/dominion-seals-deal-on-ekati-diamond-mine/>
Image Source: <http://stuffpoint.com/diamonds/image/77772/diamonds-4-picture/>

Location of Ekati Diamond Mine
(expedition route on orange line)



- Refer back to the picture on the previous page and ask your students the following questions:
2. Initially, have them look at the picture of the mine and make general observations about it. They will most likely have lots to say about the big holes in the ground, the roads seemingly leading to nowhere, etc.
 3. Ask them if they know what a mine is? What activity does it perform? Tell them that this particular mine takes a resource out of the land called “kimberlite” used to make diamonds.
 4. Inform your students this type of mine is called an open-pit mine. It’s exactly what it sounds like. Big open-pits are progressively dug into the ground to exhaust a resource base. Ask your students if they think this is good for the environment? What animals could it potentially harm that live in the NWT? How so? Is open-pit mining good for the surrounding water-sources?

Here is a video on the diamond making process:

The Diamond process from the Mine to the Market

<http://www.youtube.com/watch?v=XyPR-CiabFM>



5. Next, ask your students if they understand the difference between a renewable and non-renewable resource? To help direct them, definitions of each are below.
 - “A ***renewable resource*** is a natural resource which can replenish with the passage of time, either through biological reproduction or other naturally recurring processes.”
 - “A ***non-renewable resource*** (also known as a finite resource) is a resource that does not renew itself at a sufficient rate for sustainable economic extraction in meaningful human timeframes.”
6. Ask them what they think a diamond is? Is it a renewable or un-renewable resource? Can they name any other un-renewable resources on our planet according to the definition above?
7. Who do they think works at the diamond mine on Lac De Gras? What kind of jobs do they think people have there? What do they think their lifestyle is like? Do they remain there all year without leaving? Are their families there with them? Would you want to work there? Why is it important for people to have these jobs in the Northwest Territories? These are just a sample of many questions you can ask to get your students thinking about this subject matter.

8. Below is a map of mining activity in the NWT, past and present. This will give your students perspective on how important the mining economy is to the NWT.



Image Source: http://www.miningnorth.com/?page_id=377

Giant Gold Mine, Yellowknife, NWT (out of operation)



Image Source: <http://m.theglobeandmail.com/news/national/supreme-court-rejects-damage-award-for-giant-mine-widows/article1472644/?service=mobile>

Oil Refinery in Norman Wells, NWT



Image Source: <http://www.pwnhc.ca/research/photogallery/Galleries/Communities/Norman%20Wells%20Gallery/norman%20wells.html>

Lesson Activity:

Have your students write three journal entries on the following questions:

1. In their own words, define the difference between a renewable and un-renewable resource. List three renewable and un-renewable resources in the Northwest Territories. Explain why each one is such.
2. Describe a typical day in the life of a mine worker. Include what their job may be, and how long they may stay at the mine for before going home to see their family. For help, they can use the following link:

“Living and working at the Diavik Diamond Mine”

http://www.diavik.ca/ENG/careers/745_living_and_working_at_the_diavik_diamond_mine.asp

Here is a video about a mine worker at the Diavik Diamond Mine in the NWT:

Richard LeBreton - Geotechnical Engineer, Northwest Territories

<http://www.youtube.com/watch?v=9Gd0-DYA3qQ>



3. For their final journal entry, ask your students to write down their thoughts on why it is important not to exploit the natural-resource base we have in Canada. Can they find examples in Canada of where we might be taking too much from the land while harming the environment around us? This is an open-ended question to get your students thinking about the main theme of the lesson. Allow them to do some investigative research on this topic.