

Saving the Environment One Maverick at a Time...

Examining Oil's Impact on the Environment and Taking Action for Conservation & Preservation

Introduction

Students need to understand how the development and use of natural resources affects Alberta's natural environment and potential steps that may ensure the sustainability of these areas in the future. What is the impact of developing natural resources? How is the transportation of resources extremely problematic? What environmental disasters have already happened? How can we take steps to minimize or prevent these in the future? What can each individual do to minimize our dependence on hydrocarbon resources?

Project Explanation

In this project, students will develop an appreciation of the impact that oil resources can have on our environment if care is not taken. Student will research and examine an issue relating the oil & gas industry to the natural environment. In some manner they will present to their findings to their peers, as well as find and share tips on how each of us can be kinder to the environment.

* This lesson is an extension of the first two lessons in the Oil and Gas section of Mavericks. Students should complete one of these two projects before this one.

Alberta Social Studies Curriculum Unit Connections

Grade Four - Alberta: The Land, Histories and Stories

- 4.1 Alberta: A Sense of the Land
- 4.2 The Stories, Histories and People of Alberta
- 4.3 Alberta: Celebrations and Challenges

Grade Five - Canada: The Land, Histories and Stories

- 5.1 Physical Geography of Canada
- 5.2 Histories and Stories of Ways of Life in Canada

Grade Six - Democracy: Action and Participation

- 6.1 Citizens Participating in Decision Making

Materials and Resources Needed

- *Mavericks: An Incurable History of Alberta* - Character Biographies and Online Artifacts
<http://www.glenbow.org/mavericks>
- CBC Archives: David Suzuki: Scientist, Activist, Broadcaster
http://archives.cbc.ca/IDD-1-74-663/people/david_suzuki/
- CBC Archives: Sinking and Raising of the "Irving Whale" Oil Barge off PEI
http://archives.cbc.ca/IDD-1-70-525/disasters_tragedies/irving_whale/
- Oil Spill History – Use "Find" to search the term "canada" if desired
<http://www.marinergroup.com/oil-spill-history.htm>
- Oil Wells Produce More Than Just Oil - Impact of Produced Water
<http://toxics.usgs.gov/highlights/ph20.html>
- Exxon Valdez Oil Spill Trustee Council
<http://www.evostc.state.ak.us/>
- Oil Spill Facts - Exxon Valdez Oil Spill Trustee Council
<http://www.evostc.state.ak.us/facts/qanda.html>
- Environmental Impact of Oil Spills – A seminar paper written for laypeople
<http://www.itopf.com/environ.pdf>
- Oil Spills – The Institute of Petroleum
<http://www.energyinst.org.uk/education/natural/7.htm>
- Alberta Firefighters fight Oil Fires in Kuwait
http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1046960868451_26/?hub=Canda
- Pipeline Spill in Wildlife Refuge
<http://www.corrosion-doctors.org/Pollution/oil-pipes-example-2.htm>
- One-Tonne Challenge – Look in "Tips Guide" for ways to conserve
<http://www.climatechange.gc.ca/onetonne/english/index.asp>

Procedures

Students will examine and assess the impact that the oil industry has upon our environment, and become "Environmental Mavericks" themselves by trying to think of ways in which we can preserve our province and its resources for future generations.

After students have worked on at least one of the previous Oil and Gas projects, they can use the knowledge they have learned to examine the environmental impact of the oil and natural gas industry on Alberta and the world. Teachers could introduce the project to students using the CBC archives of David Suzuki to introduce a non-Albertan environmental Maverick to the students. As well, they may investigate the issues surrounding the sinking, and subsequent raising, of the "Irving Whale" Oil Barge off the coast of Prince Edward Island.

Students will then examine an ecological or environmental effect related to the oil and gas industry. They will use the web resources above to become familiar

with these problems and then work to inform others about their consequences. They may choose a topic from the options below:

- Marine Oil Spills
- Pipeline Spills
- Oil fires (Kuwait)
- A Specific Marine or Pipeline Oil Spill
- Cleanup of Oil Spills
- Inglewood Wildlands (clean-up project of a Gulf Oil refinery in Calgary)
- Disposal of Old Oil (e.g. car oil change)
- "Produced Water" Problem
- Greenhouse Effect
- Acid Rain
- Potential for Eco-terrorism
- Will We Ever Run Out of Oil and Natural Gas?

The students will create a poster, a presentation or undertake a project to share with other classes or the whole school about energy, natural resource, or environmental conservation and prevention. It will contain information about the oil and natural gas topic and its consequences. They will also investigate the question "What would an Environmental Maverick do to help solve this problem?" They should examine the problem, the consequences to the environment, societal costs, and future prevention. They should also provide ideas on what everyone can do to help solve the problem. When ready, students may display or present their work to others in order to heighten environmental awareness around their school.

Assessment and Evaluation

- In groups or as a class, students may conference and debrief each other after they have presented their projects. Students should be encouraged to share their personal reflections about how it felt to speak in front of their audience.
- Students may evaluate themselves and their peers using their project rubric, examining each other's project for historical accuracy, detail, and creativity.
- Students should use their journal to demonstrate their journey through the problem solving process. This will allow the teacher to evaluate whether they looked at all content and possibilities, their brainstorming, the pros and cons they examined for their solution, and why they settled on the solution they did.

Ideas to Enrich this Project

- Students could create a math project graphing the incidences of oil spills per year using the Oil Spills History website. What percentages of the spills are Canadian? How much oil has been spilled in total? On land? On the water?

- Students could take the “One-Tonne Challenge” and send in what they do to the “Canadians Taking Action” section of the challenge webpage.